

4/10/96

SANDIA REPORT

SAND96-0562 • UC-900
Unlimited Release
Printed March 1996

RECEIVED

APR 18 1996

OSTI

University Prosperity Game

Kevin W. Boyack, Marshall Berman

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550
for the United States Department of Energy
under Contract DE-AC04-94AL85000

Approved for public release; distribution is unlimited.



SF2900Q(8-81)

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

Issued by Sandia National Laboratories, operated for the United States Department of Energy by Sandia Corporation.

NOTICE: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, any agency thereof or any of their contractors or subcontractors. The views and opinions expressed herein do not necessarily state or reflect those of the United States Government, any agency thereof or any of their contractors.

Printed in the United States of America. This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from
Office of Scientific and Technical Information
PO Box 62
Oak Ridge, TN 37831

Prices available from (615) 576-8401, FTS 626-8401

Available to the public from
National Technical Information Service
US Department of Commerce
5285 Port Royal Rd
Springfield, VA 22161

NTIS price codes
Printed copy: A08
Microfiche copy: A01

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**



SAND96-0562
Unlimited Release
Printed March 1996

Distribution
Category UC-900

UNIVERSITY PROSPERITY GAME

prepared for the
University of New Mexico
The Robert O. Anderson School and Graduate School of Management
MGT 508
Ethical, Political, and Social Environment of Business

April 4 - May 2, 1995
University of New Mexico
Albuquerque, New Mexico

Final Report by
Kevin W. Boyack
Marshall Berman
Sandia National Laboratories

February, 1996

Produced by the Department of Energy's
Sandia National Laboratories



Notice: The Government has granted for itself and others acting on its behalf a paid-up, nonexclusive, irrevocable worldwide license in these data to reproduce, prepare derivative works, and perform publicly and display publicly.

Neither the United States nor the United States Department of Energy, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.

Copyright, 1994, 1995, 1996, Sandia Corporation

ABSTRACT

Prosperity Games are an outgrowth and adaptation of move/countermove and seminar War Games. Prosperity Games are simulations that explore complex issues in a variety of areas including economics, politics, sociology, environment, education and research. These issues can be examined from a variety of perspectives ranging from a global, macroeconomic and geopolitical viewpoint down to the details of customer/supplier/market interactions in specific industries. All Prosperity Games are unique in that both the game format and the player contributions vary from game to game.

This report documents the University Prosperity Game conducted under the sponsorship of the Anderson Schools of Management at the University of New Mexico. This Prosperity Game was initially designed for the roadmap making effort of the National Electronics Manufacturing Initiative (NEMI) of the Electronics Subcommittee of the Civilian Industrial Technology Committee under the aegis of the National Science and Technology Council. The game was modified to support course material in MGT 508, Ethical, Political, and Social Environment of Business. Thirty-five students participated as role players. In this educational context the game's main objectives were to:

- Introduce and teach global competitiveness and business cultures in an experiential classroom setting;
- Explore ethical, political, and social issues and address them in the context of global markets and competition; and
- Obtain non-government views regarding the technical and non-technical (i.e., policy) issues developed in the NEMI roadmap-making endeavor.

The negotiations and agreements made during the game, along with the student journals detailing the players feelings and reactions to the gaming experience, provide valuable insight into the benefits of simulation as an advanced learning tool in higher education.

TABLE OF CONTENTS

Executive Summary	v
Introduction	1
Game Theory	1
Game Objectives	2
Prosperity Game Description.....	2
Game Scenario - SAMSON	2
Description of Roles.....	3
Game Outline and Rules.....	4
Technology and Policy Toolkit.....	5
Results and Observations	7
Game Objectives	7
Highlights	9
Changes from Previous Games.....	16
Toolkit Investments	16
Comparison with NEMI Game	17
Game Evaluations.....	21
Interdependence	21
Trust and Importance.....	22
Generic Objectives.....	23
Role Nationality	27
Lessons Learned	29
Acknowledgments.....	31
Appendix A - List of Players and Staff.....	A-1
Appendix B - Agenda, Schedule of Play, and Course Readings.....	B-1
Appendix C - Toolkit Investments: Detailed Descriptions of Initial Technology, Policy and Private Options.....	C-1
Appendix D - Agreements and Contracts	D-1
Appendix E - Forms	E-1
Appendix F - Roles: Initial Descriptions, Strategies, Actions and Journals	F-1
Infomatics	F-1
Horioka	F-9
Mechatronics (includes staff analyst report).....	F-18
Viewall	F-28
US Legislators, Department of Energy/Defense/Commerce Officials	F-36
Japanese Officials (MITI), Japanese Officials (Ministries).....	F-46
US Finance, Japanese Banker.....	F-61
US Lab/University, US Activist	F-66
US Media, Japanese Media.....	F-73
US Distributor, Japanese Distributor, US Worker	F-86
Rootska, Technology for America (TFA).....	F-95
Appendix G - Glossary	G-1

EXECUTIVE SUMMARY

Prosperity Games are high-level interactive forums for exploring complex issues in a gaming environment. Developed and offered by Sandia National Laboratories, they have been adapted from War Games and greatly extended to address a broad range of policy and technology issues. Recent games have addressed electronics manufacturing, industry-government interactions, international competitiveness, and environmental technology and regulation. Future games are planned in the areas of biomedical technology and policy, information infrastructure, and cultural change and diversity. These games provide opportunities for exploring current situations while simultaneously creating and studying other possible realities.

Every Prosperity Game is unique; each is defined by its objectives, game format, and players. Prosperity Games are very effective teaching and learning tools. Enthusiasm and learning exceed the classical seminar, classroom or workshop environment because: The games are highly interactive (multi-way communication versus one-way transfer in seminars); they simulate reality; create opportunities to develop personal and business relationships; bring conflict to the surface and force players to manage it; afford an opportunity for diversity among players and roles to enhance understanding, empathy, and creativity; and they encourage teaming and win-win problem solving.

This is the ninth Prosperity Game that has been conducted. It was held under the sponsorship of the Robert O. Anderson School and Graduate School of Management at the University of New Mexico. This game was initially designed for the roadmap-making effort of the National Electronics Manufacturing Initiative (NEMI) of the Electronics Subcommittee of the Civilian Industrial Technology Committee under the aegis of the National Science and Technology Council. The game was modified to support course material in MGT 508, Ethical, Political, and Social

Environment of Business. Thirty-five players and seven staff participated in the game. In this educational context the game's main objectives were to:

- Introduce and teach global competitiveness and business cultures in an experiential classroom setting;
- Explore ethical, political, and social issues and address them in the context of global markets and competition; and
- Obtain non-government views regarding the technical and non-technical (i.e., policy) issues developed in the NEMI roadmap-making endeavor.

The game scenario focused on an imaginary high-tech personal communicator/entertainment/ computer device called SAMSON. Although a current version of SAMSON exists, the final lightweight, portable, advanced product will require hundreds of millions of dollars to commercialize. The current product is being developed and manufactured or imported by two companies, one US and one Japanese. The SAMSON product also has military applications and is viewed by the US Administration as being strategically important. The product is in the middle stage of development, but several key technologies need major innovation for the advanced technology to be successfully commercialized.

This central focus set the stage for interactions and negotiations among five company teams and 19 individual roles. The five teams were: an original equipment manufacturer and a smaller supplier from each of the US and Japan, and a Ukrainian software company. The individual roles primarily reflected the government and public sectors, including various legislative and agency (or Ministry) officials, laboratories, universities, finance, the media, and the customer/taxpayer, both in the US and Japan. The Control Team oversaw game play and played the rest of the world.

Each team and individual role was given a description of its current status and the issues and challenges facing it. These challenges were financial, technical, political, social, personal, and ethical, depending upon the role. Challenges for the Japanese roles were assembled with the aid of staff at the University of New Mexico US-Japan Center and Mr. Manabu Eto, a visiting scholar and Ministry of International Trade and Industry (MITI) official.

The use of a "Toolkit," initiated in previous games, was continued in this game. The Toolkit was comprised of a subset of the technology and policy options developed in the NEMI roadmap-making exercises. In the game, players were able to invest in those options they thought were most likely to successfully implement their strategies. The influence of each team and individual was made proportional to their real-life influence in dollars and/or influence credits. Success or failure of these investments was determined probabilistically, with probability of success increasing with the amount invested.

Over the course of the game, eight technology, five policy and five private options were implemented. In general, options invested in by US roles showed evidence of teaming that increased as the game progressed. By contrast, very little teaming on Toolkit investments occurred between Japanese roles. In fact, the three private Japanese options that succeeded were all win-lose options with the intent of gaining at someone else's expense.

To obtain the necessary information for analysis of the game results, the students were each required to keep a journal in which they were asked to record their thoughts, feelings, observations, reasoning for decisions, and what they learned. The journal provided a wealth of information regarding the dynamics of the game. Comments from the journals were used to establish success in meeting the game's objectives.

The game was very effective at teaching global competitiveness and business cultures. These concepts were internalized more due to the experiential nature of their presentation, than if they had been presented in the traditional lecture-based method. Some students also learned about the depth of business dealing and tools that can be used to accomplish goals.

The game involved students in ethical, political and social issues in an experiential business setting. Each student was faced with the choice, whether active or subliminal, to adopt the ethics associated with the role or to impose personal ethics on the role. This conflict was handled in a personal way by each player. The additional conflicts centered around the game complexity, lack of time and role interactions; strong emotions (both positive and negative) were noted by many players. Concepts learned through an emotional experience are likely to be remembered longer because of their emotional underpinnings. Many students learned that clear communication is key when dealing with complexity. Some students reported experiencing great changes in their perceptions of the world and developing greater interest in current issues as a result of this game.

American students sometimes had great difficulty playing Japanese roles. The level of frustration on the Japanese side of the room was noticeably higher than that on the US side. The American culture and lifestyle are very ingrained in most college-aged people of US origin. This makes decisions based on a foreign culture and set of values very difficult. A foreign culture must be lived to be understood and played well.

The game progressed to a regional battle in which win-win thinking and play was used primarily within but not between regions. This win-win philosophy developed among the US roles early in the second session of play, while it took much longer to develop on the Japanese side. This may have been a result of the difficulty of playing from a foreign culture. On the US side,

this teaming atmosphere culminated in the merger of Infomatics and Mechatronics, and in the formation of Technology for America (TFA), a technology delivery system with widespread support. This functioning technology delivery system was the high point of the game from an organizational standpoint. Another high point was the formation of a joint US-Japanese distributorship to distribute products in both countries.

The importance of preparation and strategic planning was reflected in those roles that controlled the flow of the game. Mechatronics and, to a lesser extent, Infomatics, both developed robust long-term strategies that allowed them to have great influence over their own futures. By contrast, those students who invested little time or effort into preparation for the game and long-term strategic planning in the game context were at a disadvantage and played the game in a reactive fashion.

A 'status' order among the players subtly dictated some feelings and interactions. In general, roles with less status had to initiate interactions with roles with perceived higher status. Some felt that due to the status of their role, they had little to contribute to the game. However, others ignored status in their interactions.

Proposed role switches are often met with great resistance. This is especially true on teams where bonding occurs very quickly among players who had little or no interaction before the game. It is easier to facilitate a role switch between individuals, especially if the player sees the switch as a way to increase status or power in the game.

The results of this game had much in common with those of the NEMI game. New breakthrough technologies, improvement in the regulatory/compliance area and educational initiatives were important in both games. The company in the worst starting position,

Mechatronics, performed very well in both games, largely as a result of strong leadership applied to a robust strategic plan. Horioka, the Japanese original equipment manufacturer, was relatively immobile due to its size and lack of motivation to take risks.

The players were asked to respond to a set of questions about the game. Their evaluations were consistent with those from other recent games, with the notable exception that the game format and handbook were rated much lower. This is understandable in that the handbook was not written to a student audience, but to a technical audience. The evaluations showed significant differences between the US and Japanese mean responses on many of the questions. This is an additional strong indicator that the difficulty of playing foreign roles negatively affects the perceived effectiveness of the game to those who play them.

We conclude that experiential learning in a simulation context is a powerful and effective teaching tool in higher education. Prosperity Games have great value in teaching and promoting change. In the words of the students:

"The Game Theory simulation was trying to get individuals to think outside the lines and look at the big picture, I think it worked."

"Perhaps the biggest payback comes from spanning those boundaries which are the most uncomfortable to deal with."

"Although I find game theory very interesting, I know little about it, but I do see it as being a valid way to analyze international economic relations. In foreign policy, we are often so determined to see our side win that we end up in a win-lose, lose-win, or even lose-lose situation when a win-win situation is possible. Exercises such as this should show how the international arena can be modified to promote win-win results in negotiations."

In the words of the professor in whose class we conducted the game:

The University Prosperity Game is an outstanding pedagogical tool to have participants actually experience risk, uncertainty, the challenges of bilateral negotiation, and the benefits of multi-party negotiation... The Game was a creative way to stimulate multi-dimensional learning... All in all, an excellent simulation that achieved learning objectives better than any alternatives I have used."

UNIVERSITY PROSPERITY GAME

"While watching the national news last night, I realized how much more aware and analytical I have become about so many issues. This class has truly been mind expanding; I'm much more interested in certain issues than I used to be, such as politics, economics, environment (maybe because I'm starting to understand some of it?) and I realize how truly interrelated everything is. Because of our game I'm also more aware that you can't always believe what the media says... [The] game taught me to think more critically."

- comment from a student journal following the University Prosperity Game

INTRODUCTION

A Prosperity Game is a new type of forum for exploring complex issues in a variety of areas including economics, politics, sociology,

**Prosperity Games
explore complex
issues**

environment, education, research, etc. The issues can be examined from a variety of

perspectives ranging from a global, macroeconomic and geopolitical viewpoint down to the details of customer/supplier/market interactions in specific industries. The concept originated in meetings with the staff of New Mexico Senator Jeff Bingaman, with Lee Buchanan of the Advanced Research Projects Agency (ARPA), and with other government and industry people.

The opportunity to test the Prosperity Game as a teaching tool in a university classroom came about when Professor Jeanne Logsdon of the Robert O. Anderson School and Graduate School of Management at the University of New Mexico approached Dr. Marshall Berman with the idea. Professor Logsdon had learned about the Prosperity Game tool and its application to competitiveness issues from an article in *Business Week*.¹

Game Theory

In mathematics, game theory is the study of strategic aspects of situations of conflict and

cooperation. "Game Theory approaches conflicts by asking a question as old as games themselves: How do people make 'optimal' choices when these are contingent on what other people do?"² Game theory originated with the mathematician John von Neumann as early as 1928. The collaboration of von Neumann on theory and Oskar Morgenstern on applications to economic questions led to the seminal book *The Theory of Games and Economic Behavior* that first appeared in 1944, and was later revised in 1947 and 1953. Game theory is an approach to developing the best strategies in areas such as economics and war to beat a competitor or enemy. [Of course, one possible strategy is to convert an enemy into an ally, or a competitor into a partner!]

A game is defined by a set of rules that specify the players, their desired goals, allowed interactions, and a method of assessing outcomes. There can be one or more goals with different levels of importance. The players

**Games should
involve look-ahead
strategies**

adopt strategies, and the interactions of the 'moves' based on those strategies lead to outcomes which may or may not be consistent with the players' goals. In complex games, players should consider look-ahead strategies that address the different possible moves that an opponent could make.

¹ War Games for Competitiveness Works, *Business Week*, April 18, 1994, p. 125.

² From Steven J. Brams, "Theory of Moves," *American Scientist*, 81, 562-570, November-December 1993.

It is important to understand an opponent's goals in order to maximize the probability of a favorable outcome. Games can be sequential, with player interaction allowed between moves.

Game Objectives

The original version of this Prosperity Game was designed for the roadmap-making effort of the National Electronics Manufacturing Initiative (NEMI)³ of the Electronics Subcommittee of the Civilian Industrial Technology Committee under the aegis of the National Science and Technology Council. For use in a university business course, the NEMI game was modified to support specific course material in MGT 508, Ethical, Political, and Social Environment of Business, and was held in conjunction with the Anderson Schools of Management at the University of New Mexico.

The University game is the ninth Prosperity Game that has been conducted by Sandia National Laboratories. The specific objectives of this game were to:

- Introduce and teach global competitiveness and business cultures in an experiential classroom setting;
- Explore ethical, political, and social issues and address them in the context of global markets and competition; and
- Obtain non-government views regarding the technical and non-technical (i.e., policy) issues developed in the NEMI roadmap-making endeavor.

There are objectives that are common to all Prosperity Games. These have been to:

- Stimulate thinking;
- Develop relationships and partnerships among industry, government, labs, universities, and public groups;
- Explore long-term strategies and policies;
- Lay the foundation for industrial roadmaps; and

- Provide informed input for possible future legislation.

PROSPERITY GAME DESCRIPTION

Game Scenario - SAMSON

The game scenario focuses on an imaginary electronics product called SAMSON, a high-tech personal communicator/ entertainment/ computer device. SAMSON is a spin-off of a military global battlefield communication device. The military product is currently very expensive and has limited capabilities. The final lightweight, portable advanced consumer product will require hundreds of millions of dollars to commercialize. The current product is being developed and manufactured or imported by two companies, one US and one Japanese. The SAMSON product also has military applications and is viewed by the US Administration as being strategically important. The product is in the middle stage of development, but several key technologies need major innovation for the advanced technology to be successfully commercialized.

The ultimate consumer product is envisioned to have full-color 3-D displays, bio-sensor interfaces, and voice and pattern recognition; with capabilities for global communications, global positioning/location, video and audio links, remote banking, etc. The current product is limited by weight and power consumption, has a B&W 3-D display, and no bio-interfaces. Additionally, a large investment in artificial intelligence (AI) software will be required (approximately \$100M is estimated). The key technical challenges are in software, human interfaces (tactile feedback, displays/sensory inputs), color displays, and low-power peripherals and mass storage devices.

The US Administration is about to submit its budget request for the next fiscal year and is willing to consider financial support to SAMSON-type projects, but is uncertain what the best

³ Marshall Berman et al., **Prosperity Game for the National Electronics Manufacturing Initiative**, Sandia National Laboratories, SAND95-0724, May 1995.

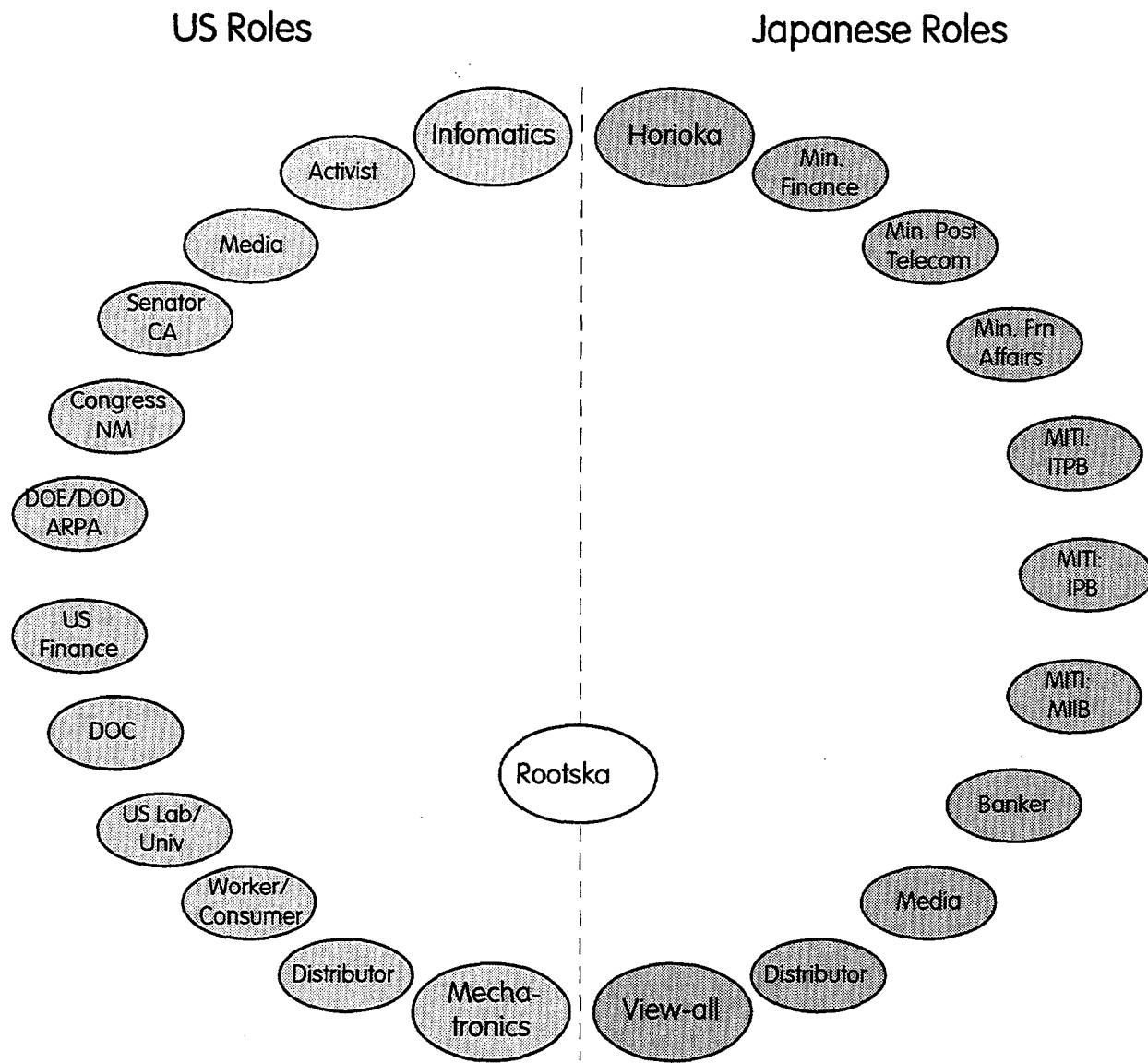


Figure 1. Roles: Teams and individuals.

financial levers are; it has requested corporate input and a 5-year technology development/commercialization plan. The US Administration must work within severe budget constraints as well as new treaties such as GATT and NAFTA. The Japanese government requires similar information and has similar constraints.

Description of Roles

This game was designed for 33-35 players, with five team and 19 individual roles, as shown in

Figure 1. The teams represent the executive management committees of each of five companies and are composed of three players each. The individual roles primarily reflect the government and public sectors including various legislative and agency (or Ministry) officials, laboratories, universities, finance, the media, and the customer/taxpayer, both in the US and Japan. The Control Team oversees game play and represents the rest of the world.

The five company teams are :

- Infomatics, a US electronics and computer manufacturer,
- Horioka, a Japanese robotics, electronics and computer manufacturer,
- Mechatronics, a small US firm specializing in robotics,
- Viewall, a Japanese display manufacturer,
- Rootska, a Ukrainian software company.

General descriptions of each role and the specific issues and decisions facing those roles are given in Appendix D.

The business world comprises interactions between companies, government agencies and officials, and members of the public and private sectors. Each role faces many ethical, political, and social issues in the course of its dealings, in addition to the financial and competitiveness issues traditionally associated with the business world. This game is designed to explore many of these interactions with players taking the roles. Initial challenges and conflicts built into the detailed descriptions of each team and individual role are financial, technical, political, social, personal, and ethical, depending upon the role. Challenges for the Japanese roles were assembled with the aid of staff at the University of New Mexico US-Japan Center and Mr. Manabu Eto, a visiting scholar and Ministry of International Trade and Industry (MITI) official.

For company roles, players are to assume that intra-company issues have been delegated to subordinates, so their work would guide the company as a whole. The actions of each team are subject to the discipline of a working consensus; i.e., every member of the team could live with the corporate consensus position and no member of the team could do anything that is unacceptable to any other member of the team. Therefore, it is not necessary (but is allowed) to establish manager-subordinate roles within teams.

Game Outline and Rules

The University Prosperity Game was conducted over a four-week period during which the class met once per week for two-and-one-half hours. The final hour of the first meeting was spent explaining the game, distributing handbooks, and answering preliminary questions. The students were told to read the handbooks for general information over the next few days. In addition, the students were to read a set of background readings assembled by the course instructor. A list of these readings is included in Appendix B. Roles were assigned two days before the next class meeting, rather than when handbooks were distributed, so that the students would have greater reason to read the entire handbook. This allowed two days for each student to develop a detailed understanding of his or her assigned role, issues, and potential interactions.

Preparatory to the start of the second class meeting (the first session of game play) each team or individual was asked to take some time to define objectives for the future, i.e., ask the question "Where should this individual or company be in five or ten years?" The first hour of the second class meeting was set aside for strategizing and planning. Each role was to spend this time in defining overall strategies, potential moves and negotiations to enact those strategies, and in planning responses to the initial challenges inherent in their roles. The remainder of the second meeting was available for interaction and negotiation between any parties on any issue. Time was set to move at the rate of two years every half class meeting. The classroom was divided into US and Japanese regions that were separated by an ocean, a row of tables that split the room.

Interactions and negotiations between parties outside of class during the week were encouraged. The third class meeting was an extension of the second, in which further strategizing, interaction, and negotiation were

allowed. Game play was terminated at the end of the third class meeting.

Current (both true and false) information was injected into the game through the roles of the news media who were allowed to roam freely and assemble any information they desired using any method. Each was then given one or two minutes to 'broadcast' their news orally to the group each hour.

Money and influence were included in the game. Each role was assigned initial assets in the form of dollars and influence credits to use during the second class meeting. The Control Team reviewed the game play between the second and third class meetings, and assigned each role additional assets for the third class meeting. Players could alter the future in two ways: dollars and credits could be used to achieve progress, either through negotiation (e.g., contracting R&D on a certain component) or through the exercise of a Toolkit that was designed for this game. The Toolkit is explained in the following section.

A few formal rules were issued to govern the game. One rule is that for any agreement between parties to be valid in the game, whether involving an exchange of assets or not, must be in writing on a special agreement form provided for that purpose, and must be signed by a member of the Control Team. This allows the Control Team to track the flow of the game. For grading purposes, students were required to keep journals of their game play, in which they were instructed to record their interactions, reasons for decisions, feelings, and any insights gained.

The fourth class meeting was a debriefing session, in which each student was given three to five minutes to recap his or her experience. This gave all the students an opportunity to know what was happening in different parts of the game and gave them an overall perspective on the outcome. In addition, these debriefings helped them to better understand the full context

under which they made decisions, and why certain outcomes occurred.

A list of the student players and their roles is given in Appendix A. The detailed schedule of play is given in Appendix B.

Technology and Policy Toolkit

The Electronics Subcommittee (ESC) has assembled a roadmap for the electronics industry through the National Electronics Manufacturing Initiative (NEMI). The roadmap has both technology and non-technology (policy) elements. Technology elements provide opportunities for investment to enable potential upgrades or breakthroughs in technology, while policy elements are suggested changes that are thought to enable increased competitiveness. The Toolkit employed in this game reflects a subset of the options examined by the NEMI Roadmap Framework Committee. The purpose of the Toolkit is to examine the potential effects of many of these options in the context of simulated but real-world industrial and government policies and actions.

In research, as in life, success (defined as reaching the desired outcome) is never assured beforehand, regardless of the resources allocated; a desired outcome cannot be bought outright. However, we assume that the probability of success increases with an increase in the resources allocated. For the Toolkit, success or failure (achieving or not achieving the desired outcome) of each option is determined using a normal cumulative probability distribution based upon the amount of money and/or credits invested. The standard deviation for the distribution is set at one-half the mean, and the mean (50% probability of success) cost for each option has been assigned by the Control Team.

Figure 2 shows a normal cumulative probability distribution with mean of 1.0 and standard deviation of 0.5. In this example, if the assigned

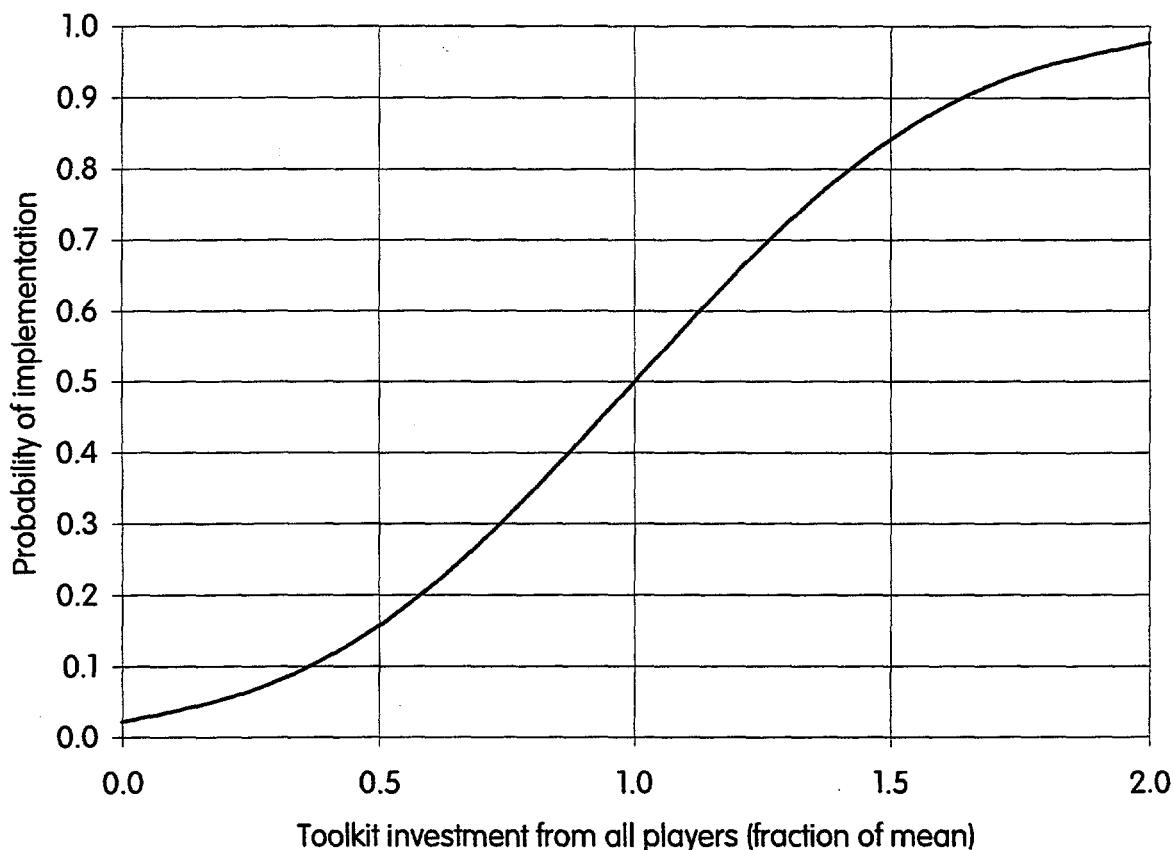


Figure 2. Toolkit options let each role influence the game in accord with their strategy.

50% probability cost was \$100M, an investment of \$100M would yield a success probability of 0.50; an investment of \$150M would yield a success probability of 0.84; an investment of \$200M, twice the mean, would result in a probability of almost 0.98. Success or failure is then determined by generation of a random number between zero and one. If the random number is less than the investment probability, the option succeeds; otherwise it fails. When a Toolkit option succeeds, its immediate effect is estimated by the Control Team and is relayed to all roles that are affected by the change.

In the detailed descriptions of the roles, players were assigned total initial resources (dollars and credits) that were proportional to their total current assets. These funds could be invested in Toolkit options, business deals, R&D investments

with other companies or national labs, purchasing patents and rights, etc.

However, for investments in Toolkit options only, the initial capital of the two small companies, the government officials and other individual roles are increased by an influence factor. This factor simulates the relatively larger influence that governments, special interests, and smaller companies could exert on policy changes than would be expected only from the assets assigned to those teams. Additional money could be raised by borrowing from the finance roles; those funds do not increase by the influence factor. The list of Toolkit options and the investments required for a 50% probability of success are given in Appendix C.

RESULTS AND OBSERVATIONS

Prosperity Games are games of discretion and judgment and, therefore, need to be analyzed in the context of human interaction. In previous games, analysts observed each team's actions and recorded their understanding of the underlying dynamics. With the many individual roles in this game, using analysts was impractical. Thus, to provide similar information for analysis of this game, the students were each required to keep a journal in which they were asked to record their thoughts, feelings, observations, reasoning for decisions, and what they learned. These journals, together with observations from the game staff and a record of formal agreements, have provided a wealth of information regarding the dynamics of the game.

Game Objectives

Success in meeting the games' objectives can be directly inferred from comments in many of the students' journals.

The game was very effective at teaching global competitiveness and business cultures.

The University Prosperity Game was used as an alternative to the traditional lecture-based method of teaching concepts related to global competitiveness.

"The Prosperity Game is a great way to stimulate thinking and teach global competitiveness."

nature of their presentation. One student stated it this way:

"The Prosperity Game is a great way to stimulate thinking and teach global competitiveness... Overall, it was a great learning tool. I enjoyed the interaction with other roles, especially the negotiating and implementing strategies."

Another student elaborated even more.

"By doing this role playing game, I feel we get a little experience about what it is like to operate in the global market. The confusion we first felt must be similar to what the real individuals feel when confronted with similar problems. What actions can I take to better my position? What should be my position? How much should I spend? These types of questions are hard to deal with."

Another commented that this was

"macro business on a micro scale. This was a good lesson in the dynamics of international business. [I have a] much better appreciation and understanding of Japanese business practices."

In addition to learning about global dynamics and culture, some students learned about the depth of business dealings and tools that can be used to accomplish business goals.

"The game is over, and I've learned tons. So much goes on in a business deal such as Viewall's 3-D technology and I now realize to what extent one must go to get desired results."

"It was amazing how deep some of the deals could go to satisfy so many parties."

"[I] learned ability/importance of using influence and external sources to achieve major success!"

One student also commented that

"odd partnerships form and playing field and rules change rapidly."

This is certainly the case in the international arena, and the students had the experience of dealing with this complexity rather than just reading about it.

The game involved students in ethical, political and social issues in an experiential business setting.

Several teams were confronted with ethical issues, particularly involving espionage. In one case Informatics was approached to participate in an espionage option. Their response:

"We [Informatics] agree that it is not something in which we would like to be involved. It goes against our company's ethical principles."

By contrast, Viewall exercised a Toolkit option to acquire (through espionage) a critical display technology from a European company. One of the team members had the following view.

"I believe purchasing stolen technology to be ethically wrong. Period. But at the time, it seemed like the only course of action open to us. We had our back against the wall because no one wanted to help finance our research into newer technologies... I feel the decision to get the stolen technology to have been the correct move to make."

Clearly, this student adopted the ethics that he associated with the role, rather than imposing his own ethics on the situation. This facet of

"It forced me to look at how I behave..."

games naturally creates conflict within a person.

Each must decide how to play a role, either by assuming one's perception of the role, or superimposing one's personality on it.

"It forced me to look at how I behave when I have a specific role to play and how I can and will manipulate that role to fit my personality."

The Viewall situation also pointed out that what is ethical may vary from culture to culture. This point was made by one of the media players.

"Though unethical by American standards, I don't think they felt they were doing anything wrong. In fact, to the contrary, they were simply using every means at their disposal to move ahead in the market."

Ethics were also an issue in the political side of the game. One US politician experienced the conflict that may occur between ethics and desired outcomes.

"My actions as a politician may have been a little slimy, but I truly believe they were in the best interest of the country. I just realized that most real politicians probably think the same thing."

Traditional social issues in areas such as labor and the environment did not take a front seat in this game. Although an environmental issue was included in the game design, and was acted upon by several parties, the predominant social issues addressed by the students were those dealing with relationships and communications. In the words of one student:

"This game is about TRUST. How do people make decisions... form contracts... cooperate... aggregate power... in the middle of so much activity, tension and unknown factors?"

Others learned that communications are key.

"Even more difficult is dealing with other people. It was hard to convince people to do certain things even if, in the long run, they would benefit from those actions."

"The lessons learned from this exercise basically are that relations not only between two countries are complicated, but also between individuals who desire the same goal but who go about achieving it differently. In order to accomplish anything constant dialog is necessary."

The game was structured with few rules about what the students could and could not do. For some this lack of structure was a challenge, yet one made use of the opportunity to learn valuable lessons about success.

"I feel good about the game now. I can see that there really are no rules, and we do what we must, with certain notations, to reach our goals. The problem is conflicting goals, and conflicting groups, with conflicting purposes, and (sometimes) conflicting personalities."

Another experienced a great change in her perception of the world and interest in the issues around her as a result of this experience.

"While watching the national news last night, I realized how much more aware and analytical I have become about so many issues. This class has truly been mind expanding; I'm much more interested in certain issues than I used to be, such as politics, economics, environment (maybe because I'm starting to understand some of it!) and I realize how truly interrelated everything is. Because of our game I'm also more aware that you can't always believe what the media says... [The] game taught me to think more critically."

Highlights

American students had difficulty playing Japanese roles. A foreign culture must be lived to be understood and played well.

As the game progressed, it became clear that there was a difference in the level of activity on the US and Japanese sides of the classroom. Those playing Japanese roles were noticeably

more frustrated with the game than those playing American

roles. We attribute this partially to the difficulty of

"I found it very hard to be Japanese. After all, I am an American."

playing a foreign role. The American culture and lifestyle are very ingrained in most college-aged people of US origin. This makes decisions based on a foreign culture and set of values very difficult, and leads to internal conflict in many cases. As stated by one student:

"You can read all you want about a culture, but you have to live it to truly understand and learn it. I don't mean a two week visit, I mean a few months. So I don't think reading some material truly gave me insight to the Japanese culture; therefore, I could not help but act with American mentality."

One Oriental student was more precise about how a detailed knowledge and internalization of the culture is required to play a role convincingly.

"The people who played Japanese roles did not act like Japanese. They should be more unified. The government should show more power in direct business operations. Japan is a country in which a government has the capability to create a consensus in society that is sufficient to allow government to design and implement goals for the community as a whole, change the behavior of important groups such as business, change the structure of society."

The Japanese Ministries role players felt they had no power in the game, which is the opposite of the way it really is in Japan.

The difficulty of playing a foreign role is also illuminated by the results of surveys completed by the students at the end of the debriefing session. These results are described in detail in the section on Game Evaluations.

It is likely that factors other than the difficulty of playing a foreign role also contributed to the frustration on the Japanese side. Notably, the Horioka team seemed to have difficulty with some basic business concepts and alienated some other players early on as a result. As the

central player in the game keiretsu structure, Horioka's immobility and stubbornness may have contributed to frustration in the entire Japanese group.

The game progressed to a regional battle in which win-win thinking and play was used within but not between regions.

For most, the first full class period of play was spent in learning the mechanics of the game, exploring potential moves, and initiating relationships with other players. Near the end of this session there was a flurry of activity in which some deals were made, mostly on the American side of the ocean.

A regional win-win philosophy developed among the US roles early in the second session

"Individuals who held contrary beliefs would try to work together to get some policy passed. Often it served both their purposes by giving them a relative advantage over a competitor."

of play. This culminated in the merger between Infomatics and Mechatronics, and in the formation of Technology for America (TFA).

The prevailing US attitude is expressed well by one student:

"Sometimes we had to join with others in what was key and important to them so that they would later support us on some of our really important issues. The game is very politically oriented. Even if I do not agree with some choices 100%, I support them to form beneficial relationships. It's a win-win strategy."

This teaming attitude allowed the US players to spend more energy in creative thought about the future. As a result, these students were very innovative, and proposed their own Toolkit options to develop advanced virtual reality

interfaces and brainwave interfaces to the SAMSON device.

By contrast, the Japanese players spent much of the second session of play to develop and maintain their fragile relationships.

"On the [first evening] there was a lot of distributive negotiating. I think most of this took place because the issues and goals of most parties centered on their own needs. There was a lack of significance in creating win-win situations for many parties, especially those who had other attractive options, such as using MITI for resources, or using their own vast resources. After that evening, however, many people felt that the game had been too frustrating and laborious. Failing to create relationships and partnerships would have forced them to continue on the same path. It was interesting, then to see how difficult it still was to get the two Japanese companies to work together. A lot of hard feelings had been built up in the previous session."

"The Japanese are acting like the Americans by working independently and the Americans seem to be working together."

"The people who played in Horioka and Viewall got very involved emotionally to the point that did not want to talk to each other; they forgot the common goal for a moment but went back to the right track."

The Japanese players did manage to overcome their difficulties and team near the end of the second session of play.

"It seems like we managed to come to a win/win situation by all of the companies working together."

Although each region reached a point where its internal negotiations were largely win-win, there was little interaction between the regions.

"It was especially interesting to see, as the game unfolded, that the Pacific Ocean tables really came to separate the US and Japanese groups. Individual negotiations and agreements tended to be win-win and collaborative on the US side, although the big picture came to be dominated by a win-lose, us-them focus in our US competition with Japan."

"The prevailing US / THEM syndrome never truly eroded except for minimal media crossovers, and of course those involved in marketing. A strong orientation towards national origin pervaded all groups."

"Personally, I noticed that the dealmaking was fast and loose on the US side of the Pacific on the second day of the simulation. It seemed that from the collective US experiences with the Japanese participants in general and Horioka in specific, a true competition had developed between the two countries."

One Japanese Ministry official commented:

"I don't think we were at any time interested in seeing deals go through with the US."

Despite this, there was one global merger. The US and Japanese distributors formed a joint venture with the goal of effectively capturing both markets. This allowed the joint distributorship to set terms with original equipment manufacturers in each country without fear of retribution.

The short amount of time for play may have been a factor in the lack of interaction between regions. The play in this University game developed in a similar fashion to that in the NEMI game.⁴ In that game, win-win agreements within regions developed early, and when those agreements had reached a certain maturity, the

play became more inter-regional. If another class period had been available for play, it is likely that more inter-regional negotiations and agreements would have taken place.

A national technology delivery system, Technology for America (TFA) was developed.

The idea for the Technology for America organization came from one of the legislators in his interactions with an Infomatics executive. In his words:

"I decided I would help US industry develop technology that could help it compete with Japan. I was approached by Infomatics for assistance in developing display technology. Because directly funding a private research endeavor could be seen as being improper, I suggested that we funnel the money through a neutral, third-party organization. Upon further discussion, I suggested we create an organization called 'Tech for America' that would obtain funding from the US Congress, federal agencies, private high tech firms and other private concerns in order to fund research and development projects. By uniting entities from different areas of the public and private sectors, we became able to cooperate in pursuing projects that are in the best interest of all concerned parties... Tech for America took off rather well, and by the end of the night we were able to carry out a few projects, including a display technology which utilizes brain wave technology."

TFA was set up with joint funding from the private companies, as well as the legislature and other government agencies, and was supported by nearly all the US role players, both companies and individual stakeholders. Its funding was used to invest in research and development of technologies of interest to the majority of the stakeholders.

⁴ Marshall Berman et al., **Prosperity Game for the National Electronics Manufacturing Initiative**, Sandia National Laboratories, SAND95-0724, May 1995.

One Sandia staff analyst described the formation of TFA in this way:

"The formation of TFA seemed to be a high point for the game, illustrating the effectiveness of teaming and cooperation. However, it was interesting to note that the idea for TFA did not 'spring fully grown.' Rather, an embryonic version was proposed and the final product grew with synergistic ideas from several contributors."

It is notable that this idea was generated and accepted by students who are relatively untrained in the complexities of industry and government and their interactions. By contrast, the business owners, industry executives and government officials who participated in the NEMI game did not pursue such a system. Perhaps those very complexities preclude those with authority and responsibility from seeing the simple logic of a national technology delivery system that is apparent to those outside the current establishment.

Students each dealt with the conflict inherent in the game - its roles, brevity, emotion and complexity - in their own ways.

Some students found it easy to assume their new roles while others found it very difficult.

"What made it unique was the fact that all participants responded to the situations and events not as themselves, but entirely as the role which they had assumed."

"No one in the room has time to be anyone other than themselves. I was worried about how to assume a Japanese mindset. No time..."

"I had a difficult time getting into this role since as a full-time student I tend to ignore

"much of what goes on in the real world - especially in political circles."

The degree to which the students assumed their new roles correlated well with the nationality of the role as will be shown later. One potential disadvantage of playing a role that one is not familiar with is that

"It was easy to accept certain stereotype images for ourselves. This way we closed some doors to creative thought. It was easy to follow typical patterns and think there are rules or guidelines already established for us."

The complexity of the game and the stress that it caused in some players also gave rise to varied responses and mitigating actions.

"Just a quick note. I dreamed about this all night - very restless sleep. Sure sign I'm feeling stressed. Need to not take it so seriously, tossed and turned all night."

"As for my role... I think I stink. I became so frustrated because it just did not seem like I was accomplishing anything."

"I have not felt this spiteful in a long time. I know it's just a game, but the crummy treatment I received really got to me."

"participants responded... entirely as the role..."
"No one... has time to be anyone other than themselves."
"I found myself taking mini-'time-outs'..."

"I am too young to be feeling the way I am, because of the stress I am experiencing... I didn't really like complexity, because I always like to have control."

"I had a) duality of emotions - in my role I felt very frustrated and wanted to walkout, especially when toolkit options failed at 83% (and higher) chance of success. I began to doubt the integrity of the game. However, I also know, as myself, that the game was

designed to create these emotions. I found myself taking mini-'time-outs' of 1 or 2 minutes."

"The game was very complex and difficult, but I feel that was part of the learning experience."

"I did like the chaotic pace of the game and the constant new developments presented by the control team."

"I enjoyed the chaotic aspect of the game because sometimes that is reality."

The importance of preparation and strategic planning was reflected in those roles that controlled the flow of the game.

The first hour of the first session of play was set aside in the schedule for each role to determine their own strategic objectives and set priorities based on their initial challenges. After this hour, each player was required to hand in their initial strategies and priorities with the reasoning behind their decisions. Close examination of the strategies indicates that the majority of them were short-term rather than long-term (5 years or more). Those students who invested little time or effort into preparation for the game and long-term strategic planning in the game context were at a disadvantage and played the game in a reactive fashion.

"I feel completely unprepared to begin this game tonight. I wish I'd had more time to study the various roles and see in greater detail how they are interconnected with mine. I think it will be difficult to develop an effective strategy without this knowledge and understanding. I hope I'm not the only one who feels this way! I guess this is truly like real life."

"Some people rushed to form coalitions deal by deal rather than building an overall

strategy for success. One player was so focused on one particular group that she ignored many other groups."

Although the private toolkit options were intended to provide potential mechanisms for players to achieve progress, they were not intended to represent full-blown strategies. However, several players used the private toolkit options as a fallback position rather than developing original strategies.

"[I] felt rushed to develop strategy - so [I] just went with the private toolkit option. You put words in my mouth."

Approximately one-third of the strategies did not deal in any manner with the initial challenges given the role. The more abstract issues and challenges (those that required creativity and a proactive stance to fully construct) were largely ignored.

By contrast, Mechatronics and, to a lesser extent, Infomatics, both developed robust long-term strategies that allowed them to have great influence over their own futures. As stated by one Mechatronics executive:

"To begin the Prosperity Game, I think that it is important to conduct a thorough situational analysis in order to determine where we are now (our position), and where we'd like to be in five or ten years. Our strategy and tactics will then be used to accomplish our mission/goals."

"In the initial phases of the game, the Mechatronics team exercised a considerable amount of if-then thinking."

Later in the game this same player described what they had done and how they were approaching the future.

"'It grows as it goes' [is the] best summary of our emerging strategy. We negotiated a series of contracts and alliances to meet our short-term needs, and will develop our

strategy as the time progresses... Due to the turbulent and complex environment, it's important to not get too mechanistic in your strategy. Our approach was organic, and flexible enabling us to adapt to trends."

A Sandia staff analyst commented on Mechatronics' strategy.

"In the initial phases of the game, the Mechatronics team exercised a considerable amount of if-then thinking. They identified a number of possible scenarios to solve their cash flow problem, arranged them in order of most benefit... Most of the scenarios involved points of contingency... I noticed a fairly strong commitment to objectives which had been developed early."

The final step in implementing Mechatronics' strategy was to form a merger with Infomatics.

"Mechatronics had a large surplus of funds and no potential outlets or arrangements in the works to spend it... The reason for the merger was Infomatics' large asset base, Mechatronics' large capital reserves, and the apparent inevitable convergence of the two companies' missions."

Just as in the NEMI game, Mechatronics overcame a precarious initial position with a strong long-term strategic plan followed up by consistent and well thought-out implementation.

A 'status' order subtly dictated some feelings and interactions.

In general, roles with less status had to initiate

"Not so many people care to interact with me as a US worker."

"Not so many people care to interact with me as a US worker... in fact practically no one!"

interactions with roles with perceived higher status.

"As a Senator I found that I was pursued by several people for money. I found this to be very interesting, because previously [when I was the US Worker] it seemed that I was the one doing the pursuing."

Some felt that due to the status of their role, they had little to contribute to the game.

"I lost the election by a very narrow margin. Now I'm just your average, everyday US worker."

However, there were others who ignored status.

"I learned through past experience that any role can control negotiation situations regardless of size, provided it knows enough about the other roles and their interests."

The game may have turned out much differently if this person had played one of the roles with perceived lower status.

Proposed role switches are met with great resistance.

The Control Team decided to hold an election for the US Senator and Representative roles during the second session of play. Both incumbents had been implicated (without substantiation) in shady dealings. Control Team members pulsed all of the US role players to find candidates to run against the incumbents, with little success.

"I chose not to run for either because I don't think I'd ever like to hold public office. Also, I did not want to change my role in the Prosperity Game more than halfway into it."

This was particularly true among those roles where team bonding had occurred. Bonding occurs very quickly on these teams among players who had little or no interaction before the game. For example, on one team where a team member had spent most of her time working

with another organization, one of the remaining team members stated:

"I feel like we have been abandoned by one of our team members."

This rapid bonding among team members and resistance to role switches has been seen in other games as well.⁵ Two players finally consented to run for office. One did so, however, under false pretense.

"Thinking that I could maintain the two positions simultaneously, I decided to run, since the US financial sector could use congressional support."

Role switches serve an educational purpose by allowing people to see others' viewpoints and learn about others' assumptions. Yet any change comes at a price in that working issues may get lost in the switch.

"No policy passed down - policies/initiatives being started were left hanging as part of the political machine."

Role switching also introduces overhead in coming up to speed in the new role.

"Now it became confusing, because I now had to learn and understand a brand new role. This was after finally becoming familiar with my old role."

From a practical standpoint, if role switches are desired, it is easier to facilitate between individual rather than team roles, especially if one sees this as a way to increase status or power in the game.

"The switch was interesting because there was a shift in my influence and power in

pursuing policy options. As a Senator I became more of a player."

Influence became as or more valuable than money in negotiations and Toolkit investments.

Each role was initially given money and/or influence credits to use on Toolkit investments. At the beginning of the game, the influence credits were largely ignored by those that didn't have them (companies and most government officials) since they were only applicable to policy options.

"It seems like all of the companies are primarily concerned with securing technology options now and other options will be addressed later. They are not realizing we could increase their success rate 10% on each option."

Yet, over the course of the game, many of the students came to the realization that influence,

"[I] learned the ability/ importance of using influence and external sources to achieve major success."

whether in the form of credits or negotiating stance, was as powerful a tool as money.

"The class was very interesting... I was right, credits became more valuable than money."

Prosperity Games have great value in teaching and promoting change.

"The Game Theory simulation was trying to get individuals to think outside the lines and look at the big picture, I think it worked."

"Perhaps the biggest payback comes from spanning those boundaries which are the most uncomfortable to deal with."

"Although I find game theory very interesting, I know little about it, but I do see it as being a valid way to analyze international economic

⁵ Marshall Berman et al., **Environmental Prosperity Game**, Sandia National Laboratories, SAND95-2701, December 1995.

relations. In foreign policy, we are often so determined to see our side win that we end up in a win-lose, lose-win, or even lose-lose situation when a win-win situation is possible. Exercises such as this should show how the international arena can be modified to promote win-win results in negotiations."

In the words of the professor in whose class we conducted the game:

"The University Prosperity Game is an outstanding pedagogical tool to have participants actually experience risk, uncertainty, the challenges of bilateral negotiation, and the benefits of multi-party negotiation... The Game was a creative way to stimulate multi-dimensional learning... All in all, an excellent simulation that achieved learning objectives better than any alternatives I have used."

Changes from Previous Games

Several parts of the University Prosperity Game represented major changes from previous games.

For the first time in a Prosperity Game, roles were assigned to individuals as well as to teams. This made necessary other changes as well. Rather than have active facilitation of each team, as had been done in previous games, each role was largely self-facilitated. Information was relayed back to the Control Team for post-game analysis through journals kept by each student. The journals provided a wealth of information, not only about the interactions that occurred, but also about the feelings of the participants. A team of five Sandia staff played the Control Team and acted as roving facilitators where necessary to get things rolling for a team or individual during the game play.

In this game, sessions were spaced one week apart due to class meeting time constraints, rather than continuously in time. The total

amount of time for play was roughly equal to that in a full one-day game. The week between sessions allowed the students to assimilate information from the first session's play and prepare for the second session.

Mr. Manabu Eto, a visiting scholar and MITI official from Japan, was available for consultation during the game. Although not officially a player in the game, he directed some interactions among the Japanese role players in the second session based on his knowledge of how the Japanese system works.

Due to the shortness of time in the game, Toolkit investments were not required at one specific time, as has been done in previous games, but were accepted continuously on a first-come, first-served basis. Of course, teams and individuals could team and leverage their investments before coming to the Control Team to determine the result of the investment. Influence credits as well as money were used in the Toolkit. Influence credits were necessary to pass policy options, and multiple credits added 10% additional probability of success per credit invested.

The Toolkit calculation was also modified during the second session to reflect a higher degree of uncertainty in the results of investment. The probability curve was flattened slightly by changing the standard deviation from 0.5 times the mean to 1.0 times the mean. In addition, a uniform distribution was superimposed at the point of investment which could change the probability of success by as much as +16 / -32%.

Toolkit Investments

Roles could alter their futures in three ways: By directly investing their funds internally or externally; by negotiating agreements with other teams; and by investing in the Toolkit options, separately or jointly with other roles. The Toolkit technology and policy options available in this game were a subset of the options developed in

the NEMI roadmap-making exercise, and are listed in detail in Appendix C. In addition, private options were developed for most of the roles in this game, and are also listed in Appendix C. The private options were not given to all players, but only to those to whom they applied. The roles' Toolkit investment strategies and associated outcomes (determined probabilistically) are shown in Table 1.

Two technology, two policy, and four private options succeeded during the first session on April 11. However, one of the technology options (Hi-resolution 3D flat panel displays for \$150 each) was later disallowed to Infomatics because they had overspent their budget for that session.

Policy options on the US side were notable in that they showed some teaming early in the game between government and industry. The four private options were exercised late during the first session and showed little evidence of teaming. The final three, all from Japanese interests, were win-lose options with the intent of gaining at someone else's expense.

Toolkit investments during the second session, April 18, were generally more successful. Six technology options became available, several of them new options suggested by the players. The critical nature of the display technology was apparent to many in the game, as evidenced by the fact that three different companies, Infomatics, Horioka and Viewall, invested in that technology. The first two attempts, by Infomatics and Horioka, failed, and Viewall was able to keep the technology for itself. The lack of teaming on the Japanese side is again evident here in that Horioka and Viewall, presumably members of the same keiretsu, did not know that their partners were investing in the same technology. If they had teamed, it is nearly certain that they could have developed the same technology with a much smaller investment.

Teaming on the US side was evident from their investments, both in the technologies

spearheaded by Technology for America, and in the US workforce training program, which had broad support from government and industry. Additionally, a broad consortium of roles supported an environmental initiative by Infomatics to develop clean technologies.

The details of all Toolkit investments and other agreements are available in Appendix D.

Comparison with NEMI Game

Although the NEMI game was played by industry and government officials familiar with the technical aspects of the electronics industry, and this University game was played by students with little technical knowledge, there are many similarities in the results of the two games.

Many Toolkit options and issues were important in both games: Players invested in breakthrough rather than incremental technologies, display technologies, and software advances. On the policy side, implementation of the NEMI roadmap, improvement in the regulatory/compliance area, and educational initiatives such as regional workforce training were important in both games. In fact, in this University game, workforce training programs were developed by both countries. Players at the NEMI game exercised more policy options, including about ten of them that they invented. By contrast, the students did not create any new policy options.

In both games, Mechatronics was in the worst business position, yet did very well. Several of the highlights from the NEMI game centered around the Mechatronics team and how it had turned a nearly hopeless situation around and created a very strong company after several years. The key to their success was strong leadership applied to a solid strategy that addressed both short- and long-term needs.⁶

⁶ Marshall Berman et al., **Prosperity Game for the National Electronics Manufacturing Initiative**, Sandia National Laboratories, SAND95-0724, May 1995.

Table 1. Toolkit Option Investments by Date and Time.

TOOLKIT OPTIONS: SUCCESS/FAILURE CALCULATION AS A FUNCTION OF TOTAL DOLLARS INVESTED							
Investments made April 11, 1995 - Standard deviation = 0.5 x mean (50%) Investment							
Time		TECHNOLOGY OPTIONS		POLICY OPTIONS			
Pass or Fail							
7:45	\$10M for number to know time to develop supercapacitors, t=1/p	10	0.20	1.3 yrs		10	
9:00	ARPA program provides computer models for replacing extensive prototyping	240	160 0.84		Fail	140	20
9:11	Simulation tools integrated into system that reduces design time from 15 to 4 months	140	140 0.50		Pass	90	50
9:28	Hi-resolution 3-D FPDs for \$150 each	180	140 0.72		Pass	180	DISALLOWED
9:28	Cost-effective packaging on diamond substrates doubles computing power	145	100 0.82		Fail	145	
8:30	Critical industries encouraged to pursue consortia with national labs	250	200 0.69		Pass	50	50 100
9:22	Implement NEMI roadmap; make US the location of choice for electronics mfg.	200	200 0.50		Fail	110	20 70
9:40	Japan establishes workforce training program	120	120 0.50		Pass		120
PRIVATE OPTIONS							
9:05	US Fin: Yen up, raise interest rates, profits	2	2 0.50		Pass		2
9:30	VIEW: Espionage, electro-optic technology	400	200 0.98		Pass		320 80
9:40	MITI: Favor with Diet over MPT for NII lead	200	100 0.98		Pass		200
9:46	HKA: Hilti Infomatics software hot-shots	540	400 0.76		Pass		540
April 11, 1995 Totals (\$)							
		0	0 715	0	50	50 150	70 320 400
		0	0	0	0	0 0 0	0 0 0 0 0 0 0 5

TOOLKIT OPTIONS: SUCCESS/FAILURE CALCULATION AS A FUNCTION OF TOTAL DOLLARS INVESTED
Investments made April 18, 1995 - Standard deviation = 1.0 x mean (50%) investment

Time	CREDITS	
	Pass or Fail	Total probability
8:15 Hi-res. 3-D direct retinal display at \$500	350	200 0.77 1.07 0.83 Fail 350
8:17 Hi-res. 3-D direct retinal display at \$500	400	200 0.84 1.11 0.83 Fail 400
8:25 Hi-res. 3-D direct retinal display at \$500	300	200 0.89 0.93 0.83 Pass 300
8:41 Validation of Rootska software claims	10	2 1.00 0.84 0.84 Pass
8:45 Inference engine for AI SW allows adaptive learning in computer-driven devices	350	200 0.77 0.78 0.60 Pass
9:10 Virtual reality glove	61.6	30 0.85 1.07 0.91 Pass 30 26 5.6
9:13 Virtual reality system with many attachments	400	280 0.70 0.85 0.60 Pass 400
9:18 Brain wave technology	300	300 0.70 0.81 0.57 Pass 150 100 50
POLICY OPTIONS		
7:54 Industry associations and {EPA} form partnership to improve environmental regulation, reducing compliance cost by 50%	160	160 0.50 1.14 0.57 Fail 80 80
8:31 US establishes workforce training program	194	120 0.73 0.74 0.54 Pass 20 24 30 50 70
8:50 Japanese industry-government partnership creates infrastructure for virtual enterprises	300	200 0.69 0.79 0.55 Pass
8:50 Japanese govt subsidizes every school child with a PDA and access to internet	400	240 0.75 0.88 0.66 Pass
PRIVATE OPTIONS		
8:05 J Bank: Low default rate on small bus loans	3	2 0.69 0.85 0.59 Fail
8:20 INFO: Develop clean technologies	295	250 0.97 0.95 0.92 Pass 45 50 200
April 18, 1995 Totals (\$)	3521	180 126 415 104 130 0 70 206 800 300 200 50 100 50 300 0 360 15
Grand Totals (\$)	5866	180 126 1130 104 180 150 140 256 1340 620 600 50 100 50 300 0 360 20

The University game had a similar outcome, in which the Mechatronics team became very successful due to robust yet flexible short- and long-term strategies and successful implementation of those strategies. In both games if-then (contingency) thinking was observed, primarily in conjunction with the Mechatronics team and those with tangential arrangements.

Horioka, the large Japanese original equipment manufacturer, was relatively immobile in both games. The common factor here is likely the secure position of a very large company. Horioka had sufficient capital to dominate the game, but chose not to, either by active choice or by the indecision that comes from a lack of motivation to take risks. In the words of one of the Horioka players:

"It probably would require substantial mismanagement to cause the company to fail. I think the security of Horioka's financial position, its low risk profile and the breadth of opportunity available represents a tremendous burden to overcome before taking action."

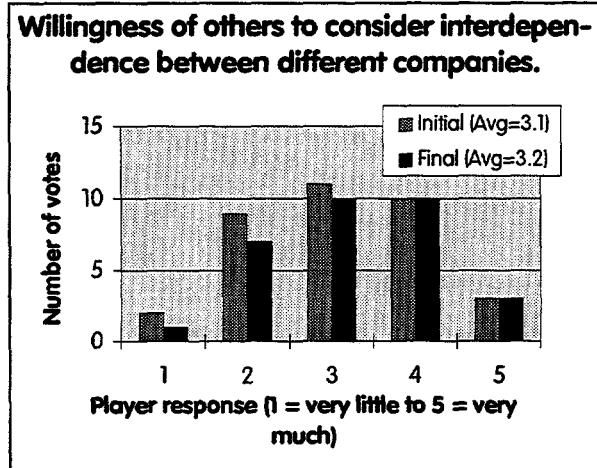
One consequence of this sluggish play by a large and powerful entity is that it can slow down the progress of its country in the game setting. Presumably, in the business world there are sufficient numbers of companies and competition that one large company could not affect an industry in that way.

GAME EVALUATIONS

Interdependence

The students were polled twice for their feelings on interdependence and trust, once at the opening briefing on April 4, and again at the players' briefing on April 25. Three questions addressed the willingness of people to take advantage of interdependence beyond existing adversarial relationships that might exist between 1) different companies; 2) industry and government; and 3) different regions of the world. Responses were based on a scale of 1 = very little to 5 = very much.

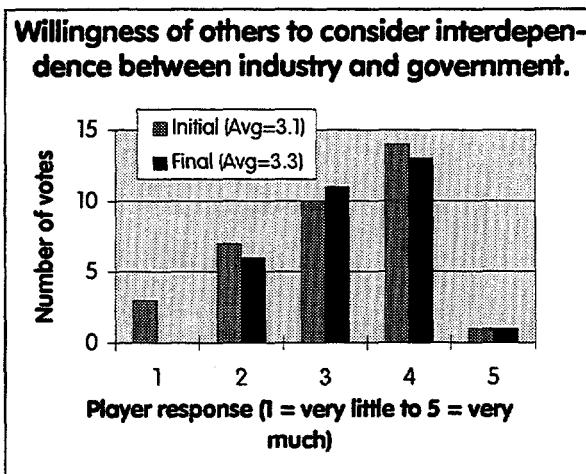
The students were neutral regarding company-to-company interdependence, with little change between the initial and final pollings. Thus, the game did little to change the students' opinions about the ability of companies to engage in win-win interaction. In the final poll only 42% voted a 4 or 5, with an average response of 3.23. This is somewhat less than the 3.56 average from industry and government officials after participation in the NEMI game.



For the final poll, US/Japanese role demographics were available. The US role players were more optimistic about company-to-company interdependence (average = 3.47) than were the Japanese role players (average = 2.93). This difference is significant to a 92% confidence

level, and reflects the students' game experience rather than reality. One would expect the true company-to-company interdependence to be higher in Japan than in the US due to the communitarian culture and *keiretsu* structure found there.

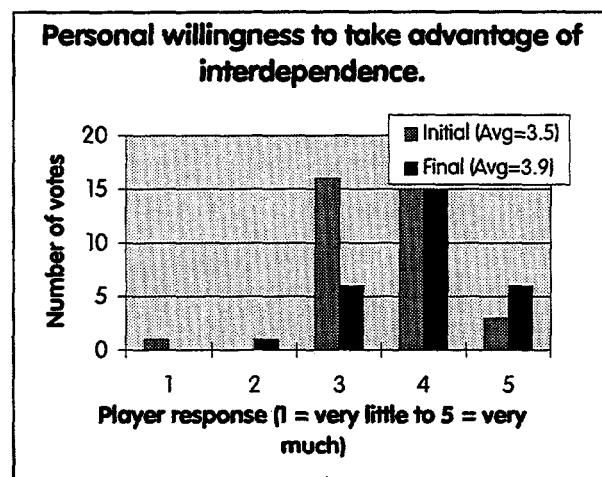
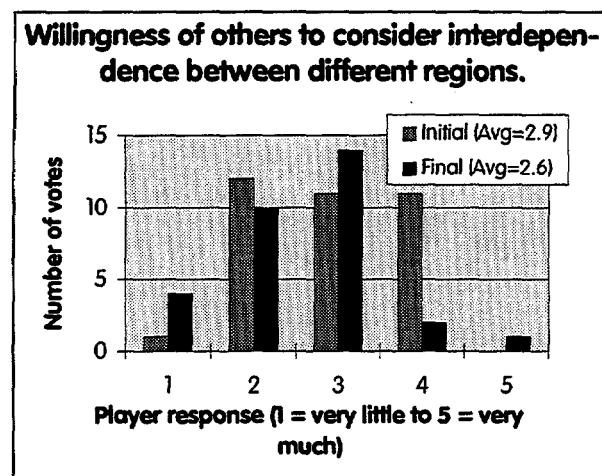
Neutrality was also felt by the students regarding industry-to-government interdependence, again with little change between the initial and final pollings. In the final poll, 45% voted a 4 or 5, with an average response of 3.29. This is significantly less than the 4.0 average from the NEMI game, indicating that industry and government officials are either more optimistic or more sophisticated about their understanding of interdependence of their groups than were the students.



As in the NEMI game, the average vote for the willingness of different regions to cooperate was less than 3.0, and decreased significantly from the initial poll to the final poll. This correlates well with remarks from the students that there was very little US-Japan interaction in the game.

The students also rated their own willingness to be interdependent. The game had a significant impact on the students' perceptions of their own interdependence, with the average increasing from 3.54 to 3.93, and the number voting a 4 or 5 increasing from 51% to 75%. This is in contrast with the Environmental Prosperity Game, where the average was higher (4.2) but did not change

as a result of participation. It is also interesting that in both Environmental games and in this University game, perceived interdependence of self was much higher than that of others.



Trust and Importance

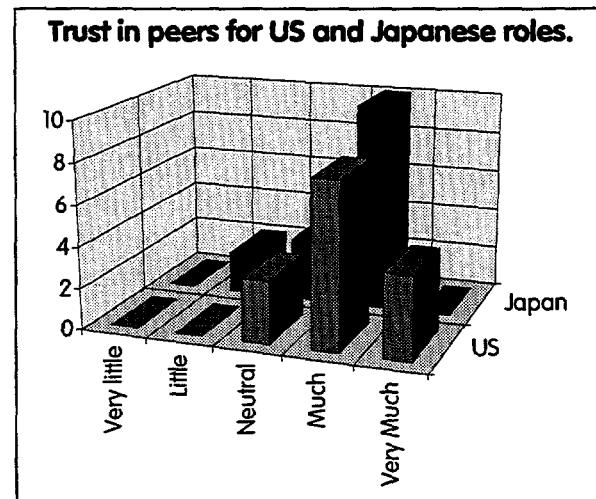
Five questions addressed the students' trust in the following groups of people to do the right things ethically, politically, and socially: politicians, foreign governments, business people, environmentalists, and their peers. An additional question assessed their trust in information presented in the media. The students were also asked how important ethical, political, and environmental issues were to them. Responses were a scale of 1 = very little to 5 = very much.

Table 2 shows the average responses for the initial and final polls. The students' responses indicate that they had less than average trust for politicians, foreign governments, and media information; average trust in business people; and higher than average trust for environmentalists and their peers.

Group	Initial	Final
Politicians	2.21	2.26
Foreign governments	2.50	2.48
Business people	3.00	3.13
Environmentalists	3.56	3.90
Peers	3.62	3.81
Media information	2.48	2.60

The only significant change from the initial to the final polling was an increase in the students' trust of environmentalists (to 95% confidence). It is not clear what caused this change or if it can be related to anything in the game.

In general, the students trusted others more than did those who participated in the Environmental Prosperity Game. Specifically, the students' average responses were higher for business people, environmentalists, and media information by 0.5, 1.3, and 0.6, respectively.



The final poll also showed that those playing US roles ended up trusting their peers more than did those playing Japanese roles (averages = 4.07 and 3.53, respectively). This certainly reflects the cooperative attitude that was evident on the US side of the game.

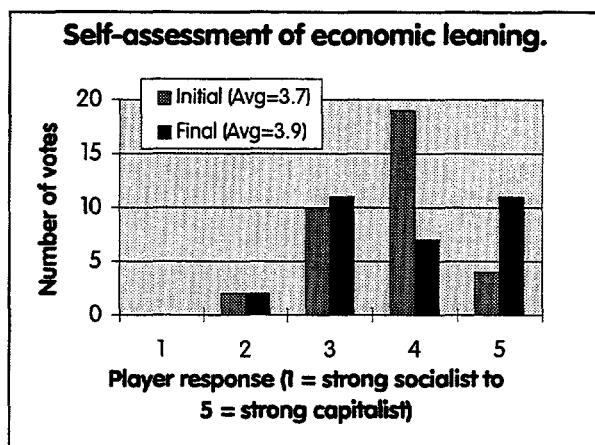
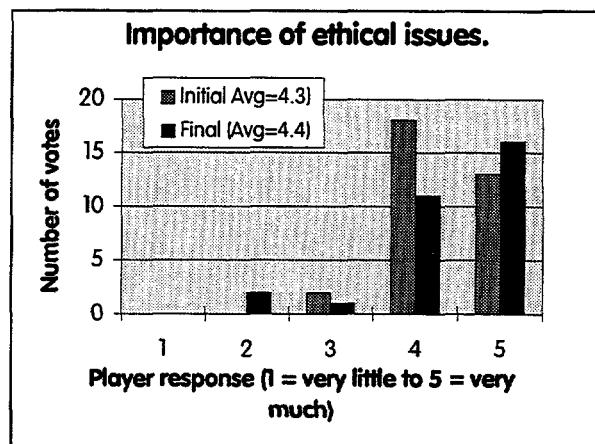
Regarding importance, the students' responses indicate that ethical and environmental issues are extremely important, as shown by the averages in Table 3. Political issues were less important, but were still felt to be of higher than average importance. The students' assertions of their own personal ethics correlated positively with their feelings of the importance of ethical issues.

Table 3. Average importance responses.

Question	Initial	Final
Ethical issues	4.33	4.37
Political issues	3.67	3.73
Environmental issues	N/A	4.43
How ethical are you?	4.17	4.23

Although the average responses to the importance of issues indicates little change between the initial and final pollings, the distributions of responses show that some polarization occurred as a result of the game. In each case more students voted a 2 or 5 in the final poll than in the initial poll, indicating that the experience changed the perceptions of some students.

The game also changed some students' feelings of where they stand on an economic scale ranging from strong socialist (1) to strong capitalist (5). 35% considered themselves strong capitalists at the final poll compared to only 11% at the initial poll. Only 7% considered themselves socialists.



Generic Objectives

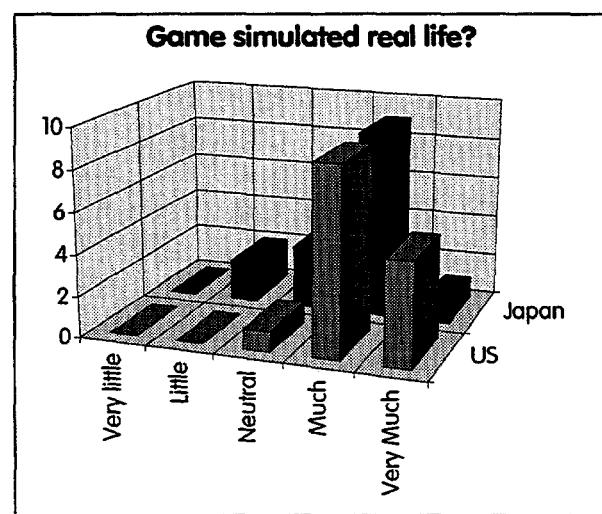
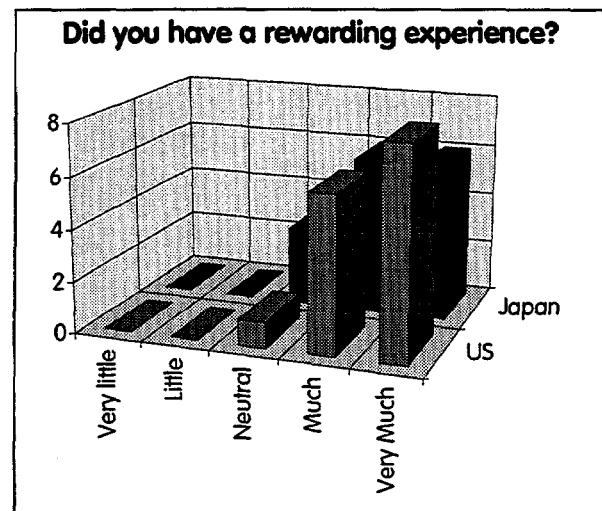
As in previous games, during the final poll the players were asked to evaluate how well this game accomplished the generic objectives of the Prosperity Games. Answers to this set of questions allow us to continue to improve the quality of the games.

Demographics allow us to determine if the responses were different based on US or Japanese roles. Given the small sample size of 15 responses from each nationality, the averages had to differ by more than 0.5 to be statistically different to 95% confidence.

To the question asking if the players had a rewarding experience, 27 of 31 responses were a 4 or 5. The average score was 4.32. There

was no significant difference between the US and Japanese average responses.

When asked if the game simulated real life, 25 of 31 responses were a 4 or 5, with an average of 3.94. There was a significant difference in the US and Japanese averages of 4.27 and 3.60, respectively.

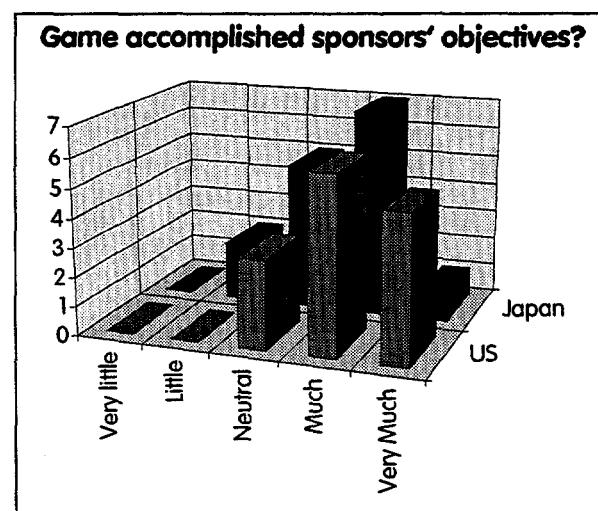
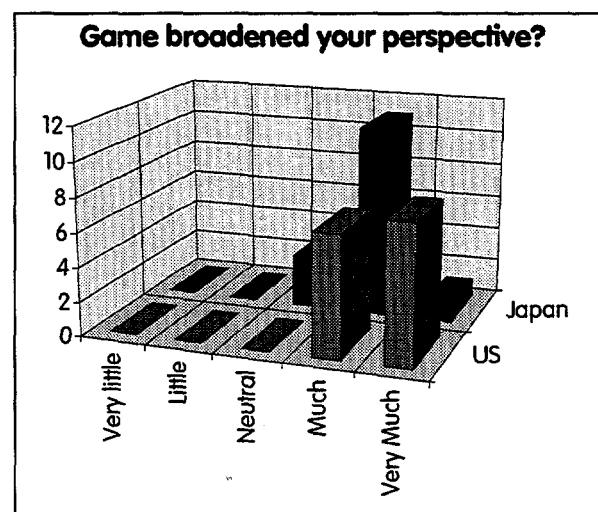


When asked if the game broadened perspectives and introduced new ideas, 28 of 31 responses were a 4 or 5, with an average of 4.19. The US and Japanese roles voted differently with averages of 4.53 and 3.87, respectively.

When asked if they felt the game met the sponsors' (Professor Logsdon and Sandia)

objectives, 20 of 30 students voted a 4 or 5, with an average of 3.80. The US and Japanese roles voted differently with averages of 4.14 and 3.47, respectively.

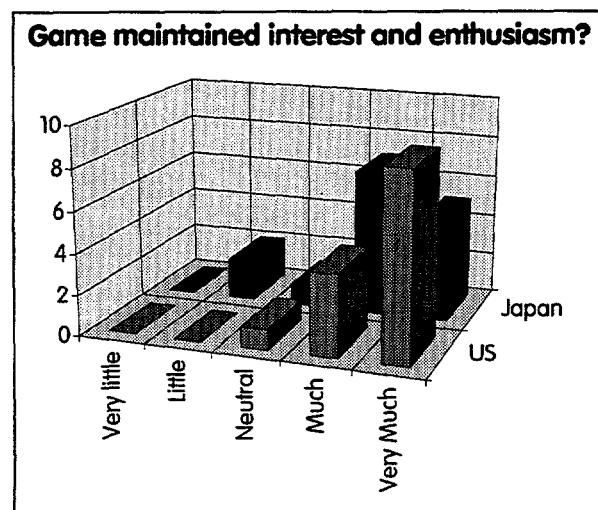
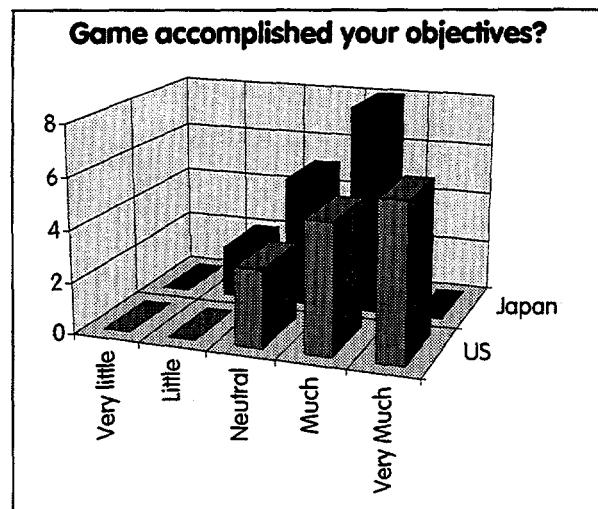
When asked if they felt the game met their own objectives, 19 of 30 students voted a 4 or 5, with an overall average of 3.77. The US and Japanese roles again voted differently with averages of 4.21 and 3.40, respectively.



To the extent that the game maintained their interest and enthusiasm, 26 of 30 responses were a 4 or 5, with an average of 4.27. There was a statistical difference in the US and Japanese averages here as well (4.57 and 4.00,

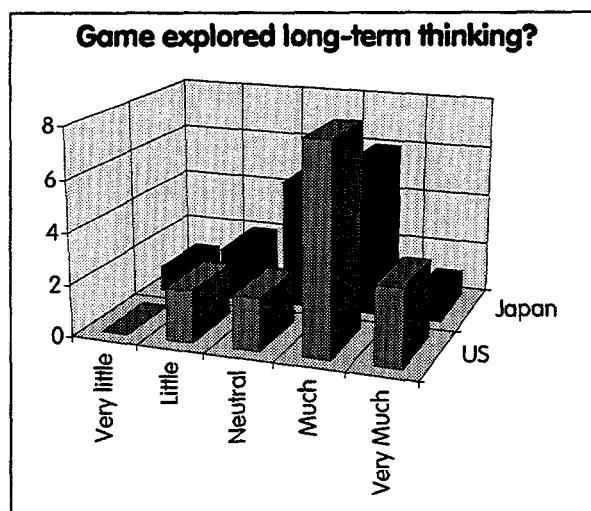
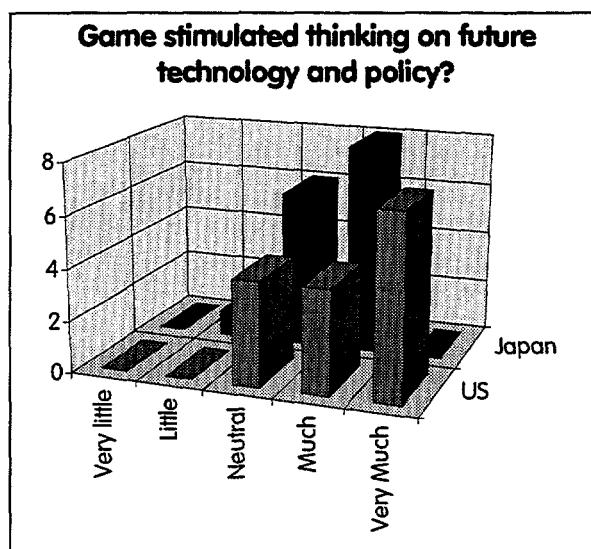
respectively), that is somewhat surprising since it was expected that the results here would correlate with those of the first question regarding a rewarding experience.

To the question asking if the game stimulated thinking on future technology and public policy, 20 of 31 responses were a 4 or 5, with an average of 3.84. The difference in US and Japanese responses was significant, with averages of 4.20 and 3.47, respectively.



When asked if the game explored long-term thinking and planning, 18 of 31 responses were a 4 or 5, with an average of 3.52. This number is somewhat less than the 3.89 average at the NEMI game, and is consistent with the notion that

students may not be as used to long-term thinking as are corporate executives and government officials. The difference between US and Japanese averages was again significant at 3.80 and 3.27, respectively.

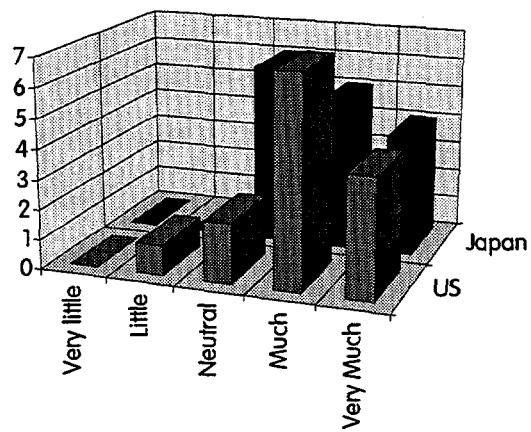


To the extent that the game enhanced their understanding of the roles and relationships among players, 21 of 30 players voted a 4 or 5, with an average of 3.93. There was no significant difference between the US and Japanese averages.

When asked if the game was worth the time spent on it, 26 of 31 students voted a 4 or 5, with an average of 4.32. The difference between the

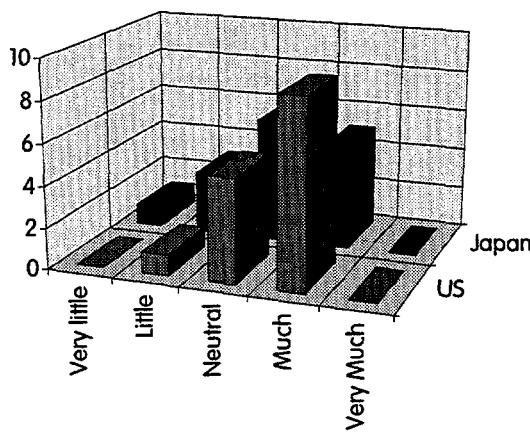
US and Japanese averages was not statistically significant.

Game helped understanding of roles and relationships among groups?

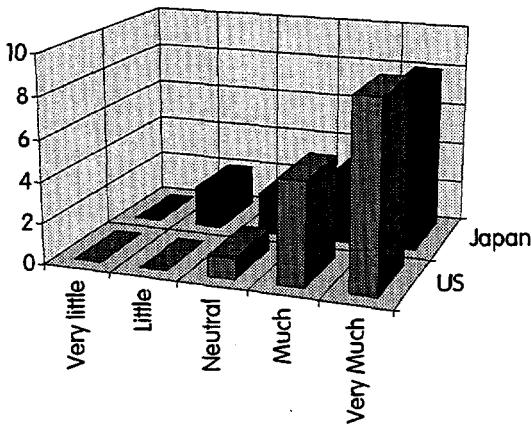


3.73 to 4.29. The difference between the US (3.33) and Japanese (2.73) scores was again significant.

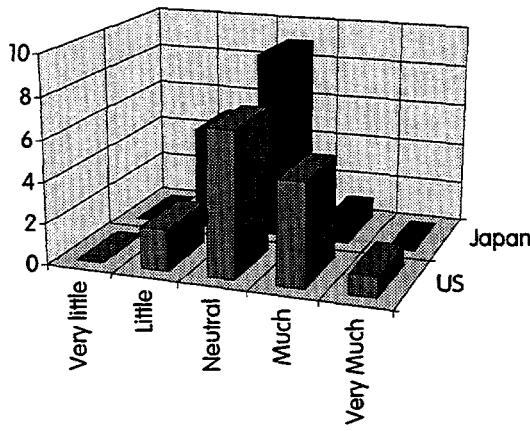
Rate the format of the game.



Was the game worth the time spent?



Rate the Players' Handbook.



The players gave relatively low scores to the format of the games, compared to those of other recent games (which ranged from 3.72 to 4.25). 15 of 31 responses were a 4 or 5, with an average of 3.29. The difference between the US (3.53) and Japanese (3.00) averages was significant.

The players also gave low scores to the Players' Handbook. Only 7 of 31 responses were a 4 or 5, with an average of 3.03. This is much less than those at other recent games which ranged from

The low scores given to both the game format and Players' Handbook correlate well, and were contributed to by the confusion felt by the students during the initial stages of play. In addition, the handbook was not written explicitly to a student audience, but was more suited to a technical audience, thus contributing to the confusion.

Table 4 compares the players' evaluations for this game (UNM) to those from the three electronics manufacturing games (EIA, AEA, and

Table 4. Average evaluation scores for the EIA, AEA, NEMI, Environmental (ENV), and University (UNM) Prosperity Games.

QUESTION	EIA ⁷	AEA ⁸	NEMI	ENV	UNM
Did you have a rewarding experience?				4.17	4.32
Did the game simulate real life?				3.63	3.94
Broadened your perspective?				3.38	4.19
Accomplished sponsors' objectives				3.43	3.80
Accomplished your objectives				3.61	3.77
Maintained interest and enthusiasm				4.02	4.27
Stimulated thinking (future policy, etc.)	4.07	3.68	3.83	3.37	3.84
Facilitated understanding of relationships among players	3.33	3.05	3.94	3.64	3.93
Explored long-term thinking and planning	4.02	3.68	3.89	2.69	3.52
Worth the time spent	3.74	3.95		3.71	4.32
Format of the games	3.31	2.68	4.25	3.73	3.29
Players' Handbook	2.87	3.00	4.29	3.91	3.03
Prosperity Games staff helpfulness	4.09	4.53	4.79	4.88	3.94
Able to play assigned role effectively	2.96	3.11		3.93	4.00
Players controlled the content	4.38	4.42	4.59	3.66	3.94

NEMI) and the environmental game (ENV). Note that the first two electronics manufacturing games (EIA and AEA) did not use the NEMI format, but were oriented toward Presidential panel-type discussions and policy decisions. Comparisons of evaluation scores from game to game are a metric which allows the game designers to focus on continual improvements to the process of game design.

Role Nationality

Much of the above discussion has been related to differences in feelings between the US and

Japanese role players. The level of significance between US and Japanese responses has been calculated for each polling question based on the test of equality of two means, with the assumption that the variances were known. Table 5 gives the mean responses to eleven of these questions. Only those questions where the difference in the means was significant to greater than 90% are shown in the table.

The significant differences between US and Japanese mean responses is a strong indicator that the difficulty of playing foreign roles negatively affects the perceived effectiveness of the game to those who play them. The US players found it much easier to assume their roles and showed great creativity as the game progressed. Conversely, those who assumed Japanese roles found it difficult to act like Japanese and were frustrated in many instances. This corroborates well with the

⁷ Marshall Berman and J. Pace VanDevender, **Prosperity Games Prototyping with the Board of Governors of the Electronic Industries Association, 1/20-21/94**, Sandia National Laboratories, SAND94-0841, August 1994.

⁸ Marshall Berman and J. Pace VanDevender, **Prosperity Games Prototyping with the American Electronics Association, 3/8-9/94**, Sandia National Laboratories, SAND94-1710, August 1994.

Table 5. Mean responses to polling questions from US and Japanese role players and level of significance.

QUESTION	US	Japanese	Δ_{mean}	Signif.
1. Did the game broaden your perspective?	4.53	3.87	0.66	p<0.001
2. How well did the game meet your objectives?	4.21	3.40	0.81	p<0.01
3. Did the game stimulate future thinking?	4.20	3.47	0.73	p<0.01
4. Did the game simulate real life?	4.27	3.60	0.67	p<0.01
5. Rate the Player's Handbook.	3.33	2.73	0.60	p<0.05
6. How well did the game meet the sponsors' objectives?	4.14	3.47	0.67	p<0.05
7. How much do you trust your peers (classmates)?	4.07	3.53	0.54	p<0.05
8. Did the game maintain your interest and enthusiasm?	4.57	4.00	0.57	p<0.05
9. Rate the game format.	3.53	3.00	0.53	p<0.05
10. Did the game explore long-term planning?	3.80	3.27	0.53	p<0.10
11. How willing were people to consider company to company interdependence despite potentially adversarial relationships?	3.47	2.93	0.54	p<0.10

student comments given in a previous section of this report.

Particularly interesting are the responses to questions four, seven and eleven. Each of these questions reflects primarily on the interactions within regions, since there was very little inter-regional negotiation during the game. In life, the *keiretsu* structure in Japan presumes that company to company interdependence and trust among peers in that culture would be high. However, in the game, the students found it difficult to create that structure given their predominantly American heritage and nonexperience of Japanese culture, despite the presence of Mr. Eto, who was available to answer questions and organize the Japanese effort. By contrast, without the pressure of playing a role by foreign rules, the American role players worked together more and developed a higher level of trust.

Questions five and nine reflect on the quality of information and comfort level for each nationality. The US roles were slightly more refined due to the greater availability of information and the familiarity of the game designers with American culture.

LESSONS LEARNED

In a game as complex and ambitious as this one, there are many areas of improvement of the game format and content. This is particularly true if the use of this game (or a derivative) becomes widespread in University business education. Comments were received from the players concerning perceived successes and flaws in the simulation. Following are edited highlights of perceived problems, general comments and suggestions for improvement, grouped by topic.

FINANCES

Money and credit flow need to be improved and explained better.

Clarify spending - should you spend all, can you, when will you get more?

One problem I saw was little understanding of the money situation and how much we received over the long term.

The credits and money need to be explained more and how they work, i.e. credits are not money and money not credits. Also can you obtain more credit or what you start with is what you have for the whole game.

FORMAT

More explanation up front, 20 minute overview doesn't cut it.

Needed to explain entire game and starting interactions to students.

Importance of non-monetary agreements needs to be stressed.

Updates are needed more often.

Need more information and/or updates during the week.

I liked how the game was open for us to create our own rules and make the game interesting.

Roles need a little more rules with them.

Too much information, too confusing.

Need to design game to reward look-ahead strategies.

Need penalties for mistakes so that people will learn.

Although I hated that I did not have more info on my role and others' roles, I understand now that there was a purpose to this - made the game more real.

Group roles should have been told to get together before the first session to discuss strategy, so that inter-organizational negotiation could begin from the start.

HANDBOOK

Handbook needs to be written to audience.

I agree that the technical terms were a little too much.

Need more info in Players' handbook.

More background info on the roles would help.

More info on role - however this is a double-edged sword - it makes for more reading, more to remember, there was already a large amount of info to digest.

Put something in handbook fully explaining credits, rules, and the importance of a keiretsu.

I would suggest a more clearly written manual. It jumped into the game fast without enough background. I think it could have been simplified.

You might give more background on typical Japanese business practice or structure the game so that the Japanese side is forced to work together.

ROLES

I would only suggest fewer roles.

Need fewer roles.

Minimum of 2 persons per team (less than that could be lonesome, but incentive to team)

Consider an international mediator role (i.e. UN).

Possibly too many interest groups and too few companies.

TIME

Perhaps run Prosperity Game over 4-week period (2 weeks in class, 2 weeks out of class) with weekly printouts or status reports.

Not enough time actually spent on game; would have liked more time (more classes).

TOOLKIT

Toolkit needs to be explained better, including how to suggest new options.

The toolkit options should be numbered for easier inclusion and comprehension in agreements.

More policy toolkit options!

You should let people know from the start that they can develop their own toolkit options.

SUCCESSES

I learned a lot about the wheeling and dealing in companies, and the uncertainty of it all. Thanks."

All in all it was a very educational game.

I think the game was a great idea! It truly increased my awareness of the issues involved with the social, political, ethical, and environmental organization. I hope you will continue this in future classes.

Good simulation. I learned that dealing with others can be a complex task. There are a lot of greedy people out there who are only looking out for themselves.

Great learning tool.

Overall this was fun and interesting - a great learning experience.

A very good exercise in negotiating strategy.

Overall the game is fun and informative.

GAME DESIGNER'S THOUGHTS

Language of agreements is very important. Verbal agreements are not traceable, and often different parties have different views of what the verbal agreement was. Agreement should be very specific about what each party gives and receives. Time pressures are not an excuse for bad agreements.

The effects of gaining a technology were not clearly understood. Different parties thought they were getting different things.

A new STRATEGIES form would be helpful.

Five year objectives

One year objectives

Planned interactions

Position on challenges

Reasoning

ACKNOWLEDGMENTS

Funding for Prosperity Games development was provided by the US Department of Energy (through its National Laboratories) as part of its mission to promote industrial competitiveness.

This University Prosperity Game would not have been planned nor executed had it not been for Professor Jeanne Logsdon of the Anderson Schools of Management at the University of New Mexico and her desire to transcend the traditional teaching/learning experience in her classroom. We are indebted to her for the opportunity to explore the use of Prosperity Games as teaching instruments in an advanced education environment.

Many others contributed to the development of this game to meet the objectives of the course in which it was used. Professor Logsdon and several Sandia staff members, including Dr. William McCulloch, Mrs. Cheryl Mitchell, and Ms. Kristi Boom, participated in the scenario development. In addition, Mr. Manabu Eto, a visiting scholar and MITI official, and Mr. Michael Jensen of the UNM US-Japan Center, both provided insight into Japanese government and culture that allowed us to design the Japanese roles more accurately.

Five support staff from Sandia National Laboratories acted as the Control Team during the game and provided roving facilitation to those roles needing the help.

For more information, please contact

Dr. Marshall Berman
Manager, Innovative Industrial Alliances
Org. 4271, MS 1151, PO Box 5800
Sandia National Laboratories
Albuquerque, NM 87185-1151
Phone (505)-845-3141
Fax (505)-845-3668
Email mberman@sandia.gov

Dr. Kevin Boyack
Innovative Industrial Alliances
Org. 4271, MS 1151, PO Box 5800
Sandia National Laboratories
Albuquerque, NM 87185-1151
Phone (505)-845-3183
Fax (505)-845-3668
Email kboyack@sandia.gov

This page intentionally left blank

APPENDIX A - LIST OF PLAYERS AND STAFF

Student	Role
Alsup, James	US Media
Ashley, David	Japanese Media
Baird, Isabelle	US Distributor
Ballantine, Eric	Japanese Distributor
Barr, Andrew	US Worker
Blankinship, David	Japanese Media
Brown, Lisa	US Lab/Univ.
Brown, Shawn	Japanese Banker
Bueno, Neida	US Dept. of Commerce
Diers, Tanja	MITI: Machinery and Information Industries Bureau
Digregorio, Dante	US Finance
Duran, Danielle	MITI: International Trade Policy Bureau
England, Mathew	US DOE/DOD/ARPA
Gallegos, Anthony	MITI: Industrial Policy Bureau
Garcia, Camillia	US Representative (NM)
Gillette, Gavin	Japanese Ministry of Finance
Goldberg, Marie	US Senator (CA)
Gregory, John	Japanese Ministry of Posts and Telecommunications
Gritton, Paul	US Media
Gutierrez, Luisa	Japanese Ministry of Foreign Affairs
Hammonds, Catherine	US Activist
Harvey, Britian	Viewall
Heckler, Catherine	Mechatronics
Hendrickson, Noel	Viewall
Hoogendoorn, Erik	Mechatronics
Newell, Michael	Management Consultant / Rootska
Nielsen, David	Viewall
Pouges, Byron	Mechatronics
Rossbach, Dianne	Horioka
Rouillard, Laurie	Rootska
Rowell, Monica	Infomatics
Skinner, Cynthia	Horioka
Tibbetts, Dawn	Infomatics
Wang, Yong	Horioka
Zimolzak, Tom	Infomatics

Staff	Role	Affiliation	Phone
Berman, Dr. Marshall	Control Team	SNL, Innovative Industrial Alliances	505-845-3141
Boom, Kristi	Control Team	SNL, Information Components Manuf.	505-844-2814
Boyack, Dr. Kevin	Game Director	SNL, Innovative Industrial Alliances	505-845-3183
Eto, Manabu	Aid for Japanese Roles	MITI Official, UNM Visiting Scholar	505-277-7571
Logsdon, Prof. Jeanne	Control Team	Anderson School of Management	505-277-8352
McCulloch, Dr. William	Control Team	SNL, Assessment Technologies	505-845-8696
Mitchell, Cheryl	Control Team	SNL, Innovative Industrial Alliances	505-845-3035

APPENDIX B - AGENDA, SCHEDULE OF PLAY, AND COURSE READINGS

Schedule for Tuesday, April 4, 1995

7:30 pm Introduction to the topic of competitiveness

8:30 pm Briefing on Japanese business culture, etc., by Manabu Eto

8:50 pm Inbriefing to the Prosperity Game with questions and answers
Players' Handbooks distributed.

9:30 pm Class dismissed.

Activities outside of class to be completed before the beginning of the following class period:

- Purchase reading packet from Alphagraphics on Lomas.
- Read and digest the introductory readings.
- Read and understand the Players' Handbook.

3:00 pm Sunday, April 9, 1995. Role assignments will be distributed by Email.

- Read and understand the detailed information about your role from Appendix B of the Players' Handbook. Begin formulating strategy and priorities if you desire.
- Begin your journal.

Schedule for Tuesday, April 11, 1995

7:00 pm Game time is Year 1995.
Determine the nature, financial and technical condition, assets, liabilities, and goals of your individual or team role. Understand the nature of other roles that affect your role's future.
Develop a set of strategic objectives consistent with your role and the culture of your country.
Determine negotiation priorities to advance your strategy.

Review Challenges and Options facing your role as described in the Players' Handbook.
Develop a set of priorities.

Determine the Technology and Policy Toolkit Options that you wish to advance with your initial budget allocations. You may also invent options of your own (limit of one per role). The Control Team will estimate the 50% probability cost of any invented options.

8:00 pm **Players submit strategies and priorities including reasoning to the Control Team in writing.** Finalize budget allocations for Technology and Policy Toolkit options. Teaming together on allocation of budget is encouraged.

Open negotiations between all individuals and teams are allowed. Deals are made. Form groups and alliances as you feel necessary. Any formal agreements must include date, time, and the signatures of a designated team member from each party; agreements are reported to the Control Team for tabulating of financial commitments. Public posting of each deal is preferred, but optional.

8:30 pm **Individuals and teams submit initial Toolkit budget allocations to the Control Team.** Control Team tabulates toolkit options and calculates successes and failures based on probabilities. Note: Toolkit allocations may be submitted any time from this time until 8:30 on Tuesday, April 18.

9:00 pm *Game time is Year 1997.* Results of Toolkit options are given to all players. Control Team provides revised estimate of SAMSON market (based on probabilistic estimates) and any other relevant information. Open negotiation to advance strategies continues.

9:30 pm Class dismissed.

Suggested activities outside of class to be completed before the beginning of the following class period:

- Read articles assigned by the instructor.
- Continue your journal.

Open negotiation outside the classroom between all individuals and teams is encouraged.

Agreements made during the week may be submitted to the Control Team by E-mail. Any agreements submitted by 8:00 Monday morning will be reflected in the update given at the beginning of class Tuesday evening. Agreements submitted after that time will be reflected in subsequent updates.

8:00 pm Monday, April 17, 1995. Scenario update will be distributed by Email.

Schedule for Tuesday, April 18, 1995

7:00 pm **Individuals and teams submit any new agreements to the Control Team for review.** Open negotiation to advance strategies continues.

7:30 pm *Game time is Year 1999.* Control Team provides revised estimate of SAMSON market (based on probabilistic estimates) and any other relevant information.

8:00 pm Control Team revises scenario (with new technology and policy events). Individuals and teams determine impact of revised scenario. New plans are developed. New agreements or revisions of previous agreements are discussed. Toolkit options are reconsidered in light of the revised scenario.

8:30 pm **Final Toolkit investments are submitted to the Control Team.** Open negotiation to advance strategies continues.

9:00 pm *Game time is Year 2001.* Results of final Toolkit options are given to all players. Control Team provides revised estimate of SAMSON market (based on recent agreements and Toolkit successes and failures) and any other relevant information.

9:30 pm Class dismissed.

Continued negotiation outside the classroom is encouraged.

Continue your journal.

**Agreements made during the week may be submitted to the Control Team by E-mail.
Agreements will be accepted until 8:00 am Monday morning.**

All individuals and teams prepare 3-5 minute briefing to share with entire class. This briefing should focus on lessons learned, insights gained. Teams should designate one spokesperson to present the information.

8:00 am Monday, April 24, 1995. GAME ENDS. Negotiations cease.

Schedule for Tuesday, April 25, 1995

7:00 pm Control Team provides final balance sheets to individuals and teams.

7:10 pm Student debriefing.

9:15 pm Debriefing ends. Students enter final comments and insights gained into their game journals.

9:30 pm Class dismissed.

Schedule for Tuesday, May 2, 1995

7:00 pm Control Team debriefing of lessons learned and final outcomes.

8:00 pm End of Control Team debriefing. Wrap-up by Professor Logsdon.

READINGS

Lodge, George C. "Roles and Relationships of Business and Government." Business in the Contemporary World, v. 1 (Winter 1989): 93-108.

Anchordoguy, Marie. "Mastering the Market: Japanese Government Targeting of the Computer Industry." In George C. Lodge (ed.), Comparative Business-Government Relations. Englewood Cliffs, NJ: Prentice Hall, 1990.

Gerlach, Michael L. "The Organization of Japanese Business Networks." Alliance Capitalism, p. 63-92. Berkeley, CA: University of California Press, 1992.

US General Accounting Office. "The Business Environment in the United States." Competitiveness Issues: The Business Environment in the United States, Japan, and Germany. GAO/GGD-93-124. Washington DC: Government Printing Office, August 1993.

Thornton, Emily. "50 Fateful Years." Fortune, v. 123 (Dec. 16, 1991): 126-134.

Irwin, Steven M. "American Precedents and the Politics of Technology." Technology Policy and America's Future, p. 79-103. New York, NY: St. Martin's Press, 1993.

Eto, Manabu, Wierengo, Danielle, and Rogers, Everett M. "Technology Transfer from Government R&D Laboratories in the United States and Japan." Unpublished manuscript, 1995.

APPENDIX C - TOOLKIT INVESTMENTS - DETAILED DESCRIPTIONS OF INITIAL TECHNOLOGY, POLICY AND PRIVATE OPTIONS

Indicate the number of US dollars and and/or influence credits your role wants to spend for each option. The offer by all roles will be added for each option to get a total offering. The probability of an option being implemented increases with the total offering for that option so influencing other roles to add their offers to yours will pay. Please circle your role.

Note: A policy option must have at least one influence credit to be submitted. Additional influence credits over the initial one will increase probability of implementation by 10% each. Technology options do not require influence credits to be submitted.

Role	Credits Money (M\$)	Role	Credits Money (M\$)
Informatics	\$800	Horioka	\$2000
Mechatronics	180	Viewall	320
US Senator	250	MITI: IPB	150
US Representative	250	MITI: ITPB	100
DOE/DOD/ARPA	150	MITI: MIIB	150
DOC	150	Min. of Finance	150
US Activist	2	Min. of Posts & Telecom	150
US Media	2	Min. of Foreign Affairs	100
US Finance	2	Japanese Banker	3
US Lab/Univ	2	Japanese Media	3
US Worker/Consumer	2	Japanese Distributor	3
US Distributor	2		

Technology Options	Cost (M\$) for 50% chance	Your offer
--------------------	------------------------------	---------------

Substrates, Board Assembly and Packaging

Recently patented robotic controllers for electronics manufacturing enable precision alignment for high-density board assembly at 70% greater speed, 55% less cost per board, and 3% higher yields than currently implemented process can provide. *Expected outcome: lower costs and prices, increased demand*

150 _____

Board Assembly breakthrough lets electronics be packaged directly on the display for a 50% reduction in size and weight. *Expected outcome: lower display costs and prices, increased demand*

100 _____

Packaging breakthrough lets electronics be packaged cost effectively on diamond substrates to double the computing power with good thermal management. *Expected outcome: higher power/cost, increased demand and market share*

100 _____

Patented, automatically controllable, continuously variable transmission enables the feeding of thin laminate substrates through high-speed electronics manufacturing devices for a 30% improvement in yield for a 3% increase in the cost of the line. *Expected outcome: lower costs and prices, increased demand*

100

Manufacturing Information and Management Systems

Intelligent-agent software demonstrated 30% more effective education and training throughout the factory, managers and employees, at 20% less cost per employee. Beta testing demonstrated a sustainable and affordable increase in worker productivity by 6% per year. *Expected outcome: lower prices, higher profits*

100

ARPA program in manufacturing information systems provides validated computer models for accelerated engineering of electronic products without the need for extensive prototyping and testing. Design cycle time is reduced by 40%. *Expected outcome: faster to market, increased market share*

160

Validated simulation and modeling tools for electronics design and development have been integrated into an intuitive synthetic environment system that reduces the design time for manufacturing cycle of complex electro-mechanical devices from 15 months to 4 months. *Expected outcome: lower overhead and costs, faster to market, increased market share*

140

Photonics and Displays

New, 0.2 micron precision assembly technology for electro-optic devices demonstrated 30% improved yields (from 70% to 93%) and corresponding cost reductions in the manufacture of high-volume photonics components.

Expected outcome: lower costs and prices, increased demand

180

High resolution, 3-D, flat panel display (20 cm by 25 cm) becomes available for \$150 each.

140

High resolution, 3-D, direct retinal projection display becomes available at \$500/unit. *Expected outcome: competitive advantage, new markets*

200

Software

Inference engine for artificial intelligence software allows practical adaptive learning in computer driven devices. *Expected outcome: competitive advantage, licensing potential*

200

Policy (Non-Technology) Options

**Cost (M\$) for
50% chance**

**Your
offer**

The implementation of the National Electronics Manufacturing Initiative (NEMI) Roadmap is institutionalized by an industry-led and government-partnered entity, co-funded at the rate of \$300M per year (through ARPA's special procurement authority) in the form of a virtual entity with an accountable

program management leadership and staff managing pre-competitive research and development performed in industry labs, national labs, and universities as the NEMI managers deem appropriate. The goal is to make the US the location of choice for electronics manufacturing.	200	_____
Formal keiretsu initiative in Japan with the goal of making Japanese companies the companies of choice for global business and consumer electronics.	200	_____
Government establishes a comprehensive and flexible policy on intellectual property rights for all government agencies (ministries).	120	_____
Industry associations and government environmental agencies form partnership and improve effectiveness (performance and cost) of environmental regulation and implementation in electronics manufacturing industry, reducing the environmental compliance cost by 50%.	160	_____
Abusive shareholder suits over stock fluctuations are curbed by government action. They have been inhibiting companies' going public; high-tech companies were especially vulnerable.	80	_____
Government establishes a focal point for foreign technology monitoring and assessment.	80	_____
Government establishes lifelong training policy and practice.	160	_____
Regional agency establishes workforce training programs; assures focus on high skill requirements needed for domestic electronics manufacturing.	120	_____
Regional alliances, industry associations and consortia work with state and federal agencies to share information vital for increasing economic prosperity.	40	_____
Government decides foreign participation in government-industry co-funded projects is allowed if domestic economic activity is enhanced sufficiently to justify government investment.	160	_____
Industry-government partnership creates infrastructure for virtual enterprises to facilitate product realization.	200	_____
Glass Act is repealed to enable banks to hold equity in corporations and increase availability of low cost capital (US only).	200	_____
Companies do not have to give government intellectual property rights for commercial applications of innovations developed with in-house funds when used on government contracts.	140	_____
Industries that are critical to defense, energy, health care, agriculture, the transportation and communication infrastructures, or the environment, are encouraged to pursue industry-led and government-partnered and co-funded (through ARPA's special procurement authority) consortia with national		

laboratories whose core competencies are enabling to the industry. In this manner, industry gains precompetitive technology under industry program management, the government gains closer ties with critical commercial technology for spin-on application to its public missions, and the national labs are de facto re-engineered by the industry influence without forfeiting their responsibilities to the public missions.

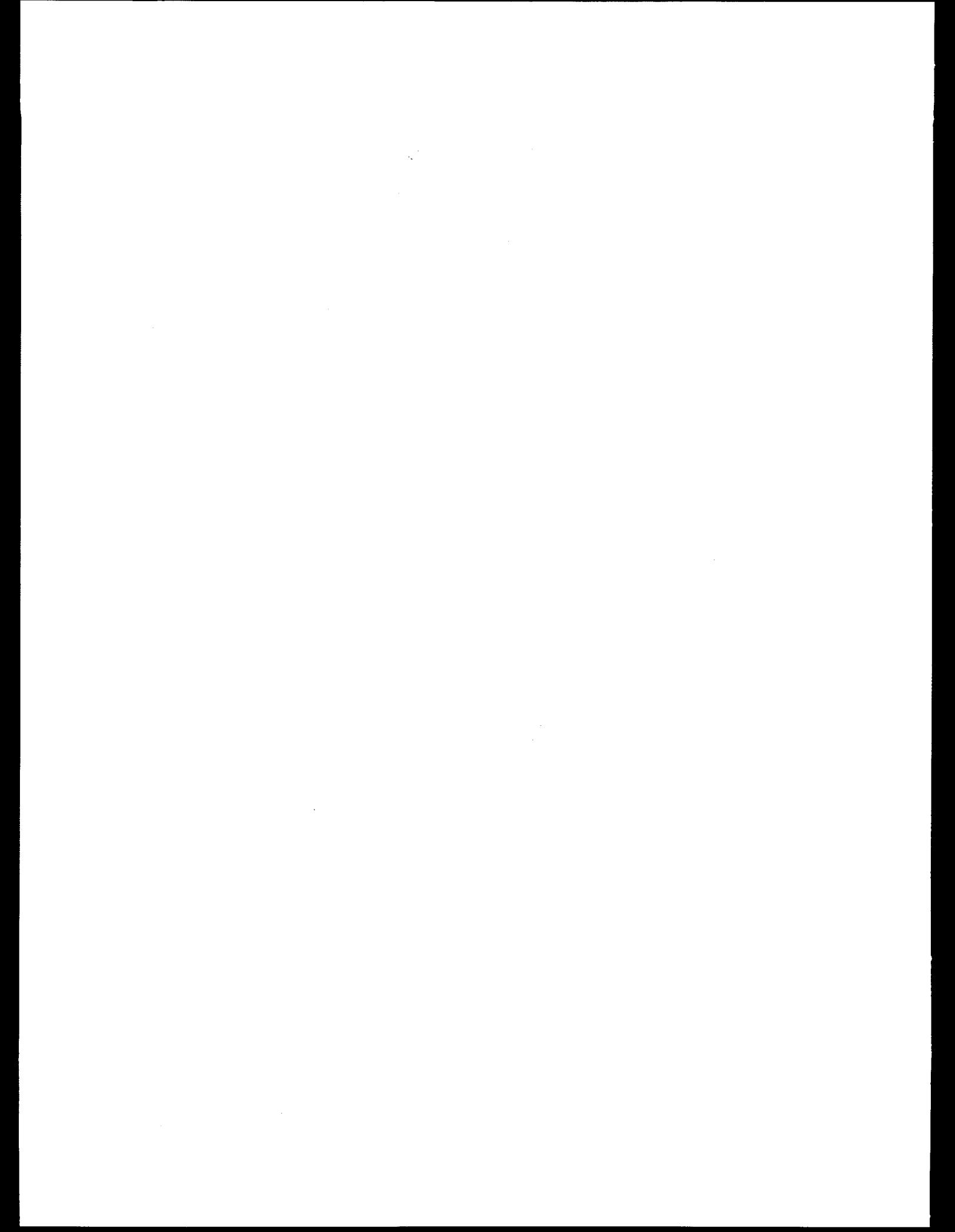
200 _____

Government subsidizes school boards to provide every child (10 to 18) a personal data assistant and free access to the Internet.

240 _____

Private Options (given only to role indicated)	Cost (M\$) for 50% chance	Your offer
Infomatics: You are able to persuade the two chief engineers who have developed the Horioka robotics system to disappear from Japan and develop a next-generation robotics system for Infomatics.	300	_____
Infomatics: Your research department develops new clean manufacturing techniques that allow you to approach zero emissions. (Each influence credit from the US activist is worth \$100M for this option only)	250	_____
Horioka: You are able to lure three eccentric hot shot operating system developers away from Infomatics to work for a small software venture to be located in the US, and whose connected with Horioka is unknown. These developers will write a new world-class OS within two years.	400	_____
Horioka: Your research department develops new clean manufacturing techniques that allow you to approach zero emissions. (Each influence credit from the Japanese banker is worth \$100M toward this option only)	250	_____
Mechatronics: Industrial espionage yields you key information on deficiencies in the Horioka robotics systems, that you can capitalize on to improve your robots and discredit Horioka's.	200	_____
Viewall: Industrial espionage yields you key information on the electro-optic array modifications currently under development at Eurolaser, a European firm. With this information, you can obtain the US and Japanese patents on their proposed technology before they do.	200	_____
US Senator: Your reelection in the election one year from now is assured (requires one influence credit in addition to money).	100	_____
US Representative: Your reelection in the election one year from now is assured (requires one influence credit in addition to money).	100	_____
MITI: Your lobbyists have been able to persuade (bribed) one Senator to vote in favor of all Japanese interests over the next two years (requires one influence credit in addition to money)	100	_____

MITI: You have gained the favor of the Diet in your battle with MPT over control of information infrastructure development and have thus taken the lead role.	100	_____
MPT: You have gained the favor of the Diet in your battle with MITI over control of information infrastructure development and have thus taken the lead role.	100	_____
US Media: Your Horioka informant has come forward to the Department of Commerce in return for US citizenship, thus taking the heat off you.	1 credit	_____
Japanese Media: You are provided with a new informant within the Ministry of Finance.	1 credit	_____
US Distributor: Your company representatives discover compromising information about Infomatics that you are able to leverage into a shared profits and future pricing, thus securing your future as lead distributor for SAMSON products.	2 credits	_____
Japanese Distributor: You are able to buy Horioka goods from the US businessman without Horioka finding out, thus putting much more profit in your pocket.	3 credits	_____
US Finance: Continued appreciation of the yen has made Japanese money more scarce in the US, allowing you to raise interest rates, and therefore profits.	2 credits	_____
Japanese Banker: Despite the appreciation in the yen, you realize a very low default rate on loans to smaller businesses and individuals, enhancing your profits and ranking within the finance community	2 credits	_____
US Activist: You obtain proof of environmental violations at the Infomatics California plant and they are forced to close until the problems are resolved.	2 credits	_____
US Worker/Consumer: If TechWorld (the US Distributor) dumps Japanese products on the market, you organize a consumer group to boycott their stores, effectively reducing their revenue by 20%.	2 credits	_____
US Lab/Univ.: You are able to convince lawmakers that an industrial competitiveness and support role is proper for the labs, and gain a funding increase of 5% per year.	2 credits	_____



APPENDIX D - AGREEMENTS AND ACTIONS

AGREEMENTS and ACTIONS 4/11		TIME	\$ AMOUNT AVAILABLE 4/11	\$ to Control	Credits to Control
1	DOE paid Control \$10M to determine development time for the new supercapacitor technology. Time was determined as 1/p in years, where p is a random number. RANDOM NO. = 0.78	7:45		-10	10
2	Informatics funds development of supercapacitors at JNL for \$65M.	8:30		-65	65
3	Joint funding of Policy toolkit option "Critical industries consortia with Labs." US Lab provided one influence credit; DOE \$100M, Informatics \$50M, CA Senator \$50M, NM Congress \$50M. PASSED 69%	8:30		-50	250
4	Joint funding of Technology toolkit option "MIMMS computer models for accelerated engineering of electronics." Informatics \$140M, ARPA \$20M, 1.5 multiplier applied. FAILED 84%	9:00		-20	160
5	Informatics pays Mechatronics \$30M for operating expenses.	9:03		-30	
6	NM Representative secures \$100M in funding for Mechatronics; Mechatronics spends \$80M on environmental toolkit option. (Dice rolled 4/18, see #25, #28.)	9:03		20	80
7	US Finance exercises private toolkit option "Continued appreciation of yen, Japanese money scarce in US, raise interest rates." US Finance spent 2 credits. PASSED 50%	9:05		50	-50
8	US Activist gives one influence credit to NM Representative.	9:06			2
9	Informatics invests \$50M yearly for three years with Mechatronics to develop robotics technology for SAMSON in return for exclusive use of the technology.	9:07		-150	150
10	Assumption by Control that Mechatronics spends \$150M (see #9).			-150	
11	Joint funding of Technology toolkit option "Validated sim. and modelling tools reduce design time from 15 to 4 months." Informatics \$60M, US Finance \$50M based on potential. If measure fails, Informatics will fund \$25M toward finance venture. PASSED 50%	9:11		-50	140
12	Horioka agrees to fund the Japanese banker \$200M for software purchase. In return the banker provides Horioka 2 influence credits to pass policies.	9:15		-200	

AGREEMENTS and ACTIONS 4/11		TIME	Credits to Control	
13	CA Senator secures \$100M funding for Mechtronics in exchange for Mechtronics spending \$50M to repeal Glass-Steagall. (Dice never rolled on Glass-Steagall repeal, since it was not clear that roll was authorized.)	9:16	50	-100
14	Joint funding of Policy toolkit option to "Implement NEMI roadmap." DOE \$20M, DOC \$70M, Infomatics \$110M, US Worker 1 influence credit. FAILED 50%	9:22	-110	-20 -70
15	Infomatics funds Technology toolkit option "High-res 3-D flat panel displays becomes available at \$150 each" at \$180M. PASSED 72% but disallowed.	9:28	-180	180
16	Infomatics fund Technology toolkit option "Packaging on diamond substrates" at \$145M. FAILED 82%	9:28	-145	145
17	Japanese media will trade 1 credit for exclusive inside information from the Ministry of Finance - source will not be revealed. Source will also give information about MPT and MFA when available.	9:30		
18	Joint funding to exercise Viewwall private toolkit option "Spying gets you key info on Euroleser's electro-optic array. You can get US and Japanese patents before they do." Viewwall \$220M, MITI \$80M. PASSED 98%	9:30	-320	-80
19	Ministry of Finance will buy 1 influence credit from the Ministry of Foreign Affairs for \$35M.	9:38		-35
20	MITI bureaus combine funding of \$120M on policy option "Agency establishes workforce training programs..." PASSED 50%	9:40		-120
21	MITI bureaus combine funding of \$200M on private option to "Gain favor of Diet over MPT on NII." PASSED 98%	9:40		-200
22	MPT, MFA and Min. Finance tried to jointly fund option to "Gain favor of Diet over MITI on NII," but were too late by 2 minutes. Option not even rolled. Money returned.			
23	Horioka exercised private toolkit option to "lure three Infomatics OS developers away who will develop new OS within 2 years." Horioka \$540M. PASSED 76%	9:46		-540
TOTAL TRANSACTIONS 4/11				
	0	0 -960	100 -150 -150 -70	0 -740 -320 -400 -35 0
	0	0 -160	280 100 0 80 100 1260 0 0 115 150 135 350 0 0	35 200 0 0 2640 5
AMOUNTS REMAINING 4/11				
	0	0		

AGREEMENTS and ACTIONS 4/18		\$ AMOUNT AVAILABLE 4/18	TIME	\$ to Control	Credits to Control
24	Viewall obtains US patent on electro-optic laser technology.	7:24		-2	2
25	Clarification on US Rep/Mechatronics deal of 4/11. Mechatronics invests \$80M in policy option to help US Activist. (Money was deducted 4/11, see #6. See #28 for roll of dice.)	7:28			
26	Clarification on DOE/Informatics development of super-capacitors. Informatics gets exclusive rights for 17 yrs.	7:41			
27	Control gives newly elected officials extra \$100M each.		100 100	-200	
28	US Rep invests \$80M in the environmental policy option and the US Activist invests 1 credit. FAILED 57%	7:54	-80	80	-1
29	US and Japanese Distributors agree to merge existing companies (all assets) to form "Electronics Distributor" for the US, Japan, and global distribution. All decisions to be made jointly.	7:55			
30	Ministry of Finance buys 1 credit from Japanese Distributor for \$20M.	7:59		-20	20
31	Ministry of Finance invests 3 credits in Japanese Bankers private toolkit option to realize a very low loan default rate despite appreciating yen. FAILED 59%	8:05		-25	25
32	Viewall buys 1 credit from Japanese Distributor for \$25M. Japanese distributor will aid Viewall in expanding Int'l market for 3-D displays and will work with Moff to depreciate yen, and sell current 3-D product to Informatics at 10% markup.	8:13			3
33	Continuation: Future 3-D retinal display technology will be made available to all buyers at an equal price.	8:13			
34	Informatics invests \$350M to get 3-D retinal display technology. FAILED 83%		-350	350	
35	Horioka contracts with US Univ to develop 3-D retinal display technology (toolkit) within one year. Horioka to spend \$400M and have an exclusive license to the technology for 5 years. FAILED 94%	8:17		-400	400
36	Japanese media donates 1 credit to Viewall to pursue 3-D retinal display technology.	8:18			-1 1

AGREEMENTS and ACTIONS 4/18		TIME	Credits to Control	
37	Joint venture on Infomatics option to develop clean manufacturing techniques to approach zero emissions. US Fin \$100M, US San \$50M, US Activist 1CR=\$100M, Info \$45M, US Media 3CR, US Workers 1CR. PASSED 92%	8:20	-45	-50
38	Viewwall Invests \$300M and 2 credits to obtain the high-res 3-D retinal display technology. PASSED 83%	8:25		-300
39	Formation of "IT technology for America" consortium between public and private sectors to strengthen US R&D in world competition. Joint funding.	8:30	200	-100
40	Joint venture on policy option to establish regional agency for workforce training programs. Totals invested in toolkit \$194M, 1CR. PASSED 54%	8:31	-20	-24
41	Merger of Infomatics and Mechaitronics to form Infotronics. One new company, all previous agreements continue, no funds transferred, 50/50 profits for each former company.	8:35	361	-35
42	Infomatics asked if market share got them more resources. Control said yes, 10% increase.		45	
43	Rootska spends \$10M to validate OS at US Lab (Toolkit). PASSED 84%	8:41		-10
44	Infotronics gets exclusive rights to Rootska OS for 4 years in return for \$400M. Financing: \$200M from Infotronics, \$200M from US Finance. Finance gets stock options from Infotronics. DOD gets 1 year access, Rootska gets 2% of SAMSON sales using OS.		-200	400
45	Horioka agrees to fund virtual reality research at Viewwall for \$400M in return for access to 3-D retinal displays at 3:2 ratio for every display sold to US firms. If successful, Horioka has exclusive license to VR for 2 years. (See #57.)	8:45		
46	Rootska spends \$350M on inference engine for AI software. PASSED 60%	8:45		
47	Joint funding to pass policy option for industry-gov't partnership to enable virtual enterprises. Funding MITI \$200M, MFT \$100M, MF 1CR. PASSED 54%	8:50	-200	-100
48	Joint funding for Japanese govt's subsidy of school boards to provide SAMSON and NII to students. Funding: MFA \$50M, Bank \$300M 1CR, MF \$50M. PASSED 66%	8:55	-50	-50

AGREEMENTS and ACTIONS 4/18	TIME	Credits to Control
DOD/DOE invests \$120M in Tech for America for future projects in return for veto power on any deals in the interest of national security.	9:00 49	-120
DOC Invests \$50M in Tech of America.	9:00 50	-50
US Congress allocates \$100M of taxpayer money to Tech for America to improve init'l competitiveness.	9:00 51	-100
US Activist transfers 1 credit to Tech for America in return for a lifetime seat on the board, and assurance that they will promote environmentally safe tech. US Activist retains veto power for environmental reasons.	9:05 52	
"The Electronics Distributor" is sole distributor of Horioka SAMSON products, getting volume pricing at 10% above cost for existing tech. Future tech negotiable. Distributor transfers 2 credits to Horioka.	9:05 53	
Infotonics issues 1 million shares new stock to US Finance (\$6 per share value) for 1 credit.	9:08 54	6
US Media transfers 1 credit to Tech for America (TFA) in return for a lifetime seat on the board. Tech for AM will donate money to business and journalism schools. US Media veto power. TFA will spend \$10M on US Media initiatives.	9:08 55	
Joint venture funds US Lab to develop VR glove with \$30M from Tech for America, \$26M from Infotonics, \$5.6M investment capital from US finance. PASSED 91%	9:10 56	-30 -26
Toolkit investment in VR technology including remote, gloves, surround-sound, TV/comp/VCR compat, climate rooms. Horioka spends \$400M on toolkit, and an additional \$200M to Viewwall for research. PASSED 60%	9:13 57	-5.6
US Univ forms academic consoritium/task force to meet monthly. Addresses barriers to US competitiveness. Includes US Univ, US Lab, US Rep, Infotonics, US Finance, DOE.	9:15 58	
Joint funding for high-res brainwave 3-D projection display at \$450/unit. Tech for AM \$150M 2CR, Infotonics \$100M, US Senate \$50M. PASSED 56%	9:18 59	-150 -100
US Government (DOD) siezes brainwave technology in the interest of national security until further study can be completed.	9:20 60	300 2

AGREEMENTS and ACTIONS 4/18		TIME	Credits to Control	
61	TFA, US Senate, US Congress, US Activist all request access to brainwave technology due to public funding in development. Rejection of request could cause loss of private sector funding, downfall of TFA.	9:25		\$ to Control
62	Transfer of 1 credit from US Rep to Tech for America.	9:25		
63	US Senate appropriates \$50M to Tech for America for a seat on the board and veto power.	9:28	50	
64	Rootska licenses adaptive learning AI software to Viewwall for 2 years for \$60M. Non-exclusive agreement.	9:28		
65	Tech for America invests \$50M in US technology firms at the request of US Finance.	9:35	-50	
66	4/20 - Control Team upholds DOD suppression of brainwave technology as classified information, and suggests further negotiation.	Email		
TOTAL TRANSACTIONS 4/18		280	80 -450 -350 -180 -130 -170 -120 -350 -1000 -188 -199 -70 -100	-50 -300 45 100 3152 16
AMOUNTS REMAINING 4/18		280	80 0 0 -80 -30 10 30 -150 1000 162 301 30 50 50 45 110 3152 16	

APPENDIX E - FORMS

STRATEGIES, PRIORITIES, AND REASONING

Name: _____

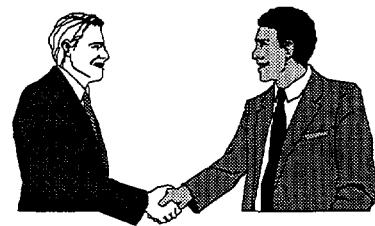


Role: _____

Strategy: _____

Priorities: _____

Reasoning: _____



AGREEMENT

THE FOLLOWING TERMS AND CONDITIONS HAVE BEEN NEGOTIATED AND AGREED TO BY:

NAME OF ROLE

8

NAME OF ROLE

NAME OF ROLE

8

NAME OF ROLE

ON _____
DATE

THE TERMS AND CONDITIONS OF THIS AGREEMENT ARE AS FOLLOWS:

Funds transferred to and from:

Signed--Designated Role

Time

Signed--Designated Role

Time

Signed--Designated Role

Time

Signed--Designated Role

Time

Received by: Control Team

Date

Time

APPENDIX F - ROLES: INITIAL DESCRIPTIONS, STRATEGIES, ACTIONS, AND JOURNALS

INFOMATICS, INC.: US Computer Manufacturer

PREGAME SCENARIO

Infomatics is a leader in sales of high-tech personal computers, entertainment and communication devices. It is pioneering, in the US, a new class of devices utilizing virtual reality concepts, global positioning and world connectivity (generically called SAMSON). Infomatics had \$3B in sales last year with profits of \$200M and invests \$300M annually in R&D. It has a US Government contract totaling \$3M, annually, to develop advanced displays and other bio-interfaces.

Infomatics assembles 30% of its products on-shore. Four years ago it was forced to heavily automate assembly and has invested \$75M in robotics for assembly. This equipment is in need of a major up-grade. Some of the best automation equipment for assembly is manufactured by its direct competitor, (Horioka, Ltd., a Japanese company with 40% market share of early SAMSON devices, in comparison to your 45% market share). A key component, namely 3-D displays, are manufactured exclusively by Viewall, Inc., another Japanese company. Infomatics owns key patents and intellectual property in software and architecture. These key patents have been licensed to Horioka to obtain these high-tech robotics. These license agreements with the Japanese competitor, Horioka, are due to expire in 18 months.

The Infomatics research department has been working on advanced 3-D displays with an annual budget of \$15M. Infomatics has some good technology, but cannot keep up with the \$100M R&D in displays being spent by its competitors. Infomatics has submitted several white papers for government funding of its display technology and may shut down the operation if no federal funding is obtained.

Key challenges are:

- 1) Advanced automated assembly and packaging
- 2) Better display technology
- 3) Better software
- 4) Location of production
- 5) Activists demanding zero emissions in California plant

STRATEGIES, PRIORITIES, AND REASONING

Mission Statement (Objective): Innovate SAMSON device ahead of competitors in an efficient manner, increasing market share, thereby creating profits for reinvestment in technology.

Strategy: 1) Create agreements with key stakeholders; 2) generate technological advancement through joint ventures (using toolkit) and government funding; 3) upgrade automation of facilities; 4) work on getting Glass-Steagall Act repealed to allow banks to invest in us directly; 5) reduce emissions for good PR with US activist and public.

Reasoning: Infomatics cannot reach its objective without achieving the above strategies.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 8:30 PM

Infomatics, US Lab

Infomatics funds development of supercapacitors at JNL for \$65M (Clarification at 4/18/95 7:41).

4/11/95 8:30 PM

Infomatics, US Senator, US Representative, DOE, US Lab

Joint funding of policy toolkit option 'Encouragement of critical industries consortia with national labs.' US Lab invests one influence credit, DOE \$100M, Infomatics \$50M, US Sen. \$50M, US Rep. \$50M. **SUCCESSFUL at 69%.** Immediate benefits given by Control: DOE funding up 5%; US legislators private option costs reduced by half; Infomatics given 1.5 factor multiplier for any technology toolkit option.

4/11/95 9:00 PM

Infomatics, ARPA

Joint funding of technology toolkit option 'ARPA program in manufacturing information systems provides validated computer models for accelerated engineering of electronics...' Infomatics invests \$140M, ARPA \$20M, 1.5 multiplier applied. **UNSUCCESSFUL at 84%.**

4/11/95 9:03 PM

Mechatronics, Infomatics

Infomatics pays Mechatronics \$30M for operating expenses.

4/11/95 9:07 PM

Infomatics, Mechatronics

Infomatics invests \$50M yearly for three years with Mechatronics to develop robotics technology for SAMSON in return for exclusive use of the technology. Control assumes that Mechatronics spends the \$150M.

4/11/95 9:11 PM

Infomatics, US Finance

Joint funding of technology toolkit option 'Validated simulation and modeling tools reduce design time from 15 to 4 months.' Infomatics invests \$90M, US Finance \$50M investment based on return potential. If measure fails, Infomatics will fund \$25M toward finance venture. **SUCCESSFUL at 50%.**

4/11/95 9:22 PM

DOE, DOC, Infomatics, US Worker

Joint funding of policy toolkit option to 'Implement NEMI roadmap.' DOE invests \$20M, DOC \$70M, Infomatics \$110M, US Worker 1 influence credit. **UNSUCCESSFUL at 50%.**

4/11/95 9:28 PM

Infomatics

Infomatics invests \$180M in technology toolkit option 'High-res 3-D flat panel displays becomes available at \$150 each.' **SUCCESSFUL at 72% but later disallowed due to overspending.**

4/11/95 9:28 PM

Infomatics

Infomatics invests \$145M in technology toolkit option 'Packaging on diamond substrates.' **UNSUCCESSFUL at 82%.**

4/18/95 7:41 PM

US Lab, Infomatics

Clarification on US Lab/Infomatics development of supercapacitors of 4/11/95 at 8:30. Infomatics gets exclusive rights to overall developments for 17 years.

4/18/95 8:15 PM

Infomatics

Infomatics invests \$350M in technology toolkit option 'High-res 3-D direct retinal projection display available at \$500 each.' **UNSUCCESSFUL at 83%.**

4/18/95 8:20 PM

Infomatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Infomatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Infomatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (= \$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 8:30 PM

Infomatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of "Technology for America," a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Infomatics will have access to this. Technology will be available to US companies only. US Senate invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 8:31 PM

US Senator, US Representative, US Worker, DOC, Mechatronics, Infomatics

Joint funding of policy toolkit option to 'Establish regional agency for workforce training programs.' US Senate invests \$30M, US Rep. \$50M, DOC \$70M, Mechatronics \$24M, Infomatics \$20M, US Worker 1 credit.

SUCCESSFUL at 54%.

4/18/95 8:35 PM

Mechatronics, Infomatics

Merger of Infomatics and Mechatronics to form Infotronics. Infomatics has assets, Mechatronics has operating capital to pass necessary toolkit options. All previous agreements continue; all employees maintain executive positions; no funds transferred; 50/50 profits for each former company.

INFOMATIC'S JOURNAL EXCERPTS

Tom Zimolzak

Have been assigned to the Infomatics team with Monica Rowell and Dawn Tibbets. Challenges include; 1) advanced automated assembly and packaging; 2) better display technology; 3) better software (entertainment and communication?); 4) location of production (new automation?); 5) zero emissions in CA (is this our only location?).

- Question: What about the government research grant?
- Question: \$200M in profits, why not increase R&D to \$100M on 3-D?
- Question: Sell 4 year old robotics and reinvest? Sell to Viewall?
- Question: What are current emissions from 30% on-shore facilities?
- Question: What will options/needs be after 18 month license to Horioka expires?
- Question: If no government funding, what are repercussions if no 3-D R&D?
- Question: Is there more opportunity for growth in specialized software? i.e. Architecture

5 year goal:

- 1) Top market share
- 2) Best device
- 3) Make machine in 5 years (changes)
- 4) Cut cost/weight/power of Samson (beat Horioka)
- 5) Increase revenue - financing and R&D for Samson
- 6) Robotics - need upgrades (address issue of Mechatronics finances)
- 7) Zero-emissions? (California)

Tuesday, 4/11/95 - DOE investment should generate battery technology. Need to work on emissions, labor, and display technology. Japan has huge investment capital. Will be very hard to compete. Technology benefit, 1.5X on toolkit. Behind on schedule - best way to achieve goals by using other peoples money and influence. US Media not reporting on activist inability to support our emission package. We can get our product to market, but is it inferior?

Our first year was mixed. We have a 3 year investment with Mechatronics - 2nd year must automate w/robotics. Photonics advances helps take Viewall out of the picture. Big time trouble with emissions - 2 year goal to use special toolkit and get 2 credits support.

What we have: 3-D, battery, technology (x1.5), good labor, senator, DOE, Mechatronics relations.
What we need: year 2 - emissions, robotics, software, jobs!

Tuesday, 4/18/95 - Who controls the control team. E-mail says we went over budget \$160M - we only operated on figures given to us directly by control team - must reverse control team decision. Unclear on budget - under impression, as are other groups, that \$800M budget - not investment capital - we thought we had to spend full years budget in 4/11 class - must clarify. \$250M budget (+16M control mistake) not much - special toolkit + 2 credit can take care of pollution. Probably need more money for robotics. Need co-investment in software.

Environmental toolkit - 1 credit US activist is \$100M - can count on new senator, count on Dept. of commerce, US media - should be able to sell benefits of approaching zero emissions to many stakeholders.

Outcome - actually only kicked in \$45M of a total \$600M deal - only token gesture in case of failure - learned ability/importance of using influence and external sources to achieve major success!

Robotics - Mechatronics good deal - if we can convince them to join in on software quest we will kick butt!

Technology for America - comparison to MITI - advantage to US - we can reclaim visual capacities and advancements with limited capital and eliminate Viewall as a necessity.

Sunday, 4/23/95 - What has been accomplished by creation of Infotronics? We gain necessary investment capital since we have used all self owned monies. Co-exec's sometimes more interested in just buying what we need.

Huge environmental success achieved with token funding - must utilize the resources given to us. Merger lets our goals be achieved singularly - we got \$\$ - Mechatronics gets resources - their plant won't close. With the combined benefits of the merger and TFA, we should do well in the debriefing. We should have robotics, packaging, 3-D displays (interactive VR technology), 1st generation Russian software, solid combined assets, approaching zero emissions, super battery technology. This achieves lightweight, long battery, ultra new display technology - These were the goals of SAMSON.

University Prosperity Game Journal Wrap Up: What did we achieve?

All the basic criteria of the SAMSON project were accomplished in accordance with the initial design. Market share for the SAMSON product dramatically improved increasing revenue and eventually increasing facilities. All investment capital was depleted, but revenues should be increasing.

Key challenges:

1. Automated assembly with state of the art robotics acquired through Mechatronics.
2. Better display technology (previously repossessed) achieved through Technology of America joint venture including 3-d photonics, flat screen, and interactive glove.
3. Better software acquired through joint venture yields first generation Russian software able to speed production.
4. Location of production-California plant in positive press, new growth of market share and merger of 2 American companies will yield larger or new facilities.
5. Special tool-kit option allowing CA plant to approach zero-emissions, a standard in the industry which will leech into all Infotronics facilities.

Strategies: Long term-achieved 5 challenges, increased market share, produced SAMSON per specifications through utilizing internal factors of investment funds, defined goals, division of labor and duties, consensus, and toolkit option selection. External players such as DOE, US commerce, Govt. officials, US Commerce, US worker, Mechatronics, US media, US activist, and US Labs all were utilized in an effort to achieve win/win situations of

positive and mutual orientation. The team effort on the American side evolved more in the second class as lines were dissolved and necessity played a larger role.

Short term-goals seemed to be governed by successes and failures in relationships with stakeholders or in toolkit failures. Actions taken by our competitors warranted response by our company in a reactive fashion unlike a long term strategy governing pro-active response. Initially, it seemed our company and other players relied on self-financing any options rather than to use mutual exchange.

Observation: The first class seemed to be confused, but almost as a response to shyness and uneasiness over having to foster relationships with strangers assuming strange rolls. As the atmosphere became more friendly, and successes built confidence, players were more able to assume their roles more readily. The prevailing US / THEM syndrome never truly eroded except for minimal media crossovers, and of course those involved in marketing. A strong orientation towards national origin pervaded all groups. Surprisingly no slander suits were filed against the media, and few of the frequent ethical lapses were reported.

Suggestions For The Game: Provide copies of the game agreements to groups for a more adequate paper trail of past relations and expenditures. Break the game up into 5 class periods. The first and last a full class, and the middle three meet for only 1 hour during the first part of class. This would provide for a longer game, more interaction, and a more interesting in depth game.

Have companies/individuals write a brochure selling the company and allowing for decisions on disclosure and other related issues.

Final Journal Notes:

News should have time set like 10:00 news. 3 people a good number for all companies.

Vote: used all the money and influence from Dept. of commerce, so getting him into NM congress was greed motivated.

Agreements without money?

Increased toolkit multiplier for more people on agreement.

Money = bargaining chip.

INFOMATICS WINS.

Importance of non-monetary agreements should be stressed.

M. Dawn Tibbets

Sunday, 4/9/95 4:00 PM - out of role - A friend helped me access E-Mail to obtain my role in game. After nine tries, I finally remembered my password and found out my role. I am a member of Infomatics, Inc. I am actually relieved that I was placed on a team, so I could work with other individuals.

10:30 PM - out of role - I finished reading preliminary information from handbook. There is a lot of information to take in, analyze and remember. I am very confused; however, I am looking forward to playing the game so I can see how it works and how it ends up. I am so very relieved that I am part of a team.

Tuesday, 4/11/95 7:10 PM - out of role - I am more excited about starting the game after the Control Team further discussed the game.

7:20 PM - in role - Tom, Monica and I introduced one another and got busy developing our Mission Statement/Objective, Strategies, Priorities and Reasoning:

Mission Statement: Innovate SAMSON device ahead of competitors in an efficient manner, increasing market share, thereby creating profits for reinvestment in technology.

Strategies: 1) Create agreements with key stakeholders; 2) Generate technological advancement through joint ventures (using Toolkit) and government funding; and 3) Upgrade automation of facilities.

Priorities: 1, 2 and 3 (same as above); 4) Work on getting Glass-Steagall Act repealed to allow bank to invest in our company directly; and 5) Reduce emissions for good PR with US activist and public.

Reasoning: Infomatics cannot reach its Mission Statement (Objective) without achieving the above strategies and priorities.

The companies/individuals we will have the most interaction with include: Mechatronics (automation, \$, technology, CA Senator's brother); CA Senator (economic agendas, jobs, environment); Commerce Official (Japan basher); Japan's MITI (upset about Viewall and Infomatics); US Finance (wants capital for Mechatronics); US Activist (ties to CA Senator, media and control group); US Media (emissions, jobs, revenue, made in America); US Public (Jobs); US Distributor (necessary for distributing our product); Viewall (keep on our side; watch for MITI; watch for Horioka); Glass/Steagall Act (repealing act will cause more equality among players).

We finally completed our strategies, etc. and are ready to really begin interacting. It seemed to take us a while longer to finish this task so we lost some headway, a lot of individuals approached us and, because we had not finished our strategies, etc., we could not interact/negotiate with them. This will probably take us awhile to catch up. (It did.)

We were approached by the CA Senator, DOE, US Finance, the Distributor and US Commerce to make decisions all at once. It seems to me that most of these were taking on a Win-Win attitude. No one is really out to get the best for themselves while taking advantage of others. It seems like decisions are being made to benefit all involved parties.

We agree to give money to DOE/ARPA for its consortia (JNL development). A lot of individuals are involved in this. If it passes it will give Infomatics exclusive rights to a new battery which could be used in SAMSON. We decide to go with this decision, because it does not require a whole lot of money and will be very beneficial to our company. It also will allow us to be involved with a lot of other companies in a combined team effort. (This passes.) Both US Commerce and US Finance approach us looking for teaming opportunities. However, because we are so engrossed in other decisions, these individuals are brushed aside as not having a high priority.

We think it will be a good idea to form a beneficial relationship with the CA Senator, because she will probably have an impact on our present and future actions and she may be able to help us reach some of our future goals by providing some political pull. She is very receptive to our suggestions of somehow developing a beneficial agreement between us, her, the activist and any other interested participants.

We also decide to pursue an agreement of some type with the activist. We feel this is extremely important because of the present concern over environmental issues. The Environmentalist is very interested in forming a relationship; however, she is very cautious and is going to take her time to make a decision. We feel that we need to form a strong relationship with her, because she can cause a lot of individuals/companies to turn against us if we are not careful. This is a Self-Protection strategy. We eventually sign a mutually beneficial agreement with the activist and others, reducing the environmental compliance cost by 50%.

9:00 PM - Things are getting really fast paced at this time. I definitely feel that we do not have enough time.

We decide to dedicate quite a bit of money to the ARPA program in MIS providing validated computer models ... I am not sure why we are making this decision. It is made very quickly. It fails and discourages us all. I am worried about the outcome, because we did not give this decision a lot of thought.

We decide to give money for simulation and modeling tools for electronics design ... We feel this will give us some type of advantage over our competition. This one passes.

We decide to give a lot of money to the 3-D, FPD. The passage of this will give us a major advantage over our competition. (It passes. Yeah.)

Mechatronics approaches us with an espionage option. We (Infomatics) agree that it is not something in which we would like to be involved. It goes against our company's ethical principles.

10:00 PM - *out of role - Tonight's class went by very quickly. I really got into my role as time went by.*

Wednesday, 4/12/95 9:00 PM - out of role - Thinking back about last night's game playing, it is very evident how important it is during this game and in my role to be a team player. We have to learn to discuss together and make decisions together. Teamwork really makes the difference. If one member gets impatient and makes decisions without consulting other team members, it is a disaster and we end up losing a lot of money. Patience, teamwork and collaboration are key.

It is interesting how many people really got into their role playing. It was kind of funny at times, but I actually thought it was great how they really put their all into it.

Sometimes we had to join with others in what was key and important to them so that they would later support us on some of our really important issues. The game is very politically oriented. Even if I do not agree with some choices 100%, I support them to form beneficial relationships. It's a Win-Win strategy. I felt the game's first night of play was totally politically and financially grounded. Not many long-term strategies were made.

Tuesday, 4/18/95 7:10 PM - in role - I am extremely disappointed our team did not keep better track of our spending during last Tuesday's game playing. We lost one of our most important successes because we overspent. Because of the fast pace of the game and because too many companies/individuals are approaching us at the same time, we want to talk with everyone and get the most for our money. However, because of the quickness of the game it sometimes causes us to make decisions on our own without reaching consensus, and bad decisions end up being made.

We now have much less money available to us. This will cause a major problem. We do not feel we have enough money to be able to really achieve anything.

The NM Congresswoman announces that Infomatics and Mechatronics may join together to build a plant in NM. This is the first I have heard of this. Interesting.

7:30 PM - I keep getting approached by US Commerce for an agreement on workers' rights. However, I finally tell her to wait awhile, because we have little money to spend, and I must concentrate on other areas.

It is hard for me to believe that although our company has an 80% market share, we only have \$400 million to spend.

8:15 PM - I am experiencing major confusion at this point. I am getting approached by many companies/individuals who, now being more aggressive, are in the game definitely for their own advantage.

We are currently making numerous different decisions at the same time and I am losing track. So I go off to find the DOE representative, so I can get an agreement signed to allow us exclusive rights to the battery that was previously developed and passed (JNL). The agreement is accepted and acknowledged.

I am working with DOE and the Ukrainians for rights to their software. I do not want to make this decision on my own, but it is hard to track down my team members to get their input. They are very involved with their own dealings at this time. We also do not have a lot of money left over and I have to find other means to come up with funding. I went ahead and left this up to DOE to do with the Ukrainians.

We go ahead and spend all of our money in several different agreements (I cannot remember at this point what they were). However, one of the decisions we make also fails, so we were involved in three major decisions, each one requiring a lot of money and they all fail. I find this very discouraging and hard to accept. I know this is only supposed to be a game, but one always wants to do good in games and when it gets so discouraging, you kind of just want to give up.

8:30 PM - We merge with Mechatronics to form Infotronics. This decision causes me to be a little uncomfortable, because I always get the feeling that Mechatronics cannot be trusted 100%. However, other team members decide to go ahead so I too go along. This will be very interesting to see how it works out. Kind of a *carpe diem* attitude, although it may not be too smart.

9:00 PM - Monica decides to become very involved in Technology for America, so she starts to spend a lot of time developing that concept. It is great she is so intent on that role; however, I feel like we have been abandoned by one of our team members. It seems that the game is kind of winding down and losing steam. I know I am ready to move on into the next stage of the game.

9:00 PM - out of role - US Commerce and I discuss stress and how I am too young (28) to be feeling the way I am, because of the stress I am experiencing.

Sunday, 4/23/95 9:00 PM - out of role - It will be interesting to see how the game turns out.

Looking back ... I wish we would have assigned roles within our group. These roles would have assigned to us different parties for which we would have been responsible. Each team member would have to form draft agreements with those companies/individuals for which they were responsible, then give a brief report to all team members and get each member's signature. This way, I think we would have stayed on top of things a little better.

Teamwork is so important in this game. Just like in the real business world. Major decisions have to be made and agreed upon by all involved parties. If consensus is not reached, some people do not feel they 'own' the decision and eventually do not end up supporting it (even though they should for the good of the business). Consensus needs to be reached by all team members.

It was great to see so much enthusiasm in so many players. I wish I could have role played a little better. Tom somewhat became the leader of our group.

I regret I never went over to the Japan side of the game to discuss things with them and to try to understand their roles, dilemmas and decisions. Our team just ran out of time and did not get the chance to really get involved with them. It was such an atmosphere of US support that I concentrated my efforts here instead of Japan.

I wish we would have had more time to play the game. I would have felt I had gotten more out of it. It was fun overall and it was interesting to see how the game paralleled the occurrences that happen in the real business world.

Most game participants seemed to start the game with a Win-Win attitude; however, towards the end of the game, it was a Me-Me attitude.

I wonder how to approach the presentation for Tuesday's class. Should it be approached from a general or specific manner? In a general manner, I would like to talk about internal and external (to the firm) relationships and, in a specific manner, I would like to talk about particular decisions that our team made.

Monday, 4/24/95 10:00 AM - I spoke with Tom. We are going to meet to develop our presentation for tomorrow night's class. We think we are going to approach it from an internal/external manner (from above) and from specific decisions our team made. Monica will be presenting information regarding Technology for America, so she will not be directly involved with our presentation.

Tuesday, 4/25/95 5:45 PM - Met with Tom to discuss presentation. It became obvious Tom is very technically oriented, while I am very human relations oriented. My thoughts were based on human interactions (see attached notes for presentation). I envy Tom; he seems to have understood and gotten out of this game way more than I did. I feel I missed out a lot of major 'happenings' our firm was involved with.

9:30 PM - I understand more about individual roles now once I was debriefed by everyone. Its nice to know that I was not the only one who occasionally felt frustrated and confused. I didn't really like complexity, because I always like to have control. Overall, it was great. Thanks.

Presentation: What I learned

Internal to company

Positive

group dynamics important
more than 1 making choice = diffusion of responsibility
teamwork important

Negative

decisions made without consensus (assign different groups to work with)
discouragement in game
no time to analyze choice
didn't work with Japan in win/win

We played it safe for the majority of our decisions; team up with Mechatronics was carpe diem of sorts. Should have assigned responsibilities?

External to company

Positive

enthusiasm in roles
team player mentality in US; us versus them (US vs. Japan)
Made in America important
win/win @ beginning

Negative

too fast moving; no time to think
companies out for their own good @ others costs (me/me; win/lose)
game lost steam toward end of 2nd night

HORIOKA, LTD.: Japanese Computer Manufacturer

PREGAME SCENARIO

Horioka Ltd. is a major supplier of these high-tech, SAMSON entertainment/communication devices with 40% market share. Its factories are highly automated, utilizing equipment developed internally. Horioka is a large diversified \$10B company. Last year, sales of SAMSON products totaled \$40M and company executives expect new SAMSON sales to exceed \$500M within 3 years of their introduction. Horioka invests \$400M annually in electronics R&D. It has license agreements with Infomatics for elements of SAMSON which cover only the first generation, and is developing new technologies to circumvent the patent issues. However, the Infomatics-proprietary operating system leaves Horioka with little choice but to negotiate a new license agreement, or try to introduce a new operating system which may not have wide acceptance.

Horioka has obtained the patent rights in the past, due to its strong position in automated assembly. Horioka's high levels of automation allow it to manufacture products at a lower cost with higher profit margin than Infomatics. This automated assembly equipment is manufactured and sold worldwide by Horioka's Advanced Automation Division, which supplies automation equipment for the semiconductor and electronics industries with annual sales of about \$700M.

Horioka is also a manufacturer of CPU's and DRAM's. Horioka purchases 3-D displays from the same Japanese company (Viewall, Inc.) as Infomatics. Horioka is a member of the same major keiretsu organization that the Japanese bank belongs to.

Key challenges are:

- 1) Advanced automated assembly and packaging
- 2) Better display technology
- 3) Better software
- 4) Location of Production
- 5) Accused of illegally obtaining state-of-the-art robotics design software from a small US firm

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Superior product image and name recognition; increase market share for SAMSON; improve net income through cost lowering; stronger presence in US.

Priorities: 1) Funding through MITI credit; 2) increase distribution of SAMSON in Japan and US; 3) funding through Japanese banker; 4) improve SAMSON and bring to market; 5) funding purchase of Mechatronics; 6) look for American distribution.

Reasoning: Viewing device through Viewall will improve. Funding will solve licensing and US distribution. Solving robotics and package issues through funding.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:15 PM

Horioka, Japanese Banker

Horioka will fund the Japanese banker \$200M for software purchases. In return the banker will provide Horioka 2 influence credits to pass policies.

4/11/95 9:46 PM

Horioka

Horioka invests \$540M in private toolkit option to 'Lure three Infomatics OS developers away who will develop new OS within 2 years.' **SUCCESSFUL at 76%.**

4/18/95 8:17 PM

Horioka, US Univ.

Horioka contracts with US Univ. to develop 3-D retinal display technology (toolkit) within one year. Horioka to spend \$400M and have an exclusive license to the technology for 5 years. **UNSUCCESSFUL at 94%.**

4/18/95 8:45 PM

Horioka, Viewall

In return for Viewall giving the new retinal display to Horioka at a 60:40 ratio in relation to US market, Horioka has agreed to fund at \$400M for the next technology which is virtual reality. If that is successful, Viewall has agreed to exclusively sell the VR technology through Horioka for 2 years (see 4/18/95 at 9:13 for finalization).

4/18/95 9:05 PM

Horioka, The Electronics Distributor

Volume prices for existing and future products. 10% above cost for existing technology. Sole distributor for Horioka now and in the future. Open for future negotiation of new products. Transfer of 2 credits from The Electronics Distributor to Horioka.

4/18/95 9:13 PM

Viewall, Horioka

Horioka invests \$400M for Viewall to develop (through a new toolkit option) virtual reality technology including remote, gloves, surround-sound, TV/computer/VCR compatible, climate rooms. This agreement will not affect the previous agreement with the distributor. Horioka commits an additional \$200M to Viewall for research. **SUCCESSFUL at 60%.**

HORIOKA JOURNAL EXCERPTS

Dianne L. Rossbach

Sunday, 4/9/95 - E-mail Notes:

My role is member of Horioka team.

1. Need to identify Cindy Skinner & Yong Wang.

2. Will I be able to identify key players during class sessions?
3. JLOGSDON@BOOTES.UNM.EDU

Monday, 4/10/95 - Players' Handbook Notes:

Horioka - end product manufacturer of SAMSON device.

1. financially sound company
debt to equity ratio is the same as Infomatics
not as liquid as Infomatics
adequate capital to initiate strategies suggested in handbook
2. technological opportunity in robotics
3. technological challenge in 3D displays & supercapacitors
4. SAMSON = ???? unknown potential

Scenario has tremendous detail to assimilate on competing needs for players and mechanisms for business transactions. Handbook says "Read and understand the detailed information" ... no kidding! Horioka transactions could become very complicated very quickly, by trying to wheel and deal with too many interests at a time.

Horioka is big enough not to have to move very fast; check out how the other groups interact. Will the setting be like a trading floor or will groups align for strength? SAMSON represents only 4% of Horioka's sales currently. How important is the fledgling product to the play of the game?

Draw a model of the relationships between the roles.

Compare interests and priorities to see who has similarities that can be useful.

Tuesday, 4/11/95 - Reading Notes:

Japan is a Communitarian state; governmental power is coherent & centralized. Remember M. Eto's comment... "Everybody go same way."

1. Japan... strong government = virtue
2. US... strong government = evil

Japanese business structure is also communitarian; management, buyers, sellers are tied by consensus. Cooperation is directed and subsidized by MITI. Affiliated companies (Keiretsu), industry associations, individual businesses (Keidanren) engage in joint planning with the government.

Pressure of foreign competition is bringing US domestic competitors together.

Game Play: Strategies for Horioka

1. Maintain leadership in computer related products with 3 year goal of \$500M
2. Stronger presence in America.
3. Gain majority market share of SAMSON.
4. Lower production cost.
5. Produce a superior product.

Contracts/Agreements

1. The Horioka team is very concerned about consumer acceptance of a new operating system; Infomatics seems the better route.
2. Japanese bank is willing to give one influence credit if we continue to develop markets abroad.
3. Promised Japanese distributor we would lower cost w/ restricted distribution of Infomatics SAMSON.
4. Offered Viewall twice current R&D funding in attempt to negotiate for 3D display.
5. Offered Mechatronics \$28M in attempt to buy company in total.
6. Received offer from Mechatronics of \$100M at 11th hour; details uncertain.

We identified winning strategies, but failed to implement them. Very hard to form a plan, let alone proceed with order. Negotiations with Viewall were difficult. Cindy was insulted that they didn't want to work with her. No give and take. "They just don't know how to negotiate. They need a Negotiations class."

We can't seem to get anything done. Hard to agree how to do anything. Does delegation work in the context of consensus management?...where the working parties are all equal? Constant flow of vendors, delegates, ministers, media at the door ... not easy to do information gathering. Control team suggested we assume the roles of CEO, COO, CFO in order to help us get organized. Maybe we need a front person to receive information and make command decisions, a scout to gather data, and a recorder just to keep track of the agreements.

The 'consultant' came to visit twice playing a very sly image. Unable to see a great need to deal with patent or licensing scandal, since all expires soon anyway. He plays sneaky very well. The consultant came back again as a Ukrainian company who could save us in efforts to solve the SAMSON operating system problem. Again, he plays very close to the table. It's all or nothing. Very creative solution to use the ministry as a go between to ease our discomfort about stealing SAMSON secrets to date. But again, when pressed for some contractual details for the paper that goes to the control team, he was unwilling to try to make us feel secure. To test the situation I went to him to see if he could get a device from America for us examine. He refused because it would be an unethical move. I approached him to see if he was tied to the Euro joint venture, so that we might at least bundle our risks and gains. A Control team member thought it would be wonderful if he also played that role. But then Horioka was again back to only Yes/No decisions within his arena.

The Handbook did not indicate that there were critical distributor issues, but posed the question of locating in the US. I contacted the Japanese distributor to see if there was a trade off that Horioka needed to consider. Not much information ... suggested that he work with the US distributor and that it could be helpful to us to be able to lower our cost by efficiency gains in distribution. Not much to negotiate about. Visited the US distributor to explore the same issues ... her main concern was that I was 'dumping' product in the US. Couldn't get her to do anything but refer me to the media to solve my image problem. I assumed that though the handbook indicated the terms were too good to be true, I could assure her they were real. The US media agreed to announce the terms in the hope (and in such a light) that she would seem the fool not to accept such a deal. Next week?

Japanese Banker very willing to work with us.. acted as information gatherer and negotiator to move the play along when we were unable to make choice.

We're not making progress with our negotiations ... spent \$\$ on a dice throw for Infomatics employees to solve our operating system issue. Successful. We wanted to spend money, but chose to finance with a roughly 80% chance of success.

Wednesday, 4/12/95 - The Rest of the Story:

This game is about TRUST. How do people make decisions..??..form contracts... cooperate... aggregate power... in the middle of so much activity, tension and unknown factors?

No one in the room last night has time to be anyone other than themselves. I was worried about how to assume a Japanese mindset. No time ...

The Horioka team has set a leadership strategy that can't be measured in this game. Should we redefine our goals so that we can feel better about the play of the game? Seems like I've run into this strategy at work every now and again.

Horioka financials-\$10B company. SAMSON at \$500M in 3 years still will not make or break this company. Only 5% of total sales. Doesn't warrant a risky capital investment or strategy. No need to compete for position or negotiate for the long term. The contracts presented expire in the short run. The Horioka team is also reluctant to commit to long term agreements. We are insecure about structuring the terms to cover ourselves. Should we up the stakes so that we have a need to risk?

International issues.... what can Horioka do for Japan? I should know this as a Japanese citizen, but my extended years in the US are clouding my vision. Check with MITI.

Tuesday, 4/18/95 - NPR on my morning radio drive...

Japan provides 20% of worldwide Foreign Aid.

Discussion of negotiating & business methods: US - apply external pressure

Japan - convert to your way of thinking
Money is not the first, critical issue.
Money is a 'contribution'..?? to the market system??

Leftover issues that need to be addressed from last week ... received no E-mail during the week, except the Control team update. No side deals for Horioka ... that I know of. This suits our consensus mode, anyway.

1. Proposal to double R&D with 5% return unsuccessful. How about a more team oriented proposal. Cost sharing.. joint venture situation...
2. Bank will finance to unknown level ... wants us to work with Mechatronics ... offered an influence credit. What did Mechatronics want at the close of last week?
3. MFA wants work force training initiative. Offered an influence credit. Very small \$\$ involved. Probably a 'good deed' in any case. Will we get enough time to do 'good deeds'?
4. Today's play options:
Consider the Technology Options
Sit back and watch

The Play: another blur. Everybody deciding to cooperate. They need to do this because the game is almost over. People need to feel successful... games require winning something. Not much praise available out there in the financial arena. Horioka has just made it through another day. Why couldn't we cooperate ahead of the game schedule? Guess I still wanted logical decisions.

Observations:

1. Cindy elected me as a spokesperson for the debriefing, but provided me with a quick set of notes to help me recap. She didn't communicate this to Yong, but he & I discussed the options and he seemed comfortable with this solution. She's a good team player; employed good 'school' strategy. Fair & efficient use of resources. This is a different decision making style from the one used in the game. Yong summed up the experience by saying he was amazed at Viewall's resistance to our offers. "Japanese firms don't make decisions that way." He trusted the fairness of Cindy's terms...the offers to Viewall ... appeared to feel that Viewall ended the discussions too soon. Viewall must have felt it was critical to have solutions quickly, and therefore judged them on the surface facts instead of seeing them as initial offerings.
2. We undoubtedly appeared uncooperative. We were timid decision makers, but our stress was from the operating mode not the critical needs of finances.
3. Should we have solicited Yong's perspective on how to be successful Japanese business people? Did we use all our resources? We would have had to persuade the rest of the players in the Japanese group that they couldn't figure it out for themselves ... it would have embarrassed him to be the focal point. Still need to mention his perspective in the debriefing.

Points for debriefing:

1. Natural tendency for the Prosperity Game Scenario to be an opportunity to take sides. We all want to figure out how to win. Non competitive situations mean everybody gets to feel they've won, everybody cooperates to reach the goal. Still a focus on the prize, not a natural operating mode.
2. Horioka team felt bombarded by other players. We should have recognized the stress would have been partially alleviated by doing an expectations or issues discussion before the first session. We needed to figure out how to operate as a team as well as get into the game. Because of this we probably seemed uncooperative or distant.
3. Horioka didn't have a clear view of the product they were marketing. The detail within the handbook was not our design, so we operated as if it had it's future already mapped out. We were facilitators in this situation.
4. We relied heavily on the advice of the Japanese bank, ministries, and MITI to make decisions. We tried to make sure we each participated in decisions. Final agreements were clearly the work of the Japanese Banker and MITI.
5. Yong's wrap-up regarding the way the players made decisions. "Japanese don't make decisions that way."

Post Mortem: Questions from the Control team...

Were you constrained by your role? The Control Team made note that certain roles have played out the same way before... notably Horioka.

I wonder, if the nationalities were reversed, would there be a significant change in the results. I don't think our team's timidity as decision makers was as much a condition of the nationality we played as of the business scenario. Horioka did not have a critical decision to make. The company made money from week 1 to week 2 without trying. It probably would require substantial mismanagement to cause the company to fail. I think the security of Horioka's financial position, its low risk profile and the breadth of opportunity available represents a tremendous burden to overcome before taking action. The US media observed that there was too much chance and not enough logic evident in the play of the game. This should be restated as too much opportunity for Horioka. It's difficult to make choices where there are a number of very good ones available. (Of course the time constraints would have prevented too much analysis.)

This risk and opportunity issue may have affected other groups as well. The Japanese ministries said they had little to do after their handbook objectives had been fulfilled.

Though we may not have individually felt constrained by a role, it was easy to accept certain stereotype images for ourselves. This way we closed some doors to creative thought. It was easy to follow typical patterns and think there are rules or guidelines already established for us. Is this balance of shortcuts in language and culture (stereotypes) and logical reasoning? Too much dependency on the former won't get you a clear picture, but too much time spent on the latter doesn't get much done.

No... we weren't constrained by outside influences.

Horioka was mean!

Wow, we took more criticism than I expected. I was certain we didn't seem open or generous or ready to make a deal, but I hadn't realized that it was as widespread a problem. I wasn't in on the negotiations with Viewall, so I don't know how things could have been handled differently. But it did seem like we really turned away many opportunities to meet with groups and individuals. A little more tact... a little more grace... a little more E-mail... and the 'take a number' system used in the catalog sales departments might have helped.

Cynthia Skinner

Sunday, 4/9/95 - Just checked my role assignment. Horioka - major amounts of reading. Can't even begin to assimilate all the information needed for Horioka, let alone the 20+ roles. Eash!!

Tuesday, 4/11/95 - Well, just got home from class and I'm really wired. I did not enjoy my role assignment. I decided I do not want to be president of a big company. First, as soon as Control said, "You're President," the other two on my team started looking at me for decisions (like I know?). Then we were bombarded by every group asking us for money, but when we asked how we would benefit, (What would be the return on the investment?) they would get mad.

Examples: Japanese Distributor

Japanese Distributor: "I want you to sell your product to me for a reduced rate."

Horioka: "How will we benefit?"

Japanese Distributor: "I will reduce my debt load and make more money."

Horioka: "Again, how do we benefit?"

Horioka: "We will give you \$320 million towards R&D in exchange for a set above price and a percentage of the revenues for X amount of years."

Viewall: "No deal."

Horioka: "Bottom line, do you want to cut a deal, or do you just want us to hand over the money? We need to make a return on our investment."

Viewall: "We do not feel we should sell to you at a reduced rate, nor give you a percentage of the revenues."

Horioka: "So you do not want to deal?"

Viewall: "Guess not."

It made me so frustrated that everybody expected us to hand out money. We did not get to be a big business without wise investment. We did not get to be a \$2 billion dollar company by giving it all away, after all, we are a

business, not a foundation. But the scenario that really made me mad was the Ukraine person. I told him to write up an agreement he would like to see and we, as a team, would discuss it. At that point, Mechatronics came by to visit. The Ukraine guy said that I had three minutes to get back with him. I told him that it would be impossible to get back to him in three minutes (because I really wanted to talk to Mechatronics). He kind of got in my face and said "Three minutes or the deal's off." Well, I picked up the agreement, ripped it in half, and said "Fine, go to our competitors."

The other part that was so overwhelming was the constant barrage of people. We, as a team, never got three minutes to ourselves to think or discuss anything. I finally started sending people away, asking them to come back in a few minutes. When the evening ended, I'd felt we lost some good deals by not having the time to assess them. Japanese banks and ministry wanted us to do a deal with Viewall, but yet Viewall was very uncooperative. I need to read up in the book, but I'm ready to say to heck with Viewall and develop our own product to directly compete with them.

We also would like to work out a deal with Mechatronics.

Wednesday 4/12/95 AM - Just a quick note. I dreamed about this all night - very restless sleep. Sure sign I'm feeling stressed. Need to not take it so seriously, tossed and turned all night.

Thursday, 4/13/95 after 7:00 PM - Ran into one of the Japanese Ministry (Danielle). They said they really want us to work out an agreement with Viewall. I told her how uncooperative Viewall is being and she said we were being uncooperative, so I told her my version of the story. She said she would e-mail them and get back to me.

Friday, 4/14/95 late afternoon - Checked e-mail before heading home for the weekend. Message from Viewall asking about competitors in their market. I suggested they research the consultants position and if I got anything, I would get back to them.

Monday, 4/17/95 - Just got the e-mail from control. Pretty interesting stuff.

Tuesday, 4/18/95 - Well, just got home from class and I must say that I enjoyed tonight a heck of a lot more than last week. Maybe because I'm taking Negotiations Strategy. I'm used to role play and it took the others a little longer to get into the role. I do remember that the first negotiation I had to do, I felt rather silly. But, it felt like people got more into their roles tonight.

Japanese Ministry started getting the hang of the role of the Japanese government and began to exert pressure on Horioka and Viewall to work together. I wish we could have worked together last week. We could have former a power house. At the last minute, we started doing well. It was funny. We were trying to work out a deal with Viewall (they were being stubborn as usual), when the Japanese Ministry walked up and said, "Oh, nice to see y'all working together." Well, one of my team members, in frustration, said to Viewall, "You explain to them why you won't work with us." I had to laugh because I had been saying they weren't being cooperative. Oh well. I did enjoy it once we were being cooperative and working towards a win/win. We started making some good investments that I feel will make the two groups leaders again.

After we got all our agreements finished, a member of Viewall said, "Now we can relax." I looked and said, "No, we just got our edge back, we need to keep up the R&D to keep ahead."

Someone said we need to try to write the journal through the perspective of the role. I found it very hard to be Japanese. After all, I am American. When I brought up the issue of return on investment, others in my group asked me if I was thinking in role. I said yes. They said no. Well, I still think the Japanese did not become brilliant businessman giving money away.

Something else I learned about ten years ago when I spent a year overseas. You can read all you want about a culture, but you have to live it to truly understand and learn it. I don't mean a two week visit, I mean a few months. so I don't think reading some material truly gave me insight to the Japanese culture; therefore, I could not help but act with American mentality.

Tuesday, 4/25/95

Media - Japanese media wanted people to utilize them more. So much information. Hard to focus on media. I was just trying to keep my head above water. I agree with their comments about how the game was structured. It was difficult, but as they said, it all pulled together in the end. US media - "Too much going on." Amen! US Activist - I definitely liked her environmental push.

Japanese banker - We worked a lot with him.

MITI - Horioka did not 'snub' them - we were too overwhelmed by all the people bombarding us asking for money.

Viewall - I just decided that I would never like to work with those people - they kept making us look like the bad guys. In the very beginning we offered them lots of money for research and they turned it down.

Once Horioka and Viewall started working together, I enjoyed this a whole lot more. I definitely like a win/win situation. After listening to Viewall, I'm annoyed again. We decided in our presentation we weren't going to bring up specifics.

Yong Wang

Tuesday, 4/4/95 8:50 PM - Was introduced to the Prosperity Game. Sounds interesting and lot of work and reading. Not quite sure about the game. How are we going to play?

Wednesday, 4/5/95 3:00 PM - Picked up the reading on International Competitiveness. A lot of reading.

6:00 PM - start to read the paper by Lodge, G. C. of Roles and Relations of Business and Government. This is a very good paper. The author developed a framework to examine the management of business-government relations within and between different nations.

Japan is an example of communitarian government. US is a good example of individualistic government, in which the government role is limited. Japan's government is prestigious and authoritative. Traditional western economics is rooted in individualism. These differences should be kept in mind when we play the game.

Monday, 4/10/95 8:00 AM - Tried to get on the mainframe computer last night, but it was not working. Now everything seems working. My role will be in the Horioka team with the other two: Dianne Rossbach and Cindy Skinner. It is going to be interesting.

6:00 PM - Reading the Players' Handbook, lots of information. I spent more time on the information related with Horioka company. The objectives associated with SAMSON development include:

- 1) Obtain advanced automated assembly and packing ability
- 2) Better display
- 3) Software

Objective 1 can be achieved in-house because Horioka has a good advanced automation division.

For displays - need to get deal with Viewall company.

For software - 1) go to Ukrainian or 2) Infomatics. Need to discuss these ideas with the team members.

Tuesday, 4/11/95 7:00 PM - We started with discussion of Horioka's long term objectives and ways to achieve them. They include:

- 1) Establish leadership in the SAMSON technology
- 2) Increase market share
- 3) Continue the leadership in the area of automatic assembly equipment manufacture

Our approaches:

- 1) Research and cooperate in the SAMSON development with other Japanese companies (e.g. Viewall) and possible US companies (e.g. Mechatronics).
- 2) Contact MITI for assistance for finance, foreign affairs and cooperations.
- 3) Contact Infomatics for license and other issues.

We are bombed by other groups. We have difficulties to get together and discuss the issues.

I approached Mechatronics and offered \$30M for buy out the company. They refused immediately. Apparently they have some deals with Infomatics.

I approached Viewall, offered \$300M for joint research on 3-D display. In return, we would like to have them provide 3-D displays at cost and 5% royalty. Viewall do not want to jump into the deal. They want \$400M and no royalty. Viewall's attitude is not cooperative - not act like Japanese. That is probably due to people not familiar with Japanese custom and the power of Japanese regulation.

Monday, 4/17/95 - Read again the handbook and articles. Understand the game better. It will be good idea if we have more time or some practice before the game to go through the materials and discuss issues within group. It will be also possible to reduce numbers of roles to focus more issues. The game is complex, most of us do not experience of business deal or not familiar with the extent or scope of the business world.

Tuesday, 4/18/95 - Game time is 1999.

We discussed our objectives, problems, and approaches again. We established the priority issues:

- 1) Get deal with Viewall for 3-D display
- 2) Develop automated assembly and packaging in-house
- 3) Approach Japanese government for help.

At 8 PM it was announced that Infomatics had 80% SAMSON market. Our operation is falling behind. We need to figure out something to recover from the problem.

We discussed our approach and decided to develop new technology including 3-D virtual reality display, and direct retinal projection display to achieve competitive advantage and new market.

Viewall has the retinal project. However, they immediately contracted to the US-Japan distributor, which left us with little room to deal with Viewall for new technology. We reached agreement that Viewall will affect the proportion of distribution between US and Japan (40/60). We also reached the agreement to develop 3-D VR technology.

I don't feel Viewall is acting like Japanese company. We cannot work together.

Thursday, 4/20/95 - Overall, I like the game. I learned a lot of stuff about business operation and difficulties of making deals with people. I think the game would be played better if we can have more time to prepare, to go through the materials, issues, techniques because most of us do not have too much experience. The people who played Japanese roles did not act like Japanese. They should be more unified. The government should show more power in direct business operations. Japan is a country in which a government has the capability to create a consensus in society that is sufficient to allow government to design and implement goals for the community as a whole, change the behavior of important groups such as business, change the structure of society.

The roles of MITI are weak in the game. We have difficulties to deal with US roles, not easy to figure out the reason. They are unified better than Japanese roles. A video show before the game may be helpful for the successfulness of the game. More time allocation will also be helpful.

Problems:

Familiar with all roles

Familiar with background of culture, business world of different culture

Game vs. reality - culture, historical difference between countries

Overall: the game is interesting and good practice.

MECHATRONICS, INC.: US Robotics Manufacturer

PREGAME SCENARIO

Mechatronics' business is automated assembly of printed circuit boards and automated wafer handling. It also supplies some robotics to the automotive industry. Additionally, it has developed some automated advanced packaging equipment but has seen few sales. Mechatronics has total annual sales of \$75M, but its sales position has been slipping dramatically. Its' management hopes these new advanced packaging and robotic assembly tools will help them regain some lost business. However, even though SEMATECH has declared that Mechatronics' advanced packaging tools are the best in the field, they are still viewed as inferior to those available off-shore. Mechatronics has a \$1M R&D program with SEMATECH to develop advanced robotics, and a \$400K ARPA contract on CAD/CAM simulation and software development. Although Mechatronics has several R&D efforts which could have significant impact on its business, it lacks the capital to implement them.

Mechatronics has proposed establishing a manufacturing/user consortium for the development and manufacture of advanced robotics. Additionally, it has approached Infomatics about a joint development program.

Key challenges are:

- 1) Financial troubles
- 2) Technology development

STRATEGIES, PRIORITIES, AND REASONING

Strategy (short-term): 1) Negotiate with Infomatics and Horioka about Robo-APS; 2) invest additional \$50M per year to develop equipment for SAMSON; 3) get word out about Robo-APS quality.

Priorities: Secure \$200M of investment capital to remain viable and an additional \$50M per year for the next three years to develop the necessary equipment for SAMSON.

Reasoning: We have two plants, one is very profitable while the other isn't; therefore, Mechatronics would like to lower costs and prices at our Lexington plant to increase demand for Robo-APS.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:03 PM

Mechatronics, Infomatics

Infomatics pays Mechatronics \$30M for operating expenses.

4/11/95 9:03 PM

US Representative, Mechatronics

US Representative secures \$100M in funding for Mechatronics; Mechatronics spends \$80M on policy toolkit option 'Industry and government partnership to improve effectiveness of environmental regulation...' (Calculation performed 4/18/95, see 7:28 and 7:54.)

4/11/95 9:07 PM

Infomatics, Mechatronics

Infomatics invests \$50M yearly for three years with Mechatronics to develop robotics technology for SAMSON in return for exclusive use of the technology. Control assumes that Mechatronics spends the \$150M.

4/11/95 9:16 PM

US Senator, Mechatronics

US Senator secures \$100M funding for Mechatronics in exchange for Mechatronics spending \$50M to repeal the Glass-Steagall act. (Calculation never performed on repeal since it was not clearly authorized.)

4/18/95 7:28 PM

US Representative, Mechatronics

Clarification on deal made 4/11/95 at 9:03. Mechatronics invests \$80M to help support environmental legislation as outlined in previous agreement to aid US Activist.

4/18/95 7:54 PM

US Representative, US Activist, Mechatronics

Industry association and government environmental agencies form partnership to improve effectiveness (performance and cost) of environmental regulation and implementation ... In addition to the \$80M already invested by Mechatronics, the US Representative invests \$80M, US Activist invests 1 credit. **UNSUCCESSFUL at 57%.**

4/18/95 8:31 PM

US Senator, US Representative, US Worker, DOC, Mechatronics, Infomatics

Joint funding of policy toolkit option to 'Establish regional agency for workforce training programs.' US Senator invests \$30M, US Rep. \$50M, DOC \$70M, Mechatronics \$24M, Infomatics \$20M, US Worker 1 credit. **SUCCESSFUL at 54%.**

4/18/95 8:35 PM

Mechatronics, Infomatics

Merger of Infomatics and Mechatronics to form Infotronics. Infomatics has assets, Mechatronics has operating capital to pass necessary toolkit options. All previous agreements continue; all employees maintain executive positions; no funds transferred; 50/50 profits for each former company.

4/18/95 8:40 PM

Infotronics

Infotronics asked if market share got them more resources. Control said yes, 10% increase or \$45M.

4/18/95 8:41 PM

Rootska, Infotronics, US Finance

Infotronics gets exclusive rights to Rootska OS for 4 years in return for \$400M. Financing: Infotronics \$200M, US Finance \$200M. Finance gets stock options from Infotronics, DOD gets access to this cutting edge technology for 1 year. Rootska will receive 2% of all future SAMSON sales that use the Rootska OS.

4/18/95 9:08 PM

Infotronics, US Finance

US Finance trades 1 credit for virtual reality glove development in exchange for 1 million shares new stock at \$6 par value. Infotronics issues new shares.

4/18/95 9:10 PM

Infotronics, US Finance, Technology for America, US Lab

Joint funding of US Labs to develop a virtual reality glove for SAMSON (through a new toolkit option). Infotronics will have the patent for this leap-frog technology. TFA invests \$30M, Infotronics \$26M, US Finance \$5.6M. **SUCCESSFUL at 91%.**

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

4/18/95 9:18 PM

Technology for America, Infotronics, US Senator, US Representative, DOE

Joint funding for new technology toolkit option to develop 'Extremely high-resolution, 3-D, direct retinal and brainwave projection display becomes available at \$450 each.' TFA invests \$150M and 2 credits, Infotronics \$100M, US Senator \$50M. **SUCCESSFUL at 56%.**

MECHATRONICS JOURNAL EXCERPTS

Byron Pouges

Monday, 4/10/95 10:45 PM - Thoughts about game scenario and roles - The Prosperity Game is a great way to stimulate thinking and teach global competitiveness. The handbook that contained brief descriptions about all the roles gave me a feel for the game, and helped me to prepare or determine likely strategies for several roles. Each role seems to have several ethical, political and social issues to deal with. As well as economic (business) issues. It's now time for me to find out my role.

Tuesday, 4/11/95 12:44 PM - Role assignment received by e-mail - I am part of Mechatronics, Inc. We develop manufacturing equipment and some robotics to the automotive industry. All ethical, political, social, and economic issues facing Mechatronics will be confronted by my associates - Cathy Heckler, Erik Hoogendoorn, and myself. To begin the Prosperity Game, I think that it is important to conduct a thorough situational analysis in order to determine where we are now (our position), and where we'd like to be in five or ten years. Our strategy and tactics will then be used to accomplish our mission/goals.

Strengths:

- Advanced diamond packaging system (Robo-APS) consider best in field
- R&D program (w/SEMATECH) to develop advanced robotics (\$1M)
- ARPA contract on CAD/CAM simulation/software (\$400K)
- Joint program developing advanced robotics concepts (\$400K)
- Several hopeful R&D breakthroughs possible

Weaknesses:

- Shaky financial position - lack capital to implement R&D breakthroughs
- Need financial assistance to remain viable
- Lack of awareness about Robo-APS
- Losing market share to competition
- Flint plant supporting losses at Lexington plant

Opportunities:

- Seek financial assistance to remain viable
- Seek capital to develop SAMSON - Be first to market
- Publicize Robo-APS superiority
- Invest resources wisely in technology and policy toolkit options to gain competitive advantage
- Combine resources with other company or companies to achieve common goal - US economic competitiveness

Threats:

- Risks are high that Mechatronics will go out of business unless capital can be obtained quickly
- Espionage factor - how do we protect ourselves against other firms, countries

Tuesday, 4/11/95 7:00 PM - Develop a set of strategic objectives consistent with role (Mechatronics) and the culture of the US - before we decided on our short-term and long-term strategy, we discussed these key issues:

- 1) What should we do with our Lexington plant? Losing money.
- 2) Where should we look for investment capital to keep Mechatronics viable? Bring new technology to market faster?
- 3) Which technology and policy toolkit options are best for us?

As a result, Mechatronics short-term strategy is to:

- 1) Seek \$200M in investment capital in order to remain viable. Reason - we need to stabilize our financial situation so that we can concentrate on other issues. Best sources of capital include Infomatics (possible ally) and the US government (since many jobs are likely to be lost by our going out of business).

- 2) Seek \$50M per year over next three years to develop equipment for SAMSON. Reason - equipment can be manufactured at our Lexington plant efficiently. Once produced, SAMSON will be out on the market faster than other prototypes - capturing market share. Likely sources of capital include Infomatics and Horioka (the two big computer manufacturers).
- 3) Get the word out about Robo-APS and its superiority to others out on the market. Reason - Robo-APS is still viewed as inferior to those available off-shore. Possible sources to help us get the word out include the US and/or Japanese media. Also we will continue to have Robo-APS tool evaluation sales to hopefully increase our production level sales.

Due to the very dynamic and unpredictable computer industry, Mechatronics' long-term strategy is to maximize our flexibility and adaptability to changing environmental demands. We can achieve this by:

- 1) Efficient use of our resources - receive funds from other teams when possible to achieve goals
- 2) Focus on boundary spanning, in order to respond quickly to competitive conditions, technological breakthroughs, and other environmental conditions.

In our negotiations, we plan to use these priorities/guidelines to further our strategy:

- 1) Begin with a positive attitude and reciprocate the other parties concession if possible
- 2) Concentrate on the issues and situational facts
- 3) Look below the surface of our opponents bargaining to try to determine their strategy
- 4) Use power, if we have it, to guide our opponent toward an agreement

Thoughts *out of role* - I think that it's also crucial to follow these 3 criterion in negotiation:

- 1) Criterion of utilitarian outcomes - basically, Mechatronics behavior should result in the greatest good for the greatest number of people
- 2) Criterion of individual rights - Mechatronics should respect human rights of free consent, free speech, freedom of conscience, privacy, and due process
- 3) Criterion of distributive justice - Mechatronics should treat people equitable and fairly

Wednesday, 4/12/95 7:00 PM - Review of negotiations to advance strategies:

- 1) Stabilize financial situation - seek \$200M to remain viable. We decided that the US legislators (Senator from CA and Member of Congress from NM) would be able to provide investment capital needed to help us remain viable. Reason we are three years away from developing SAMSON (a revolutionary product). If Mechatronics goes out of business, US economic competitiveness will most likely decline. Also, lots of jobs will be lost in both CA and NM (mentioned to NM Congresswoman that we are considering relocation of our Lexington plant if we can't turn things around quickly). Ethical issues include: (1) should taxpayers money be used to help Mechatronics remain viable, (2) tradeoff between jobs and overall competitiveness for SAMSON. The US legislators agreed to fund us \$200M to help Mechatronics survive and in turn we:
 - (a) support the Senator's effort to repeal the Glass-Steagall act. Reason - a repeal of this act would allow banks to hold equity in corporations and would allow Mechatronics to obtain investment capital for some of our R&D efforts at a lower cost. As of now our only sources of capital are the US financier or Japanese bankers.
 - (b) support the NM Representative's efforts to expand high-tech business in NM. If our Lexington plant continues to lose money, we may relocate to NM. We also contribute \$50M to support the Rep's effort to form a partnership between industry associates and government agencies to improve effectiveness of environmental regulation and implementation in electronics manufacturing industry, reducing environmental compliance cost by 50%. Reason - protecting the environment by creating less pollution is necessary for sustainable development and a collaborative solution from business-government is needed.
- 2) Seek \$50M per year for next 3 years to develop equipment for SAMSON. Since Mechatronics has already been developing the necessary automation/test equipment with our own funds and with SEMATECH and ARPA contractors, we sought investment capital from Infomatics to develop SAMSON. Infomatics funded the development project and provided us with \$30M for current operating expenses. In exchange we supplied all equipment for SAMSON to Infomatics exclusively - and would have SAMSON ready and out on the market in 3 years, which would be at least 1 year before the Japanese competitors. Reason - we wanted to produce equipment within 3 years so that we could be faster to market SAMSON to capture market share - increasing our sales as a result of Infomatics dominance.

- 3) Get the word out about Robo-APS superiority. Infomatics is very satisfied with Robo-APS performance and it has been awarded best of breed by SEMATECH. Thus, we made sure to mention these points when interviewed by the US and Japanese media.

Sunday, 4/16/95 12:45 PM - Negotiation outside of class - 'It grows as it goes' best summary of our emerging strategy. We negotiated a series of contracts and alliances to meet our short-term needs, and will develop our strategy as the time progresses. It's important to be flexible in conditions of chance and uncertainty.

Thoughts out of role - Would be nice to have more frequent feedback. Negotiations outside of class are difficult. Probabilistic rates of success and failures not clearly understood. Seems a little risky - similar to gambling. Need updated information now to formulate strategies ahead of competitors. Also information (more information) as a toolkit option would be a wise investment.

Tuesday, 4/18/95 7:00 PM - Scenario updates distributed by e-mail - we learned from our first couple of encounters with the media (especially Japanese) that what you say is not always reported correctly. Therefore we will be very careful in the future in our dealings with the media.

As a result of our successful development project with Infomatics, they were able to capture 80% of the SAMSON market. Our exclusive technology allows them to assemble and market SAMSON one year sooner and at an 8% lower cost than competitors.

Viewall and Rootska have revolutionary 3-D electro-optics laser technology that will leap-frog our technology, so we approached Rootska to see if they would like to combine forces with Mechatronics. Reason - Our ties to Infomatics gives them a distribution channel for their product and gives Infomatics and Mechatronics a reason not to develop the technology in house. Result - Rootska decided not to join forces with us so we approached Infomatics to see if we could work together to leap-frog the technology held by Rootska and Viewall since the displays would be crucial to our competitiveness.

Wednesday, 4/19/95 7:05 AM - Review of negotiations to advance strategies:

- 1) Merged with Infomatics - new company Infotronics. Reason - Infomatics has market share and assets, but very little investment capital as a result of failures in many toolkit options. On the other hand, Mechatronics has ample investment capital to develop much needed technology, so we proposed a merger of the two companies and a profit sharing arrangement of future profits. An agreement was signed and Infotronics - the biggest US leader in the computer manufacturing industry was born.
- 2) Partner in Tech for America project. Reason - Felt that it was important to develop technical excellence in order to increase US economic competitiveness globally. Government and various business are working together to achieve the common goal. All resulting technology is shared by those companies who contributed funds to TFA. In turn, they fund technology ventures that are vital to the industry. For example, TFA supplied Infotronics with \$30M of investment capital we needed to develop leap-frog technology for the SAMSON - a virtual reality glove to be used with the revolutionary 3-D display out on the market soon. A 3-D display system was developed by TFA to rival Rootska and Viewall displays - and will be utilized by all American companies who are members in TFA. A synergistic effect is realized by various companies pooling their funds and working with government.
- 3) Improve Infotronics competitiveness globally. In the near future we look forward to forming joint ventures with foreign companies in order to share resources and risks; and to undertake mid-to-long term research and development. This will be a good way for us to gain access to different technologies (perhaps held by Horioka or Viewall). These joint ventures with foreign companies are an excellent way for us to improve relations with the Japanese and gain a foothold in the Japanese market.

Tuesday, 4/25/95 9:45 PM - Final comments and insights gained from Prosperity Game. Due to the turbulent and complex environment, it's important to not get too mechanistic in your strategy. Our approach was organic, and flexible enabling us to adapt to trends. Our competitive advantage was our ability to get products quicker to market, take advantage of technological breakthroughs, and forecast environmental/competitive trends before our competitors. Overall, the prosperity game was a great learning tool. I enjoyed the interaction with other roles, especially the negotiating and implementing strategies.

Catherine Heckler

Sunday, 4/9/95 - out of role - *As I began reading over all the information that we were given, I realized how much information there was to read and absorb. It was very confusing because of the large quantity of information. It seems well thought out and very interesting. I see it as a good example of real life.*

I slowly sorted through all the names and details of each role. I tried to concentrate on anything that related to Mechatronics, which was my role. I tried to evaluate our strengths and weaknesses as a company.

Tuesday, 4/11/95 - We started out by talking about what our short term goals should be, since we were in financial trouble. We needed to secure some financial backers in order to remain in business. We convinced the Senator and Representative that the development of the SAMSON project was important to the US as a whole. They agreed to give us \$100 million each in exchange for us helping them back two toolkit options, \$50 million for The Glass Repeal Act and \$80 million for option #8 under the policy options.

We agreed to work with Infomatics to develop the SAMSON project. They agreed to give us financial backing of \$30 million for operations expenses and \$50 million for 3 years (\$150 million) to pay for development costs of the Samson project. We felt we could work together to develop better technology in the US.

At one point, Horioka offered to buy our company for \$20 million. We felt this was an insult, even though we were in financial trouble. We felt our Robotics APR was worth more than that alone. It was rated as best on the market by SEMATECH. We felt we would be quite a bargain at that price. We considered licensing our Robotics APR to Horioka or Infomatics. We learned that Horioka has design deficiencies in their robotics which could give us some leverage.

Wednesday, 4/12/95 - out of role - *As a group we worked together to decide what choices to make. Things went pretty good for us on our first night, but we knew we had a lot to learn. It was still confusing as the day began, but we slowly tried to achieve our goals in whatever way we could think of.*

Tuesday, 4/18/95 - We were unaware that getting financial backing from the Senator and the Representative would be viewed as possibly illegal. We felt that a joint effort between the government and our company to develop SAMSON project would benefit everyone. It was unfortunate that they were both voted out in the next election.

We did get a lot accomplished throughout the evening. We started out by talking to Rootska about buying or licensing their newly developed software. We also considered purchasing Rootska. They were not interested in a buyout, and were still trying to get their software validated. We then considered the toolkit option for software development.

We were discussing possible software options with Infomatics but since they were low on funds we decided to merge with them. We formed a new company called Infotronics. We went in on a deal with them to get the Rootska software if it was validated at a speed of 180% of present software. We put in \$120 million and Infomatics put in \$80 million. The software was eventually validated.

We then invested \$100 million in Tech for America and they invested \$30 million in our virtual reality glove toolkit option. We added an additional \$26 million and 1 credit we received from the US finance in exchange for 1 million in shares at \$6 a share. This option did pass, which gave us an advantage over the competition.

We felt that we got a lot for our money and with our merger. Infomatics needed spending money and our Robotics system. We needed financial backing to continue development of the SAMSON project.

We found out that the computer industry is very competitive. You may develop a product, but the next thing you know, your competition has a better, cheaper, faster product. You have to choose where to invest your money very carefully. It was hard to decide what to do and where to put your money. It is a very complicated process.

Wednesday, 4/19/95 - out of role - I thought this was a great learning experience. I really enjoyed being a part of it. I can see how this can help people become more aware of what is going on in the business environment today. There are so many issues that businesses need to be deal with in order to survive today. There is a lot to learn if you want to be successful. You must be aware of what your competition is doing and try to create new, better products to compete with them. All in all it is a very complicated process that requires a lot of knowledge and thorough understanding of your business, your competition and the environment you are competing in.

I am anxious to hear what is said at the debriefing. I know it will be very interesting. We will learn a lot about the decisions that we and others made throughout the two weeks of negotiations. Thank you for letting us participate in this game. I think it was a very worth while experience.

Erik H. Hoogendoorn

The University Prosperity Game role-play situation we conducted in class proved to be a rather interesting study in social skills and business interactions. What made it unique was the fact that all participants responded to the situations and events not as themselves, but entirely as the role which they had assumed. My role was as an executive for Mechatronics, a small US robotics manufacturer. In presenting my observations from the game, it is easiest to analyze the experience at several different stages: Preparation, Day One (11 April 1995), Day Two (18 April 1995), and Final Insights. Further, each stage will be analyzed from the point-of-view of the Mechatronics executive and the point-of-view of Erik.

Preparation - In preparing for the situation, an executive analysis of Mechatronics and its background, products, resources and financial position was necessary. The questions I asked included: what is our position?; who are potential competitors?; allies?; what are their positions?; what do we do?; how well?; with whom?; and, what are our future prospects? As such, I determined that Mechatronics had two primary issues to consider: the need for capital (money) for short-term needs-, and the need to determine how to achieve long-term viability, most likely how to properly utilize Robo-APS advanced packaging system technology.

On a more personal level, my approach to the role-play may have had more of a dark edge. Because of my experience working for two years at the Program on Negotiation at Harvard Law School with negotiation role-play exercises, I was acutely aware of many of the issues and dynamics involved. My goal (hopefully not too sinister) was to play the game aggressively by throwing standard game rules to the wind. From my past experience, role-plays tend to approximate real life most closely when rules are made up not in advance, but as the situation unfolds. Furthermore, I learned through past experience that any role can control negotiation situations regardless of size, provided it knows enough about the other roles and their interests. I realized that Mechatronics was a small company, and I wanted to ensure that we avoid being exploited. This might be accomplished by outmaneuvering our fellow players with agreements that met our needs through offers to meet theirs.

Tuesday, 4/11/95 - The role-play for Mechatronics began in earnest when class began on Tuesday, 11 April. At this time, Byron, Catherine and I met to discuss our role, the situation and our intended strategies. We began by agreeing to be a committee rather than have a leader-follower structure. Then, we conducted a S.W.O.T. analysis of our (Mechatronics') strengths, weaknesses, opportunities and threats. We determined these to be:

Strengths:	Robo APS advanced packaging system Technology and R&D agreements
Weaknesses:	Public Relations
Opportunities:	Consumer perceptions of Robo APS Lack of capital, especially for R&D Exploit technology Possible strategic alliances
Threats:	Dollar losses, especially with Lexington plant Risk of going out of business

Need to diversify out of 85% reliance on automotive sector Horioka and industrial espionage

We then determined possible strategies. In the short-term, we could sell-off Robo APS and use the funds to shore up our financial difficulties. Over the long-term, we could focus on SAMSON technology and/or license Robo APS to Horioka, Infomatics or any other interested buyer.

To begin, we split up and tested the waters for possible alliances. Byron spoke with Infomatics while I spoke with Horioka. Catherine stayed at our corporate headquarters table to handle incoming groups. After our initial meetings and a less-than-accurate news release from the slanted Japanese media, our exact monetary needs were clarified by the control team. It was stated that we needed \$30M for immediate-need operating expenses, \$200M for future viability and factory updating, and \$150M for Samson development, to be used \$50M for each of 3 years.

At this point, we discussed the multitude of sources that were available to us to acquire the needed funds, and the resources we had for use in bargaining. It was decided that, although the \$30M was the most immediate need, it was the smallest amount and should be acquired last. We then surveyed funding sources: for the \$200M, Infomatics, Horioka, or perhaps \$100M from both the Senator and Representative, for the \$150M, the DOE/DOD/ARPA Representative or Infomatics; and for the \$30M, Infomatics.

We pursued many avenues at once for funding, yet tried to maintain the upper hand in negotiations. Since we knew what we needed, we waited to see what our potential allies needed and worked our offers around those mutual needs. The deals we then secured were:

1. \$100M from the Senator, in exchange for \$50M for the toolkit option to repeal the Glass Steagall Act.
2. \$100M from the US Representative, in exchange for \$80M for the toolkit option to pass environmental reform legislation.
3. \$180M from Infomatics (\$30M up-front and \$50M per year for 3 years), in exchange for a three year exclusive contract to Mechatronics' Samson technology.

With finances thus shored up, our outlook changed. Our focus became future profits, especially exploitation of our SAMSON and Robo APS technologies through licensing or outright sale and divestiture. We also realized a need to pass beneficial toolkit options.

Personally, I noticed the group interactions as the game unfolded. We assumed our roles within Mechatronics and quickly established a committee structure rather than an hierarchical one. Knowing that we needed money, I felt it best that we keep ourselves open to alternatives by testing the waters of all potential funding sources. We were then able to play off all sources with several simultaneous discussions and negotiations, allowing us to find the needs of our compatriots and then get the terms most favorable to us for our future goals and viability.

With the control team trying to make the game more interesting and frenetic, we were at one point faced with a quick need for \$30M by a specific deadline or subject to bankruptcy and dissolution. Again, my inquiring mind contemplated the unique way we could alter - hopefully without sabotaging - the game by going bankrupt. It was then decided by the group that we could learn more in the game by keeping Mechatronics alive rather than having to assume new roles and putting the control team into a tizzy with the unexpected new developments.

Tuesday, 4/18/95 - As this new day unfolded for Mechatronics, our financial situation was much improved from the previous session. With our newfound capital strength of \$350M, we decided to focus on Toolkit options and technology for our future growth. We then began our negotiations with Rootska, Infomatics, Government Officials and Tech for America. To begin the game, we were confronted with charges of impropriety in our deals with both the Senator and US Representative. All appearances of impropriety were false, however. The negative impressions were created because of misunderstandings by the control team of our deals from the first session. Since we did not know how to refer to specific, unnumbered Toolkit options, the deals were not properly recorded. For this reason, after long discussions with the control team, our first action was to finally pay for the \$80M toward the environmental Toolkit option, which subsequently failed.

Personally, I noticed that the dealmaking was fast and loose on the US side of the Pacific on the second day of the simulation. It seemed that from the collective US experiences with the Japanese participants in general and Horioka in specific, a true competition had developed between the two countries. Another possible reason may have been David Ashley's controversial, humorous and never-quite-accurate Japanese media new reports. Mechatronics was in a position, financially, to play not only the game, but our game. Creativity and openness to suggestions and new options led to the receptivity of others to new ideas, as well as our continued drive to innovate. This week's attempt to make the game more interesting came through another stab at changing the rules. This time it came at the point when Mechatronics had a large surplus of funds and no potential outlets or

arrangements in the works to spend it. Since we knew that Infotronics was the key to our success, three options arose: 'who cares?', sell off the company and use the \$100M each to retire to the tropics (as suggested by the friendly US media representative); buy out much-larger, yet faltering Infomatics with cash and financing, or attempt a merger with Infomatics.

The latter was chosen, much to the dismay of the control team due to the generous terms offered to Mechatronics. The reason for the merger was Infomatics' large asset base, Mechatronics' large capital reserves, and the apparent inevitable convergence of the two companies' missions. Although the terms may have been overwhelmingly to Mechatronics' advantage with a 50/50 split-ownership in the new company (Infotronics), this was a result rather than an intention. Time was of the essence. Otherwise, the deal would have been more equitable. The deal was hastily completed to allow the new entity to form and to give the participants time to work together and quickly pass new initiatives. Once the deal was completed with our amiable new partners, the new Infotronics proceeded to deal like it was going out of style. It was entirely win-win oriented agreements between a conglomerate of US interests.

Final Insights - By being creative, Mechatronics did not have to give up control, as would normally be expected from a small company in such financial troubles. We and our co-players in the game all started with the same disadvantage: uncertainty for what shape the game would take. However, relationships were slowly established with the other organizations and interest-groups. Interestingly, those initial meetings and interactions proved to be accurate representations of eventual future relationships. For example, we approached Horioka for funding or a possible joint venture, yet were insulted by a minuscule buy-out offering of \$20M for our entire company. From that point on, we never put much trust or credibility in future relations with them. On the other hand, our relations with Infomatics were positive from the start, setting the stage for our extensive future relations and eventual merger.

I was open and receptive to the events in the game as they were unfolding, allowing me to use them to my advantage. However, I would have liked to have known more about how to prepare for this particular exercise. It was rather unclear to me how much of the packet I should read. Perhaps my past experience with role plays was a disadvantage in this respect. I am not used to having access to information on all roles in a role play simulation. Rather, I am used to knowing, intentionally, only the information that is pertinent to my role, while discovering the specific characteristics and needs of the other roles as the game unfolds. Therefore, I concentrated my preparation on the Mechatronics role and gave only a cursory notice to the details of the other roles.

I did like the chaotic pace of the game and the constant new developments presented by the control team. However, the frantic pace of dealmaking left one thing to be desired: more time to actually arrange and complete agreements, as well as better instructions on how to appropriately word them. This problem could probably be easily remedied with a simple numbering system for Toolkit options.

In the end, however, the exercise proved to be a great experience. I finally got to meet all my fellow students. Further, we all got to see our true colors in a pressure cooker. It was especially interesting to see, as the game unfolded, that the Pacific Ocean tables really came to separate the US and Japanese groups. Individual negotiations and agreements tended to be win-win and collaborative on the US side, although the big picture came to be dominated by a win-lose, us-them focus in our US competition with Japan. All in all, it served to clarify for me just how my fellow classmates and I behave in group settings, and it forced me to look at how I behave when I have a specific role to play and how I can and will manipulate that role to fit my personality.

STAFF ANALYST'S REPORT - William McCulloch

Purpose

The objective of this report is to record observations and insights I noted during the University Prosperity Games held in April, 1995, at the Anderson School of Management, University of New Mexico. It specifically is not a recording of the events of that exercise. My comments address both the content/events of the Game and its structure/conduct which might be useful in evaluating the Game and in designing/planning future games.

Observations pertaining to the content of the Game--

1. At the outset I observed primarily the Mechatronics team as they assessed their situation and developed their strategy. In their before-class preparation, they had already determined that they were in trouble financially, but they were determined not to build their initial strategies purely on just staying alive. During the first session, they resisted considerable pressure to act quickly in solving their cash flow problem, and they ran considerable risk of getting caught at the deadline having not solved that problem. By taking this approach, they were able to effect a solution which met their immediate needs without compromising their future potential, e.g., mortgaging their future by borrowing. It was apparent in their postgame report that these students were well equipped to assess their situation and execute their plans. They were competent and self-confident, and they worked well as a team. Eric was very comfortable as the verbal leader and Byron and Cathy made valuable contributions in the team deliberations and in dealings with other teams/individuals. Within the team, there was no leadership structure or struggle.
2. In the initial phases of the Game, the Mechatronics team exercised a considerable amount of if-then thinking. They identified a number of possible scenarios to solve their cash flow problem, arranged them in the order of most benefit to Mechatronics, and set out to make the contacts with others. Most of the scenarios involved points of contingency. The Rootska team also adopted a plan of action that met near term needs but preserved longer term options and opportunities. The Viewall team referred to a preferred plan of action but having a Plan B in case Plan A didn't work out.
3. Especially for Mechatronics, but in some other teams/individuals as well, I noted a fairly strong commitment to objectives which had been developed early. Perhaps this was related to the specific assignment to file their strategies early in the first session. Students may pay better attention to "assignments" than others, or perhaps students' inexperience forces a more specific development of their objectives than would have been true for professionals.
4. I noted a distinct difference in the "atmosphere" of the two sessions. Perhaps that difference was due to the students' uncertainty during the first session. Many of them referred to their initial discomfort with the amount of information they had about their own roles and those of the other players. At first, there seemed to be little focus to the activities, but as the game progressed it developed a flow and direction. As the students became more comfortable with their roles, they became more effective and creative, generating a lot more enthusiasm.
5. Several of the players noted that they began the Game expecting others to come to them, but they found that they had to "market" themselves and their potential contributions.
6. I thought the vigor with which the media teams took and embellished their roles contributed substantially to the players' involvement in their roles and the overall success of the Game. Important insight by US Media representative: I saw my role as both a muckraker and a facilitator of communication. If real media types could have that insight and keep those two roles separate and in perspective, there might be a lot more public trust of the media.
7. US Lab player identified differences between profit-making and not-for-profit entities.
8. The newly elected US Representative referred to two important insights: (1) He started out with high objectives but got "caught up in trying to be reelected. (2) "Ideas and policies started by an elected official are not passed along to his successor."
9. In several of the reports it was apparent that culture cannot be effectively transferred by simple communication, it "has to be lived for a while." The information the students had been given was helpful in playing and understanding the roles of the Japanese interests, but it did not make the players representative Japanese. "It just wouldn't happen that way in Japan."
10. The formation of Technology for America seemed to be a high point for the Game, illustrating the effectiveness of teaming and cooperation. However, it was interesting to note that the idea for TFA did not "spring fully grown."

Rather, an embryonic version was proposed and the final product grew with synergistic ideas from several contributors.

Observations pertaining to the game structure--

1. East and West separated by the Pacific Ocean was an effective room layout to begin the exercise.
2. It was apparent in several of the interactions involving the Mechatronics and Informatics players that they took actions in the game atmosphere that they knew would not occur in reality. For example, Mechatronics actively entertained the idea of letting themselves go bankrupt, just to see how the Game reacted. The final merger of the two teams did not consider their relative values. The players were aware of that, but chose not to pursue it to get on with the Game.
3. In their reports, several of the players referred to ethical issues that they had encountered. It was obvious that some of the players brought their own ethics into the game with them while others assumed an ethical environment they associated with their roles. The journals kept by the students might provide some insight into their feelings on these issues.
4. This Game substantiated previous conclusions that it is traumatic to have a player change roles during a game. Two insights: (1) If a change is necessary, changing an individual role is easier than that of a team member because of the social aspects of the team, and (2) there needs to be a very attractive aspect in the second role, e.g., a position of power such as that attributed to Rootska.
5. In this Game, I felt that the staff was significantly more involved in the content of the game--making suggestions, circulating rumors, etc. This may have been a result of this Game's role as a teaching tool.

VIEWALL, INC.: Japanese display manufacturer

PREGAME SCENARIO

Viewall, Inc., manufactures 95% of the world's 3-D displays for which Viewall and MITI have invested \$250M in their R&D. Viewall is currently selling without prejudice to all US, European and Japanese companies. Its annual sales of all displays is \$1B. Sales of 3-D displays at present is only \$12M annually, but is expected to grow to \$300M in 3 years. Viewall spends \$100M annually in R&D and is developing bio-interfaces and sensors that could revolutionize the industry. This new technology is 3-5 years away. Viewall displays are performance limited by the electro-optic laser arrays manufactured in a subsidiary plant. Viewall is interested in acquiring electro-optic array technology from a European company, but has no deal pending. Viewall is a member of the same major keiretsu organization that the Japanese bank belongs to.

Key challenges are:

- 1) Obtain financing for the development of the color displays
- 2) Decide how to proceed with development of color 3-D displays
- 3) Work to assure continuing leadership in displays

STRATEGIES, PRIORITIES, AND REASONING

Strategy: We will be going after the European technology. Our strategy includes staying competitive by trying to gain the new technology for ourselves. If all else fails, we will form a joint venture with another company to share in the R&D costs. Before this happens, we will seek financing from within Japan (MITI, bank). Our sales have been increasing and our goal is to continue this upward-moving trend. We have 95% of the market currently; we will maintain or increase this.

Priorities: We will endeavor to keep the technology in the country. One of the main priorities will be to the keiretsu. Once the technology is acquired, Japanese industry will have the first crack at it.

Reasoning: We must stay on top of our given field while realizing we are not big enough to do it alone.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:30 PM

Viewall, MITI

Joint funding of Viewall's private toolkit option 'Industrial espionage yields you key information on Eurolaser's electro-optic array. You can obtain US and Japanese patents before they do.' Viewall invests \$320M, MITI \$80M. **SUCCESSFUL at 98%.**

4/11/95 7:24 PM

Viewall

Viewall pays \$2M to obtain US patent on electro-optic laser technology.

4/18/95 8:13 PM

Viewall, Japanese Distributor

Viewall agrees to pay \$25M to the Japanese distributor to aid him in expanding his corporation to allow for larger international distribution. Additionally, the Japanese distributor has agreed to work with the Japanese Minister of Finance to try to depreciate the yen. In return for the rights to distribute Viewall's incredible 3-D technology, the Japanese distributor agrees to give Viewall 1 credit. The Japanese distributor agrees to sell Viewall's 3-D product at a 10% markup to Infomatics. Viewall agrees to sell the future 3-D retinal technology to the Japanese distributor, allowing him to sell to all buyers at an equal price.

4/18/95 8:18 PM

Japanese Media, Viewall

Japanese media donates 1 credit to Viewall to pursue 3-D retinal display technology.

4/18/95 8:18 PM

MITI, Viewall

MITI:MIIB issues Japanese patent to Viewall for electro-optic laser technology for \$1M and the promise that Viewall will sell to Horioka at a discount.

4/18/95 8:25 PM

Viewall

Viewall invests \$300M and 2 credits in technology toolkit option 'High-res 3-D direct retinal projection display available at \$500 each.' **SUCCESSFUL at 83%.**

4/18/95 8:45 PM

Horioka, Viewall

In return for Viewall giving the new retinal display to Horioka at a 60:40 ratio in relation to US market, Horioka has agreed to fund at \$400M for the next technology which is virtual reality. If that is successful, Viewall has agreed to exclusively sell the VR technology through Horioka for 2 years (see 4/18/95 at 9:13 for finalization).

4/18/95 9:13 PM

Viewall, Horioka

Horioka invests \$400M for Viewall to develop (through a new toolkit option) virtual reality technology including remote, gloves, surround-sound, TV/computer/VCR compatible, climate rooms. This agreement will not affect the previous agreement with the distributor. Horioka commits an additional \$200M to Viewall for research. **SUCCESSFUL at 60%.**

4/18/95 9:28 PM

Rootska, Viewall

Rootska agrees to license the adaptive learning AI software to Viewall for 2 years for \$60M. Non-exclusive agreement.

VIEWALL JOURNAL EXCERPTS

Britian Harvey

Tuesday, 4/4/95 9:15 PM - After hearing about the game, my first thought were of confusion. The people (control team) from Sandia Labs just explained the entire game in about 10 minutes and I don't have a clue as to what the outcome should be or how much manipulation can occur during the game. Apparently, on Wednesday we will be given roles for the game. My hope on this stage is that I will be given a team role. I also work so much better in a group and feel I can add greater insight as a team player. This entry will be short due to my knowledge of the situation at this stage of the game.

Tuesday, 4/11/95 6:30 PM - I am about to go to class to begin the first of two days of game playing. I read the entire booklet and now feel that I have a better understanding of the players. The fogginess comes in - when, how the game is played. My thoughts on this matter are that a greater level of vagueness should be applied to the 'how' the game is played. My role as a team member of the Japanese-based 3-D display company Viewall sounds like it will be a good position from which to gain insight into this exercise.

7:00 PM - The exercise has begun and by role as a member of the Viewall corporation has just taken a first seat.

7:30 PM - Viewall appears to be a major player in this game. Due to our location in the room and our proximity to MITI, we have begun negotiations to get influence points and money from MITI.

9:30 PM - The first night of the game has ended and it was incredible! We began the game by negotiating with MITI. This proved prosperous as they provided us with \$80M and 1 influence credit. Talks with MITI became nearly impossible as other teams such as Horioka came over to gain our 3-D display technology. The press for the US and Japan came over and were prying into our business in an effort to gain additional insight in our future business dealings. The Minister of Finance for Japan sat down with us, but seemed ill-prepared to discuss his situation or even ours. I think the best way to list my views of each of the players will be to allocate a paragraph to each of the players/teams Viewall dealt with.

Due to the fact that Horioka was a major player and in our same keiretsu, it was important for us to try to aid them and give them first rights to our display technology. We headed over as representatives of Viewall and began to negotiate for cash to purchase the right to buy espionage information. Horioka rudely stated that they wanted 10% of all our royalties and that we had to sell to them at a 20% reduced cost. We absolutely could not believe this company, our brother company, was basically trying to rob our livelihood. The offer was so absurd we immediately got up and went back to our area. As expected, about 30 minutes later Horioka came over with a new and improved offer: 5% of royalties and a 10% reduced cost. This was still not even plausible. I couldn't believe that we (Viewall) in the kindness of hearts were offering our 3-D display technology to Horioka at a reduced cost, and they wanted so much more. After the second meeting Viewall decided, as a group, that other financial backers would have to be found.

MITI was our second target for financial backing. They were helpful, reasonable, and overall were looking out for the best interest of Japan. We explained that Horioka was asking for way too many concessions for a mere \$200M financial support. MITI then discussed with Horioka why they wanted so much. MITI, after deciding that Horioka had gone bonkers, agreed to give Viewall \$80M and 1 influence credit to purchase our espionage information. Our only concession is that we would keep the 3-D technology production based in Japan. We promptly agreed and MITI deposited \$80M in our account.

The bank of Japan came over in an effort to lend us money on the stipulation that we would give Horioka a break. We sent him walking after about 2 minutes of negotiation.

To my surprise, we did not talk with one team from America, not one. We understood that everyone needed our technology, so why weren't the greedy Americans coming to us?

We talked with the Japanese media several times to try to use the press to gain several objectives:

- 1) Let the Americans know we were close to getting 3-D technology and they better start talking big money now if they ever wanted our product.
- 2) Let the Japanese public know that we were trying to work with our keiretsu, but they were the ones who refused to offer a decent deal to us.

By the end of the night we had managed to spend \$400M to buy \$300M worth of technology smuggled out of Europe. The effort was successful as the information helped us in gaining the technology we needed. We now felt that we were in the drivers seat and next time we met for the game, companies would be knocking down our door to buy the rights to our product.

Tuesday, 4/18/95 4:30 PM - Thinking about the game and about what opinions I now have, I realize I needed to submerge myself into my role and be more aggressive.

9:00 PM - The game is over, and I've learned tons. So much goes on in a business deal such as Viewall's 3-D technology and I now realize to what extent one must go to get desired results.

Having spent all of our money on our espionage ploy (\$320M), the Control team allocated an additional \$350M to our cause. We immediately went over to MITI to gain additional funding for the new display technology. We heard through the media that both Horioka and Infomatics had tried to get the technology but both failed. We realized they might try again, so time was of the essence. MITI allocated \$100M and we got an additional \$50M from the US distributor. We went to the Control team with \$400M and a 64% chance of success. We got it [the 3D direct retinal technology].

When Horioka found out that we had the new technology, they immediately ran over. Since we were definitely running the show now, we decided to be real generous and began negotiations with our brother company. The Japanese media reported that Horioka had lost a significant market share and they were at least a year behind the technology of Infomatics.

Because we were in the same keiretsu we felt that now was a good time to aid our country and bring the Japanese back on top.

Our effort to bring Japan back began with a rumor. Gossip had led us to believe that virtual reality was going to be the new and improved technology.

Although there was no sheet or listing for this technology, we devised our own. Our virtual reality system would have the following: glove and boots, climate controlled booths, multi-media capability, scratch and break resistant, <\$500. We went to the Control group with \$400M and got it! Although we never found out how this would ultimately affect Japan's position in the SAMSON market we all felt it was definitely an excellent step.

Soon after we received our VR technology we were offered some VR software with a 2 year licensing agreement. Viewall snapped it up as we had with all decent offers placed on our table. The software agreement turned out to be our last. Overall, Viewall was extremely successful with the actions we had taken. Our successes were numerous and our failures few.

As a student of EPSI, I felt this exercise was extremely helpful and insightful. Additionally, it seemed to bring the class together in a more communicative manner.

Some changes in the game that might be helpful are:

- 1) Longer, more detailed description of game
- 2) More updates by media
- 3) 3 nights instead of 2 for game length
- 4) Printouts by control team of game actions-events

5) Discussion of players (Viewwall, Infomatics, etc.) roles before game begins

Tuesday, 4/25/95 7:00 PM - The presentations were very helpful in understanding the reactions of our team members. The aggressive nature of this game was a bit overwhelming at first, but once we got into the groove, it really seemed to flow. The media criticisms were very true, and our team had similar concerns. We also felt in retrospect that the media could be better utilized to aid in our efforts.

David Nielsen

Tuesday, 4/11/95 7:00 PM - The meeting begins. Jumble of ideas going every which way. Not sure what goals are to be. Decided to run company in the best interest of Japan. Media Report wasn't too important to us. MITI showed up curious to see if our goals would line up with theirs.

7:50 PM - Horioka showed up offering to match our R&D expenditures to get us to sell them our future product at cost along with royalties from other sales. We flatly refused. Japanese Media makes appearance. We discuss our strategies promoting Japan. We approach MITI.

8:00 PM - News Flash. Doesn't really affect us at all.

8:10 PM - Ministry of Finance shows up, we talk, nothing is decided.

8:20 PM - Trying desperately to strike a deal with Horioka, but they insist on the former deal. We can't give in to them because our own company must come first. They are trying to kill us.

8:45 PM - News Broadcast. More interesting because it was concerning the Japanese scene. It still didn't have any bearing on operations.

8:50 PM - US Media shows up to snoop. We have no comment. Negotiations with MITI's Machinery and Info. Ind. Bureau (unbearably cute) are commencing. Further negotiations with the other two MITI divisions underway, outcome starting to look promising.

9:05 PM - CNN broadcast about a new power source which doesn't affect us.

9:20 PM - Prospects looking bad all of a sudden. Doesn't look like we will get the backing for a chance at the European technology.

9:30 PM - All three MITI divisions pulled together to lend us the needed 80 million. Agreement signed. Put 400 million into option to acquire European technology and with the role of the die we got it. No money left but with this new technology we should have a bargaining chip to use to get the financing we need to bring the 3D display to market.

Wednesday, 4/12/95 6:00 PM - Hatched plot to use Japanese media to get further cooperation from Japanese financiers. Media will say that we are negotiating with a key US player for the new technology. This will hopefully scare all the Japanese players into backing us so the technology doesn't fall into the hands of the US e-mailed partners to make sure they will back this ploy.

6:20 PM - E-mailed CEO of Horioka to drop hint that we had the European technology. Nothing specific, just to make them think.

6:30 PM - Thanked MITI officials via E-mail for their support. Felt it was the ethical thing to do and thought they would remember us next time we needed money.

Thursday, 4/13/95 4:00 PM - Got E-mail from Japanese distributor looking to make a deal with us possibly to the tune of 300 million. Replied that we'd be happy to discuss terms. Received E-mail from one partner agreeing to go along with ploy to get more backing from Japanese investors.

4:30 PM - Discussed our plan with MITI-Machinery & Info so MITI's wouldn't think we were after US backing as our ploy suggests. This is important because they lent us the 80 million assuming we would run our business to benefit the Japanese economy, not the US's.

11:00 PM - On my way to bed I just realized that even though we have acquired this laser optic array technology from the Europeans, we do not own the patents in either the US or Japan. Must find out how to go about getting them (cost?!?).

Friday, 4/14/95 3:30 PM - Discussed getting patents with Prof. Logsdon. Nothing definite yet.

4:00 PM - Checked E-mail. Noel working on deal with Japanese Banker who is looking to invest in us because Horioka is being so difficult to work with. Relayed message to Brit. E-mailed Japanese Banker encouraging the facilitation of some kind of mutually beneficial agreement. Received E-mail from CEO of Horioka concerning my little hint sent on 4/12/95. Horioka didn't catch the hint, meaning that they have no idea that we have this new technology. Decided to leave them in the dark until 4/18/95 (class time) to let the Japanese media drop the bomb on them.

Monday, 4/17/95 3:30 PM - Received E-mail update from control. Our position so far looks grand. Will start to formulate strategies for tomorrow night's game.

INDIVIDUAL ANALYSIS THUS FAR - I've drawn up some observations prior to Tuesday's, the 18th's, game. It seems that so far it has been a battle between the two countries. Within that it seems that everyone is out for themselves and is not really pulling together. Of course, this is just from a Japanese perspective since we have not really worked with anyone on the US side yet. I guess this 'out for blood' attitude should be expected. Unfortunately, it doesn't seem to be in keeping with the Japanese style of business. We have been given an advantage over the US side by having a number of the key Japanese players belonging to the same keiretsu. This alone should prompt teamwork. It hasn't. I think the Japanese players are trying to incorporate American ideals and concepts into their roles instead of just thinking like the Japanese. I may, of course, be reading too much into this. But this may explain why the Japanese side has had a lot of trouble making much needed deals(Horioka and Viewall) and the deals on the American side were flying. This is evidenced by Infomatics increased market position. If the Japanese don't get moving, they will be completely knocked out of the SAMSON race.

I have made another observation, in the light of the recent developments concerning the method by which we acquired our new technology. I believe purchasing stolen technology to be ethically wrong. Period. But at the time, it seemed like the only course of action open to us. We had our back against the wall because no one wanted to help finance our research into newer technologies. Now that Infomatics has jumped ahead with SAMSON development (luckily failing to get the same technology we were after), I feel that the decision to get the stolen technology to have been the correct move to make. If we hadn't, we could have lost our market of displays to the larger Infomatics. Since we do want to work with Horioka, this will give them an edge over Infomatics. The question this raises is whether or not it is possible for an unethical action to be the right action or do the needs of the many (Viewall, Horioka, Japanese economy, etc.) outweigh the needs of the few (the European company from which it was stolen)? Keeping in mind that the information was not stolen by us but was just made available to us. Do two wrongs make a right in this case? They might if someone else got their greedy little hands on this technology before us.

Tuesday, 4/18/95 3:15 PM - Received E-mail from MM-Machinery & Info discussing patents. Hope to get them (Japan patent) for free.

NOTE: Due to the hectic events during game time from 7:00pm to 9:30pm, I can only give a general description of what happened before my brain exploded.

7:00 PM - Across the Pacific Ocean over the country of Japan, it was a dark and stormy night. At Viewall Company headquarters, plans were made and plots were hatched. The three executives of Viewall waited for news from the Japanese media. If all went well, and their plan worked, they would be able to forge a tentative alliance with Horioka and the Japanese government. The Japanese media (David Ashley-san) took center stage (to the sounds of unrelenting laughter) and announced to the world that Viewall was dealing with a key US player to obtain financial backing in exchange for the new technology they had secretly acquired. The hall was rented, the music was playing, now it was time to see if Viewall could dance...

From the beginning we had offers coming in from the other Japanese players. We had acquired the US patent and had struck a deal with MITI to obtain the Japanese patent. From there the offers just snowballed. We had deals with everyone it seemed. The sudden urgency of Infomatics position and then the buyout of Infomatics by Mechatronics forced the Japanese side into action. I also believe that our one key technology and the threat of our giving it to the Americans helped motivate the other players into cooperating. Credit must also be given to MITI who did help, through the use of threats, to force some cooperation between Horioka and our group. In the

end we had a good deal with the Japanese distributor, strong backing from Horioka which led to the development of two more relevant technologies, and even a last minute deal with the Russian software manufacturer. All in all it was a successful day for Japan, although maybe not quite as successful as the US side (Tech for America).

FINAL ANALYSIS - Overall I must say that I had an enjoyable, if not a bit frustrating, time playing this game. It presented quite a challenge, especially after starting off in a rather a poor position. It was amazing how deep some of the deals could go to satisfy so many parties. It was a nice feeling to finally get everyone to somehow work together there at the end. It was definitely a different experience, worthy of being repeated. Two thumbs up.

Noel Hendrickson

Monday, 4/10/95 - As a member of the Viewall team I feel that our initial strategic focus should be on technology advances, financial backing and alliances that could further our position.

Since the ultimate consumer version of SAMSON is envisioned to have full color 3-D displays and bio-sensor interfaces I feel that it would be in our interests to be the company that could bring these aspects to market first.

We should use the toolkit initially to develop manufacturing systems that enable us to get the product faster to market and also increase our market share. If we can get the 3-D color version to market first then we won't have to worry as much about costs and demand because we will be the only source.

With respect to the color 3-D displays, both of the two big companies are either working on this technology or plan on it. I feel that we should negotiate with Horioka so that they don't invest in this and thereby reap the rewards. Their money could best be used elsewhere since this is something our company has been working on for a while. One avenue that is open to us is giving them our support in negotiations with the Japanese distributor. Horioka should be lobbying for loyalty with their distributor since the distributor has a beginning offer on the table from an American company to buy the Horioka products from him. If that is worked out then the next thing is to beat Infomatics to market with it.

Negotiations with MITI need to take place in order to facilitate financial backing for the color displays. On a different level the negotiations with MITI need to also focus on their concerns which run counter to ours. Namely MITI's position on the dual use of this technology (military and commercial). The best option for us is to align with Horioka on this issue since its also in their best interests to stop any legal entanglements on the military application.

Negotiations with the Japanese banks need to occur since they are considering reducing financing to Japanese business because of the appreciation of the Yen. We also would like to talk them out of financing our competitor Mechatronics unless of course we decide to buy them out. I'm sure that as the game progresses that more options will present themselves and ideas that I've talked of here will change.

Tuesday, 4/11/95 10:00 PM - A couple of my initial ideas came to pass however the overall structure of the game has been completely changed now. The Japanese are acting like the Americans by working independently and the Americans seem to be working together.

Our first attempt was to line up financing to develop the new display technology. Our initial idea was to use MITI first since that funding can be viewed as free money. Next was the Japanese bank and finally Horioka. If none of those avenues worked we were going to the Americans. Our strategy in the first class focused on gaining the display technology at all costs. We were presented with a secret option to use underground channels to get it from the Europeans. This is the avenue we decided to pursue. We attempted numerous discussions with Horioka and at the end of each we reached the conclusion that they wanted to take advantage of us and the technology. They offered to fund it if we sold it to them at cost but if that went through they would dominate the market and our only profits would come from very limited sources for quite a while. Negotiations totally broke down with Horioka to the point where we are now confrontational toward them. We did have good intentions initially toward Horioka but you can only be offered a ludicrous deal so many times before you start pursuing other options which is what we did. We were able to line up financing from MITI and at the very end of the first session we learned that our

secret toolkit option was successful meaning we had the technology first. This was crucial for us since Horioka and most likely the Americans were trying to obtain the same thing and if any had succeeded before us then our position would have been seriously diminished. As it stands now we are in the drivers seat, both Horioka and the Americans would have to go through us to use the 3-D technology.

I had a couple conversations after class with the Japanese distributor and Japanese banker. It appears that both agree with our position toward Horioka in that they believe Horioka was negotiating unreasonably toward us. More importantly both parties are now firmly in our favor and I assume we will be able to line up funding for future projects quite easily and thereby will stay one step ahead of our past ally and current competitor Horioka.

Tuesday, 4/18/95 10:00 PM - So many things happened this last class session that I'm not sure I'll be able to recall all the deals, side deals and negotiations. The session started with us in a stronger position as a result of the new 3-D display technology we picked up last class. Our first step was to secure patents from both the US and Japan. In continuing the backwards cycle that was started in the first class the patent from the US was quick and easy and the Japanese patent involved extensive negotiations with MITI whereby they pulled out of us a deal for Horioka that would reduce our price to the Japanese company.

With the patents behind us we were able to line up a deal with the Japanese distributor. He gave us an influence credit in return for 25 million and agreed to distribute our product internationally with no prejudice. Later, our enthusiasm at having gained the technology and patents was dampened by the quick pace of the game. It was only a few minutes before we were updated by the control team that when time clock moved next our technology would be outdated. Therefore, we needed to invest in an R&D toolkit option to get the next technology stage; the 3-D direct retinal projection display.

Funding for this option was once again obtained from MITI. Funding was easier to obtain this time because at this point in the game it was apparent that Horioka was slipping versus the Americans and we were able to convince MITI that the mere fact that a Japanese company could be and should be first with the new technology was enough to persuade them to help fund it. As with all our previous efforts we were successful and also able to obtain it ahead of both Horioka (which bypassed us in favor of funding it themselves) and Infomatics. After our obtainment of this technology it was announced that Infomatics at that point controlled 80% of the market for the SAMSON device.

This turn of events in combination with threats from MITI and the Japanese bank led Horioka back to the negotiating table with us. Once again we were put in a very favorable position as we controlled a key element to SAMSON and Horioka was slipping on the world stage quickly. A rare win/win deal was struck with Horioka in an effort to bring Japan back against the Americans. This was the first time we were able to work a deal with Horioka in the entire game. The circumstances that led to the deal were not optimal for Japan but our team previously was betting that if we were to continue to stay one step ahead with our technology then the world would beat a path to our door. This past view was good for us but not for Horioka and Japan as a whole.

The deal that was struck involved Horioka completely funding the newest technological advance (virtual reality) and kicking in an additional \$200 million for R&D after development. As before the option for this was successful but this time it wasn't just successful just for us but also for Horioka.

It was this kind of cooperation that should have taken place from the beginning of the game. By concentrating on individual profits and market share the overall good of Japan was put to the side. There was too much focus, on the Japanese side, on competitive advantage instead of group advantage. It probably only took one hour or so in the first class session for both our team and Horioka to completely abandon the idea of the keiretsu and to go it alone. I feel that the deal that was struck with Horioka in the end would have been the harbinger of things to come if the game had continued.

Overall I was quite satisfied with the game. The only problems that I saw had to do with instructions. When the game first started I couldn't find anyone that had a real clear sense of what the first step was. For the first thirty minutes of class no one was walking around, this was because we had to discuss amongst ourselves how each of us felt the game was supposed to be played. There were a number of procedural rules that were either unexplained or vague at best. On the plus side it was a good way to facilitate interactions within the class that

never would have developed. Not only do I feel a received a lot from the simulation but I also enjoyed participating. It was a unique experience that I would recommend continuing in the future.

Tuesday, 4/25/95 9:30 PM - I have to agree with the consensus that there should have been more instruction. I especially like the idea of 3 major companies and less peripheral players. Another aspect that was difficult which could be made easier was the confusing techno-jargon. If that had been reduced it could have flowed more smoothly.

US LEGISLATORS (Senator and Representative)

PREGAME SCENARIO

There is one Senator from California as well as one Member of Congress from New Mexico. Each promotes political, social, military and economic agendas in the interests of the US citizenry, as well as protecting certain interests in their home states.

The California Senator is a veteran of three terms who has influence on vital issues in the Senate. However, his or her approval ratings back home have dipped due to the perception that he has not done enough to stem the rising rate of unemployment in the State. The Senator is up for reelection in one year, and feels he can win if he can bring more jobs to the State. His best opportunity of doing this is to persuade Infomatics to expand their California facility rather than locating elsewhere. This would also augment the local transportation industry, which is very important to the State. Among the most vocal opponents of the Senator is an activist group that has rallied some of the citizenry to push for zero emissions at the Infomatics plant. The Senator has been a practical supporter of environmental issues in the past but has aroused the ire of the activist group due to his non-support of zero emissions.

The Senator has a brother working for Mechatronics who has been pressing him to use his influence with powerful financiers to help obtain new capital for Mechatronics. He has some feelings against repealing the Glass-Steagall Act (a repeal would allow banks to hold equity in corporations), but might be able to help Mechatronics in return for his support in repealing Glass-Steagall.

Key challenges for the California Senator are:

- 1) Persuade Infomatics to expand production in California
- 2) Do I run again?
- 3) Trade vote/influence on repeal of the Glass-Steagall Act for help for Mechatronics from financial friends?

The New Mexico Representative is a former business owner who was elected to his first term by a very large margin. He was the heir apparent to the former Representative who just retired. However, his political experience is very limited; he is very frustrated with the legislative process and is trying to push his ideas in the bullying fashion. The Representative was recently the subject of a scathing editorial in which accusations were made about environmental improprieties of his former business. Local environmentalists have called for a full investigation and are already mobilizing forces to assure that the Representative is not reelected. In addition, the Representative has actively sought the expansion of high-tech business in New Mexico, particularly from Horioka, a large Japanese OEM.

Key challenges for the New Mexico Representative are:

- 1) Deal with accusations and their effect on his political standing
- 2) Continue lobbying Horioka to locate in New Mexico or not

STRATEGIES, PRIORITIES, AND REASONING

California Senator

Strategy: 1) Convince Infomatics to expand its plant in CA and find funding for this endeavor; 2) support activist in improving the effectiveness of environmental regulation.

Priorities: 1) Bring jobs to CA; 2) convince activist to lower expectations for zero emissions.

Reasoning: 1) Rising unemployment in CA and increase chance for reelection; 2) gain support for reelection and push to improve air quality in CA.

New Mexico Representative

Strategy: Must find methods of creating and sustaining jobs for NM while keeping taxes and spending in check.

Priorities: 1) Jobs to NM; 2) clear name and seek reelection; 3) support environmental issues - work with press and activist.

Reasoning: With the concerns of activists and the voters/constituents of New Mexico, the greatest priority is given to attracting major investments in manufacturing to create more jobs and broaden the tax base.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 8:30 PM

Infomatics, US Senator, US Representative, DOE, US Lab

Joint funding of policy toolkit option 'Encouragement of critical industries consortia with national labs.' US Lab invests one influence credit, DOE \$100M, Infomatics \$50M, US Sen. \$50M, US Rep. \$50M. **SUCCESSFUL at 69%.** Immediate benefits given by Control: DOE funding up 5%; US legislators private option costs reduced by half; Infomatics given 1.5 factor multiplier for any technology toolkit option.

4/11/95 9:03 PM

US Representative, Mechatronics

US Representative secures \$100M in funding for Mechatronics; Mechatronics spends \$80M on policy toolkit option 'Industry and government partnership to improve effectiveness of environmental regulation...' (Calculation performed 4/18/95, see 7:28 and 7:54.)

4/11/95 9:06 PM

US Activist, US Representative

US Activist gives one influence credit to US Representative to promote industrial environmental association.

4/11/95 9:16 PM

US Senator, Mechatronics

US Senator secures \$100M funding for Mechatronics in exchange for Mechatronics spending \$50M to repeal the Glass-Steagall act. (Calculation never performed on repeal since it was not clearly authorized.)

4/18/95 7:28 PM

US Representative, Mechatronics

Clarification on deal made 4/11/95 at 9:03. Mechatronics invests \$80M to help support environmental legislation as outlined in previous agreement to aid US Activist.

4/18/95 7:45 PM

US Senator, US Representative, US Worker, US Finance

Both incumbents were defeated in the 1998 elections. The US Senator was defeated by the former US Worker, and the US Representative was defeated by the former US Financier. Role switches were done at this time.

4/18/95 7:50 PM

US Senator, US Representative

Control gives newly elected officials an additional \$100M each.

4/18/95 7:54 PM

US Representative, US Activist, Mechatronics

Industry association and government environmental agencies form partnership to improve effectiveness (performance and cost) of environmental regulation and implementation ... In addition to the \$80M already invested by Mechatronics, the US Representative invests \$80M, US Activist invests 1 credit. **UNSUCCESSFUL at 57%.**

4/18/95 8:20 PM

Informatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Informatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Informatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (= \$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 8:30 PM

Informatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of 'Technology for America,' a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Informatics will have access to this. Technology will be available to US companies only. US Senator invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 8:31 PM

US Senator, US Representative, US Worker, DOC, Mechatronics, Informatics

Joint funding of policy toolkit option to 'Establish regional agency for workforce training programs.' US Senator invests \$30M, US Rep. \$50M, DOC \$70M, Mechatronics \$24M, Informatics \$20M, US Worker 1 credit. **SUCCESSFUL at 54%.**

4/18/95 9:00 PM

US Representative, Technology for America

US Congress allocates \$100M of taxpayer money to develop US technologies to improve our international competitiveness and reinstate US dominance.

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

4/18/95 9:18 PM

Technology for America, Infotronics, US Senator, US Representative, DOE

Joint funding for new technology toolkit option to develop 'Extremely high-resolution, 3-D, direct retinal and brainwave projection display becomes available at \$450 each.' TFA invests \$150M and 2 credits, Infotronics \$100M, US Senator \$50M. **SUCCESSFUL at 56%.**

4/18/95 9:25 PM

Technology for America, US Senator, US Representative, US Activist, US Media

We request access to the brainwave technology for private use because both public and private funding was used for the R&D. Rejection of this request could result in withdrawal of private sector support and confidence in TFA, and thus its downfall.

4/18/95 9:25 PM

US Representative, Technology for America

Transfer of 1 credit from US Representative to TFA.

4/18/95 9:28 PM

US Senator, Technology for America

US Senator appropriates \$50M to TFA in exchange for a seat on the board with veto power for any issue averse to California.

US LEGISLATOR JOURNAL EXCERPTS

Marie Goldberg

Monday, 4/10/95 9:00 PM - Received my role today at work on e-mail. Here I am a Senator and know so little about politics. Read through the game booklet - will try to map out some of the relationships as they apply to me:

Stakeholders: Infomatics; citizens of CA; local transportation industry; environmental groups; my brother; Mechatronics; US banks; human rights activists; military.

Customers: citizens of CA; Mechatronics; US citizens.

Suppliers: CA voters; financiers.

Issues to consider:

Rising unemployment in CA (talk to someone at the Dept. of Transportation about Infomatics expansion!)

Run again for office?

Zero emissions (unrealistic!)

Mechatronics needs help - what will everyone think since my brother works for them?

Glass-Steagall Act - what effect would repeal have on everything else?

Tuesday, 4/11/95 12:00 PM - Infomatics needs federal funding of its display technology or may have to shut down. I will approach them about expanding their California plant - this could help ease the unemployment problem.

4:37 PM - *out of role - I feel completely unprepared to begin this game tonight. I wish I'd had more time to study the various roles and see in greater detail how they are interconnected with mine. I think it will be difficult to develop an effective strategy without this knowledge and understanding. I hope I'm not the only one who feels this way! I guess this is truly like 'real life'.*

6:55 PM - *out of role - Everyone is milling around outside the classroom and they seem a little anxious, a little apprehensive (like me!). We're asking each other what our roles are. I realize that it will be an effort for me to take on an aggressive/assertive role, opposite the sometimes shy, quiet person that I am (kind of scary!). Sometimes I guess I'd rather be an observer than a participant (depends on the situation, of course).*

7:00 PM - Notes scribbled during play - \$50M agreed, DOE + Labs/Univ. Want money, develop 3-D displays, research keep people employed in CA in labs and universities. Will help Mechatronics and Infomatics develop new technology. US Activist - 1 credit. US Finance - will help Mechatronics in exchange for repeal of Glass Act - I need one credit + \$400M to guarantee (\$200M for 50% chance). Mechatronics - \$30M operating expenses, \$200M improve future viability, \$50M/year for 3 years SAMSON development. Agreed to \$100M - will give me \$50M for repeal of Glass-Steagall Act. Infomatics - \$50M toward environmental policy. Get report from EPA on allegations.

Talk to Infomatics about \$ for Glass Act, then talk to US Finance about credit.

Wednesday, 4/12/95 12:00 PM - *out of role - I cannot believe how complicated everything was last night! No matter what decision you make, it will probably make someone mad, or at the very least someone will twist it around (the media). It's difficult to take into account everything that will be affected by a decision. The SEPTEMBER model makes more sense than ever now.*

Thursday, 4/13/95 7:00 PM - out of role - While watching the national news last night, I realized how much more aware and analytical I have become about so many issues. This class has truly been mind expanding; I'm much more interested in certain issues than I used to be, such as politics, economics, environment (maybe because I'm starting to understand some of it?) and I realize how truly interrelated everything is. Because of our game I'm also more aware that you can't always believe what the media says.

Monday, 4/17/95 10:00 AM - Received game updates just now via e-mail. I know the funding of Mechatronics would find its way back to me eventually. That's what I get for being nice and trying to help people. I honestly did not do it to benefit my brother, but who's going to believe that? Okay, time to regroup. The election is right around the corner, but I'm about to be impeached. At least I still have some money. I need to figure out how to try to accomplish some of my goals quickly, such as repealing the Glass-Steagall Act, but is this what I really want? I wish I knew more about it, or had the time to learn more about it. In looking over the updates on everyone else, I try to pick out those things I can influence or that can influence me. Unfortunately, I don't have much time before the election to get much done.

Tuesday, 4/18/95 7:25 PM - The election is now underway. I just had an interview with the Japanese media and I don't think I held up too well (maybe it's that darn accent!). I just received the following note from the ARPA official [You can have my vote if you commit to help avoid future funding cuts to DOE/DOD].

8:00 PM - I lost the election by a very narrow margin; well, okay, it wasn't that narrow. Who is this guy that beat me anyway? Now I'm just your average, everyday US worker. Oh well, maybe this will give me a new perspective on everything.

9:00 PM - Not so many people care to interact with me as a US worker... in fact practically no one! A journalist did come and ask me if I'd heard any good rumors lately, though. I guess you have a lot more influence when you have power and money. Money is undoubtedly an incentive to negotiate deals; who'd have thought?

Tuesday, 4/25/95 9:25 PM - out of role - Final thoughts:

- 1) You don't get something for nothing
- 2) What's in it for me?
- 3) You can't win - difficult to have win/win situation
- 4) The media sucks, but I need them
- 5) Money = power
- 6) Authority = influence
- 7) Money + authority = popularity
- 8) Need to think things through thoroughly before making a decision, but many times there wasn't enough time to think things through
- 9) Game taught me to think more critically

Communication is critical. I voted for myself (naturally I wanted to stay in power). I really enjoyed this evenings class and hearing everyone's perceptions and experiences (the teasing was fun). The game was very complex and difficult, but I feel that was part of the learning experience

Camillia Garcia

Tuesday, 4/11/95 - Worked with activists for environmental initiative: industry associations and govt. environmental agencies form partnerships and improve effectiveness (performance and cost) of environmental regulation and implementation in electronics manufacturing industry, reducing the environmental compliance cost by 50%. US activist - 1 credit; Mechatronics - \$80M; Infomatics - \$80M.

Gave \$100M to Mechatronics to keep a viable job base for Americans in return will work for job cooperative venture to be located in New Mexico.

Gave \$50M to industries critical to defense, energy, health care, agriculture, transportation and communication infrastructure or environment to encourage industry-led and govt. partnered and co-funded consortia with national labs.

Analysis of people with contact with US Rep.:

Congress - budget deficits, voters determined to reduce taxation and spending, declining US manufacturing and rising deficits

Horioka - location of production up in air, accused of stealing patents - but denied

Personal - accusations effect on political standing, continue lobbying Horioka?

Dept. of Commerce - interests of US citizens, deal with Horioka on robotics issue

US activist - recently supported NM Rep, now allegations, wants full investigation; work to discredit NM Rep.

Tuesday, 4/18/95 7:00 PM - Press conference with Japan press for reelection bid - clear misrepresentation of misappropriation of funds.

7:25 PM - Press conference to rebut against new candidate Dante.

7:30 PM - Vote - ousted; now become US finance/wall street player.

Learning curve - somewhat slow - needed to find out what previous role player was involved in and need to decide if they are still viable to roles' goals. Was working with DOE/DOC at time - promised \$50M for TFA.

7:50 PM - Tech for America, coalition of US govt. entities/private sector/high-tech firms to develop new US technologies for US by US to fund varieties of projects.

8:30 PM - \$200M to co-fund Infomatics merger.

9:00 PM - US finance virtual reality glove - given 1 credit to Infotronics, will be positive since own stock options.

9:05 PM - Academic consortia of diverse interest relevant to the US' industrial/commercial competitiveness - part of board. Includes board of NM Rep, Infotronics, Labs/Univ, US Finance, DOE, DOC.

9:30 PM - Talk to board members for \$50M to invest in US companies on stock market.

Retrospective thoughts:

Press conference in Japan - flop! why do one - Japan doesn't vote for us!

US press should have worked with more, however as Senator/Rep it is a scary/nervous proposition

Who else could have helped?

Needed to work with Infomatics more for US nationalistic sentiment.

7:30 ousted - feelings of inappreciation for policies accomplished such as the environmental package and what policies were being worked on. Is this the fickleness of the public or an internalization of the power of the office?

No policy passed down - policies/initiatives being started were left hanging as part of the political machine.

US Finance/wall street position - new, on financing circuit; more freedom and power as a dealer; can become more of a player in decisions; still had to get a cohesive group together to work on initiatives

Altogether game was informative and dynamic. The choice of the two countries may have slowed the dynamics down a bit given the lack of negotiation between the two countries - or very minimal. Couldn't it have been more close to home such as NAFTA countries? Or expanded to include Europe? After all, the main owners of the US are the Dutch.

Overall, learned a little more about human nature and manipulation. Initially worked at the self-preservation policy vs. taking risks to minimize being thrown out of office, should have taken risks. Also coupled with a win/win initiative for ecological/business employment, yet seemed to backfire. US Finance position seemed to have a taking risks and a 'me' mentality - what was best for my profit. Two very diverse positions.

DEPARTMENT OF ENERGY/DEFENSE (ARPA) Official

PREGAME SCENARIO

The Departments of Energy and Defense have a primary mission of national security through both research and military means, and are interested in the SAMSON device for field use. This official was hired into the Department three years ago, before which he was employed as an executive in the aerospace industry. Because of his prior experience, he admittedly has a bias toward the aerospace industry yet realizes that electronics are critical to nearly all sophisticated mechanical processes. He has oversight for various research areas including electronics

manufacturing and presently has uncommitted funding of about \$50M per year for four years. However, with the budget cuts expected in the future, much or all of this could vanish.

Key challenges are:

- 1) How to best use uncommitted \$50M/year
- 2) Bias toward aerospace industry, former employer
- 3) Maintain funding level despite overall government cuts

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Solicit an alliance with the Lab/Univ; gain corporate support and create a lab/industry coalition.

Priorities: Maintain a high US commitment to R&D. Find ways to maintain funding to US Labs by bringing their expertise to market. (Bringing US R&D to market may not be limited to US companies.)

Reasoning: End of Cold War has resulted in the questionable need/use for US Labs. Must maintain funding to keep labs intact for possible DOD use.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 7:45 PM

DOE

DOE spends \$10M to determine development time for the new supercapacitor technology. Time was determined as $1/p$ in years, where p is a random number. **RANDOM NO. = 0.78; time = 1.3 years.**

4/11/95 8:30 PM

Infomatics, US Senator, US Representative, DOE, US Lab

Joint funding of policy toolkit option 'Encouragement of critical industries consortia with national labs.' US Lab invests one influence credit, DOE \$100M, Infomatics \$50M, US Sen. \$50M, US Rep. \$50M. **SUCCESSFUL at 69%.** Immediate benefits given by Control: DOE funding up 5%; US legislators private option costs reduced by half; Infomatics given 1.5 factor multiplier for any technology toolkit option.

4/11/95 9:00 PM

Infomatics, ARPA

Joint funding of technology toolkit option 'ARPA program in manufacturing information systems provides validated computer models for accelerated engineering of electronics...' Infomatics invests \$140M, ARPA \$20M, 1.5 multiplier applied. **UNSUCCESSFUL at 84%.**

4/11/95 9:22 PM

DOE, DOC, Infomatics, US Worker

Joint funding of policy toolkit option to 'Implement NEMI roadmap.' DOE invests \$20M, DOC \$70M, Infomatics \$110M, US Worker 1 influence credit. **UNSUCCESSFUL at 50%.**

4/18/95 8:30 PM

Infomatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of "Technology for America," a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Infomatics will have access to this. Technology will be available to US companies only. US Senator invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 9:00 PM

DOD, Technology for America

In addition to the \$50M given to TFA's first project, DOD will supply \$120M as an operating budget for future projects. DOD retains veto power on any deals in the interest of national defense.

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

4/18/95 9:18 PM

Technology for America, Infotronics, US Senator, US Representative, DOE

Joint funding for new technology toolkit option to develop 'Extremely high-resolution, 3-D, direct retinal and brainwave projection display becomes available at \$450 each.' TFA invests \$150M and 2 credits, Infotronics \$100M, US Senator \$50M. **SUCCESSFUL at 56%.**

4/18/95 9:20 PM

DOD, Technology for America

In the interest of national defense, the brainwave technology will be seized by the US Government and suppressed until further study can be completed.

4/20/95 E-mail

Control Team, DOD, Technology for America

Control Team upholds DOD suppression of brainwave technology as classified information, and suggests further negotiation.

DOE/DOD JOURNAL EXCERPTS

Matt England

Tuesday, 4/11/95 - First I quickly achieved my goal of aligning myself closely with the Lab/Univ player. We jointly set up plans for what we needed first.

- 1) Get funding for Jefferson National Lab project on supercapacitors - I spent \$10M to determine how long this project would take to produce marketable technology. The result was only 1.3 years.
- 2) Numerous groups were interested in supporting the JNL capacitor project. So I tied this project in with a toolkit option promoting private spin-offs of technology developed by the publicly funded labs. Infomatics, the CA Senator, the NM Rep, and the Lab/Univ pooled funds and influence to get both these issues passed. Infomatics will get exclusive rights for marketing the supercapacitors.

The toolkit option resulted in getting my budget increased 5% instead of cut.

Hopefully close relations with the two legislators can later be turned into influence on future budgeting debates in Congress. My recent increases in funding could easily be short-lived if I don't keep up the lobbying.

Tuesday, 4/18/95 - At the end of last weeks class I began talking with Mechatronics as they need support to avoid bankruptcy. This would be a blow to US competitiveness as Mechatronics robotics could be considered a key industry for US defense. I was also talking with DOC and the US worker about some projects to increase educational levels in the US. If they get organized I may be willing to help.

I would like to push through the toolkit option establishing the NEMI roadmap institution.

Once I picked up my e-mail with the updates, I noticed that the Ukraine software company, Rootska, had still not validated their software design. Since I wanted the best equipment for the US military I thought I should explore this new software. I arranged for the software to be tested in the US and funded the testing (\$10M). I also brokered an agreement between Rootska and Infomatics which would give the US company 4 year exclusive rights to the new operating system.

Meanwhile, the Lab/Univ was busy building a coalition of public and private groups that would pool funds and influence. This evolved into a new entity, Tech for America. TFA focused on basic research that could be sold to

private industry as new technology produced potential consumer products. I chose to invest nearly all my money into TFA in exchange for a board position with full oversight and veto power. This provided an incentive for others to invest while giving me significant control over the entity. Also the funding keeps the US labs fully funded.

The greatest achievement for Tech for America was a technology which bypasses the need for 3-D displays. This is a direct neural connection with the user. I took the position that this technology was too powerful to be released into the open market. In the interest of national security I declared the neural connection technology Top Secret. It will be the subject of further research and potential military use.

In the election I voted for both incumbents since I already had a good working relationship with them and needed their support to keep my high level of funding.

DEPARTMENT OF COMMERCE Official

PREGAME SCENARIO

The Department of Commerce promotes economic agendas in the interests of the US citizenry, with respect to both national and international markets and issues. The US is in the midst of trade negotiations with Japan. Many in Congress feel strongly that import quotas should not be used. However, this official feels that Japanese officials are manipulative and dishonest and is considering the recommendation of certain quotas and restrictions. The Administration and Congress are under pressure to reduce the size of government, and there is speculation that DOC officials may be first on the block if their attitudes do not change. One specific event that has contributed to this officials' opinion is the supposed acquisition of strategic software from the US by Horioka. The accusations have been denied by top management at Horioka.

Key challenges are:

- 1) Deal with Horioka on robotics software issue
- 2) Develop position on import quotas

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Increase American jobs by possibly allowing Horioka to build a plant in NM with severe restrictions, or allowing Infomatics to expand CA plant.

Priorities: Working with Japanese to determine if my assumptions (biases) are correct.

Reasoning: DOC might be cut back if attitudes don't change - I'm trying to change attitude.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:22 PM

DOE, DOC, Infomatics, US Worker

Joint funding of policy toolkit option to 'Implement NEMI roadmap.' DOE invests \$20M, DOC \$70M, Infomatics \$110M, US Worker 1 influence credit. **UNSUCCESSFUL at 50%.**

4/18/95 8:31 PM

US Senator, US Representative, US Worker, DOC, Mechatronics, Infomatics

Joint funding of policy toolkit option to 'Establish regional agency for workforce training programs.' US Senator invests \$30M, US Rep. \$50M, DOC \$70M, Mechatronics \$24M, Infomatics \$20M, US Worker 1 credit.

SUCCESSFUL at 54%.

4/18/95 9:00 PM

DOC, Technology for America

DOC invests \$50M in TFA.

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

DOC JOURNAL EXCERPTS

Neida Courtney Bueno

Key challenges are:

- 1) Deal with Horioka on robotics software issue
- 2) Develop position on import quotas

Tuesday, 4/11/95 - Since my job is on the chopping block if I don't change my attitude, I have decided to 'test' the Japanese company Horioka. The Congresswoman from New Mexico and the activists are pressuring me to allow the Horioka company to build a plant in the US I agree, with some stiff rules:

1. If all workers are American, with 50% of management American.
2. If the majority of supplies and parts are bought from American companies, not shipped in from Japan.
3. If they build the plant using American companies and American labor.

The activists and the Congresswoman take this proposal to the Japanese. I hear they will abide by the rules. My preconceived notion of the Japanese might be wrong. My other option is to allow Infomatics to expand their plant in California. However, the Environmentalists claim that their existing plant has some pollution problems. Since both alternatives will increase jobs, why not do both?

I worked with the Worker/Consumer and Infomatics to get the implementation of the National Electronics Manufacturing Initiative Passed. We failed.

As Neida, this role is hard for me to get into, since I married a Half-Japanese, and of course my mother-in-law is Japanese. I tend to have a high respect for the Japanese and their sense of honor and respect.

Tuesday, 4/18/95 - I now hear that Congress wants to cut funding by half. In response to this, I lobby the Worker/Consumer, the Congresswoman/man (election) from New Mexico, the Senator from California, Infomatics, and Mechatronics to get workforce training programs in effect. After intense lobbying, the measure only has a 54% chance of passing, but the stars were with us and it passed.

My initial assumptions about the Japanese seem to be true, since there are reports of them using industrial espionage to gain valuable technology from US companies. I'm not sure how this is going to affect my job.

I also was asked to be a board member for a consortium to make the US more competitive by the University/Lab. This might be good in case I get fired....

A donation from the DOC was made by me to help fund the Tech For America. This group will help develop technology that will make the US more competitive.

I spent some time discussing stress with one of the Infomatics players. Seems she was as stressed out as I was.

Tuesday, 4/25/95 - This portion of my diary isn't complete. I didn't receive an update on the game status from the folks at Sandia.

Debrief: After reading the schedule I now realize that there was no update sent out!

Whoever nominated me must have had a hard time getting my confirmation through Congress with my bias toward the Japanese and my severe mistrust of their business methods. This might explain why Congress has been so eager to cut my job and my funding.

I had a difficult time getting into this role since as a full-time student I tend to ignore much of what goes on in the real world - especially in political circles. I found that the options I had seemed limited since there were few government related options that other groups wanted to participate in. But I worked on different options that would benefit the US workers and commerce.

I discovered how difficult it was to get several groups to agree on anything. I also found that my best ally was the US worker/consumer. I realize that this game is on a small scale as compared to the real thing, so I now understand why it can take so long to get anything done!

I did manage to get workforce training programs implemented - my big coup! But I realize companies might not want to deal with the government.

Election - I voted for the incumbents because I was in the process of making a deal with the two of them to get legislation passed. Fortunately, the new legislators agreed to follow through with the funding.

It's nice to know that most of the other people felt there was too little information - I really felt lost at first. The chaos was interesting but I understand the reason for it.

JAPANESE OFFICIALS (MITI)

PREGAME SCENARIO

There are three MITI officials and three Ministers of other organizations that interface with MITI whose objectives, parallel to those of the Japanese Government, are to promote Japanese political, social, military and economic agendas.

Key challenges for all government officials are:

- 1) Develop positions on specific issues and policy options (in Appendix B)

MITI Official The Industrial Policy Bureau (IPB) has responsibility for national industrial policy as well as taxation and financial issues. IPB exerts great control over the service sector of the Japanese economy. One current issue with regard to the SAMSON technology is its proposed dual use (military and commercial) in the US. Since Japan is prohibited by its constitution from supplying anything to another country that might be used for war, the sale of 3-D displays by Viewwall to Infomatics has created a potential crisis. Traditionally, MITI has had more influence than the other ministries over large corporations such as Horioka, but that is changing as the corporations grow and the different ministries exert more autonomy.

Key challenges are:

- 1) Develop position on 3-D display dual-use issue
- 2) Handle issues by influence or regulation

MITI Official The International Trade Policy Bureau (ITPB) has responsibility for trade policy and country policy with respect to nearly all industries, including the service sector. ITPB has been dealing with IPB on the SAMSON dual-use issue. It has also been involved in trade talks with representatives of the US on the electronics, computer, and robotics industries. This is done jointly with the MFA, with whom the ITPB is not in total agreement with respect to the interaction of foreign and trade policies.

Key challenges are:

- 1) Develop position on 3-D display dual-use issue

- 2) Define or negotiate sole and common responsibilities with MFA
- 3) Negotiate favorable trade conditions with the US

MITI Official The Machinery and Information Industries Bureau (MIIB) interfaces with many of the other agencies and bureaus within MITI, and has specific responsibility for the automobile, airplane, computer, and electric appliance industries. With the imminent expansion of the information infrastructure and associated industries in Japan, the tension between MIIB and MPT has increased, since each feels it is responsible for control of the development of national telecommunications. Traditionally, MITI has had more influence than the other ministries over large corporations such as Horioka, but that is changing as the corporations grow and the ministries exert more autonomy.

Key challenges are:

- 1) Define or negotiate sole and common responsibilities with MPT, MFA
- 2) Separately or jointly fund expansion of national network infrastructure
- 3) Fight to retain (or graciously relinquish) influence with large corporations

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Support Japanese firms in their development of the SAMSON technology. Deal with the US/Japanese trade deficit issue.

Priorities: 1) Expansion of the economy; 2) to help our industries grow (to protect markets); 3) good relations with the US to keep trade and industry growing.

Reasoning: MITI's role is 'to grow industry,' help the welfare of industry and trade in Japan and in international markets.

Reasoning (IPB): It is the opinion of this bureau that the dual-use issue would not pose a problem since at this time many components produced in Japan are already being used in military hardware. As long as we don't produce the weapons, we're OK.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:30 PM

Viewall, MITI

Joint funding of Viewall's private toolkit option 'Industrial espionage yields you key information on Eurolaser's electro-optic array. You can obtain US and Japanese patents before they do.' Viewall invests \$320M, MITI \$80M. **SUCCESSFUL at 98%.**

4/11/95 9:40 PM

MITI

MITI bureaus combine funding of \$120M on policy option 'Regional agency establishes workforce training programs...' **SUCCESSFUL at 50%.**

4/11/95 9:40 PM

MITI

MITI bureaus combine funding of \$200M on private option to 'Gain favor of Diet over MPT for control of information infrastructure development.' **SUCCESSFUL at 98%.**

4/18/95 8:18 PM

MITI, Viewall

MITI:MIIB issues Japanese patent to Viewall for electro-optic laser technology for \$1M and the promise that Viewall will sell to Horioka at a discount.

4/18/95 8:50 PM

MITI, Ministry of Posts and Telecommunications, Ministry of Finance

Joint funding of policy toolkit option 'Industry-government partnership to enable virtual enterprises.' MITI invests \$200M, MPT \$100M, MF 1 credit. **SUCCESSFUL at 54%.**

MITI JOURNAL EXCERPTS

Anthony Gallegos - MITI: Industrial Policy Bureau (IPB)

Sunday, 4/9/95 - I felt the information provided was rather skimpy and I was at first rather unsure exactly what we needed to do. But after speaking with the other MITI Officials we began to work out what needed to be done. I still feel though that there should have been more information on our roles and more detailed instructions about what to do.

Tuesday, 4/11/95 - Observation: After speaking with the other MITI Officials we decided that our goals would be most importantly to support actions which would increase Japanese Market Share. We felt that the dual use concern was not going to be a problem as long as we did not create things specifically for military use. The second priority we felt was important was to maintain good relations with the US.

Our strategy for improving the Japanese economy was to support Japanese firms in their development of the SAMSON Technology. The strategy for the second priority was to address the US/Japanese Trade Deficit.

Actions: The first request for financial aid from MITI - IPB came from the Japanese Banker in combination with Horioka. They wished to create a formal Keiretsu initiative in Japan with the goal of making Japanese companies the companies of choice for global business and consumer electronics. After speaking with the other MITI Officials, it was decided we would not support this proposal. We felt it really wasn't our place to do so since one of our goals was to improve relations with the US.

The second request for support came from the Japanese Minister of Finance who was seeking financial aid for his pet project to bolster the Japanese Yen. After consideration, his proposal was also rejected. An option with a better chance for success was sought.

A third request for support came from the US Distributor. She was asking for financial incentives to distribute Japanese products in the US. This request was not immediately rejected, but consequently it was, due to the commitment of resources to another project.

Seeking an influence Credit for a project I wished to support, I spoke next with the Japanese Media. This project was to establish work force training programs which assures focus on high skill requirements needed for domestic electronics manufacturing. The price for acquiring this influence credit would have required me to become a confidential informer on the activities of MITI. The negotiation ended at this point.

I still was able to implement this policy by combining resources with the other two MITI Officials. \$120 million of my agency funds were used to support the project and the remainder was used to gain favor of the Diet in battle with MPT over NIT development. We succeeded in this effort.

Tuesday, 4/18/95 - Observation: options were more limited this time around. Japanese Industry apparently did not need our support as much as the previous week.

Actions: The Japanese Minister of Posts and Telecom. requested support for government subsidization of school boards to provide every child (ages 10 to 18) with a personal data assistant and free access to the Internet. This request was initial rejected due to lack of additional support from other entities.

Later the above option was supported with the additional option of an Industry-government partnership creating infrastructure for virtual enterprises to facilitate product realization. These two options were supported by a combination of all three MITI Officials, the Minister of Finance, the Minister of Foreign Affairs and the Japanese banker. The goal was to eventually increase Japanese market share.

Monday, 4/24/95 - Observations: By doing this role playing game, I feel we get a little experience about what it is like to operate in the global market. The confusion we first felt must be similar to what the real individuals feel when confronted with similar problems. What actions can I take to better my position? What should be my position? How much should I spend? These types of questions are hard to deal with. Even more difficult is dealing with other people. It was hard to convince people to do certain things even if, in the long run, they would benefit from these actions.

The lessons learned from this exercise basically are that relations not only between two countries are complicated, but also between individuals who desire the same goal but who go about achieving it differently. In order to accomplish anything constant dialog is necessary.

Comments: A little more information concerning the roles and what we should be doing would be good. More information on how to create our own toolkit options is necessary.

Danielle Duran - MITI: International Trade Policy Bureau (ITPB)

Sunday, 4/11/95 - Today I've been notified that I will play the role of a MITI official. I'm not very concerned about this role. There's no information regarding exports, tariffs, agreements, etc. I doubt that it will be very difficult. While it will be helpful to understand the technical side of the SAMSON product, I don't know if it'll really be necessary. In the seminar on the Japanese economy I took in '91 or '92 we discussed this ministry's history and their present role. Also, Mr. Eto was somewhat informative as to the role of Ministry at present.

Tuesday, 4/11/95 - Tonight we, the three people playing MITI official roles, got involved in some interesting actions. When we got to class we didn't really know what to do. We all went over our roles again, then decided that people would be coming to us for advice, money, etc. When that didn't happen we talked to some people from the Control Team, including Mr. Eto and decided we should go find out what other groups were doing. No one else really seemed to know what was going on either and I thought we'd get a better idea of what should be done by discovering others' needs.

This exercise is a lot different than the negotiation exercises that we do in Negotiation Strategies. Although we have some background information, including issues for the other players, there's a real lack of specificity that goes far beyond lack of information to accommodate time considerations. Also, although we read about Japanese and American practices I think that ignorance of past relationships and guidance on interaction also afflicted the ability of the players to be effective.

I went over to talk with Horioka, offer some assistance, find out what they needed. When I got there they acted as if some huge bug had hatched right in front of their eyes. I told them that I was there to offer assistance for anything they needed. They were vague and untrusting. One woman tried to squirrel out hidden agendas and negotiate some kind of deal with me. I went away feeling annoyed.

When I got back to the MITI table Anthony was sitting there with little information from the other Ministries. Tanja was still talking with Viewall. She had a lot to say when she got back. Unlike Horioka, Viewall not only asked for assistance but also made great efforts to show that we had common goals. I think that the use of superordinate goals by Viewall was part of what led me to push to help them.

My idea of what a MITI official would do, confirmed by Mr. Eto, also led me to believe that helping Viewall, even in industrial espionage, was the correct thing to do. After hearing of the disastrous effects of Viewall's attempt to form a partnership with Horioka (whom I already disliked) I was definite that MITI would help them.

I thought that our Optional Toolkit should also be addressed. Some of our main issues in the original packet and in the discussion by Mr. Eto about MITI's relationship with other ministries were addressed by the Options. The option to buy a senator seemed like a bad idea. I don't think we were at any time interested in seeing deals go through with the US. Also, the chances of being discovered and having serious backlash were greater than with the other Option. Paying to gain control of infrastructure issues in the Diet seemed like a pretty safe/high reward risk. If we did gain control, we would have more influence. If we didn't gain control, it wasn't going to impact us in

a terribly important manner. At least my bureau would not have been seriously impacted. Of course, not knowing a lot about Japanese politics I might have been wrong.

Anthony had one policy which he thought we should pass. Since we had consolidated our funds and there were no other issues about which we felt passionate we went for the 98% chance. At the end we had enough money to subsidize Viewall's concerns.

Even with the news bulletins and our own scrounging for information it was difficult to keep up with what was going on. Half the time I didn't know if Japan was behind or ahead. Most of the news bulletins from America were about scandal. Our own media was really amusing, but hardly worth listening to. I didn't think that their information or the US medias was up-to-the-minute on what was of real concern to us - the status of SAMSON technology.

We tried to get some more money at the end of the evening by buying and reselling credits, but the Japanese distributor blew us off. I made a mental note not to help him and make sure his actions were in line with our goals. I really thought that as MITI officials we would have gotten some respect, but I guess that even in Japan money comes first.

Saturday, 4/15/95 - Nothing too exciting came in over the E-mail. Although the American companies have made some strides I'm not concerned. I talked with a representative of Horioka informally. I was told that the offer they had made to Viewall was substantially better than I had been led to believe. I E-mailed Viewall and asked that they talk to Horioka.

Tuesday, 4/18/95 - Tonight was very uneventful for MITI. No one except the other ministries were interested in speaking with us. The banker wanted some help in getting Viewall and Horioka together. Tanja, who has a good relationship with Viewall went over to speak with them. Also, we were notified by both the Control Team and the banker that the distributors were joining forces and that they were speaking with Rootska.

I looked at the issues which I should act on again. I got together with the Minister of Foreign Affairs to discuss areas of interest. She didn't have any specific ideas until she recalled that Horioka supposedly sold something illegally. When we verified that the issue had gone away there weren't any other issues on which we could decide definite action.

One of the Control Team members suggested that I speak to the Japanese companies and DOD perhaps, about limiting any direct military use of the product(s) coming out of Japan. Horioka, in the middle of internal discussion, told me they'd get back to MITI but that they were quite willing to go along. The US DOD also was busy when I first approached him.

When I finally spoke with the DOD representative I told him that we were concerned with Military applications of our technology. I said that if we weren't assured that direct military applications would not come out of a final product from Japan that we would have to restrict trade of the technology. He asked if that was a threat. When I replied with an explanation of the Japanese constitution he started griping about all the money the US spent on Japanese military defense. Finally he admitted that he knew nothing about our technology but that the DOD would buy any products/technology from private US firms. He became interested when I told him about Viewall's lead in the 3-D technology, but eventually nothing came of his interest.

His lack of interest/knowledge about the Japanese issues/products mirrored MITI's own ignorance of American matters. There were too many domestic issues we wanted and had to address to discover what was truly happening on the other side of the ocean.

Meanwhile, Tanja had sold some patents to Viewall only to have them move onto new technology. She felt somewhat betrayed after all the effort she had gone through for them. The main point was that she had gotten Viewall to talk with Horioka. This was one of our major goals. I was glad that she had been so tenacious on this matter. After being rebuffed so often I was somewhat unwilling to get back into the ring. Her efforts paid off in the end.

Personally, I was surprised that she had continued to press for a partnership. None of us felt any confidence in Horioka. There was little we could do to influence them beyond verbal and physical pressure. The money that we had was insignificant in comparison to the amount they had available. Not a single one of us was such good friends with the people in Horioka that referent power could be used. Obviously, our roles as MITI officials had little weight with anyone.

Our discussions at the end of the evening with the other Ministries mainly came about because neither we nor they were doing much. The Ministries had some policies they wanted to pass. We weren't opposed to the policies and we discovered that we could create some good press.

The only other event that took place which directly involved MITI involved the distributors. After we had been notified that they were talking with Rootska I asked them several times to talk with us. After being ignored I threatened the American distributor with restrictive and punitive policies. This still had no influence. That was the note on which the game ended for me.

Reflections on the Prosperity Game: On the eleventh there was a lot of distributive negotiating. I think most of this took place because the issues and goals of most parties centered on their own needs. There was a lack of significance in creating win-win situations for many parties, especially those who had other attractive options, such as using MITI for resources, or using their own vast resources. After that evening, however, many people felt that the game had been too frustrating and laborious. Failing to create relationships and partnerships would have forced them to continue on the same path. It was interesting, then to see how difficult it still was to get the two Japanese companies to work together. A lot of hard feelings had been built up in the previous session.

The relationship between the two companies took up most of the time and effort of MITI and the banker. The distributors, of course, had their own pockets to line and had other opportunities beyond the troubled Japanese companies. The other Ministries, I can only guess, had read too much into their own issues to make Viewall-Horioka their top priority. Without the technology being created by Viewall-Horioka their policies would have been impossible to implement or had little relevance to what was possible for Japan.

The MITI players and the banker were totally taken up by what was going on between the two companies and the possibilities for the technology.

It was too much for any of us to be concerned with what was going on in the United States. We had heard talk to partnerships with US companies and about plants being opened in New Mexico, but the 'unstable political and business conditions' had ended those discussions. If our own situation had been less difficult we might have been more open to trade and/or involvement in foreign affairs.

Finally, I have to say that Mr. Eto's presence was invaluable to me. He confirmed many of my own beliefs on appropriate MITI action. I had become completely restricted by what I thought would be correct in my role. Fortunately, Mr. Eto's confirmation of my beliefs helped me to influence the other MITI officials.

Tanja Diers - MITI: Machinery and Information Industries Bureau (MIIIB)

Friday, 4/7/95 - Well, I just finished reading the role descriptions in our pamphlet. I think that all of the profiles sound interesting, but I do have a few preferences on the character I would like to play. We'll have to wait and see.

Sunday, 4/9/95 9:00 PM - Not among my premium picks, but it should prove to be a challenge. I am the new official of the Machinery and Information Industries Bureau (MIIIB).

Tuesday, 4/11/95 10:15 PM - That was definitely an interesting class. At first things were a bit confusing. The other MITI officials and I talked with a few members of the Control team to make sure we had a grasp on what was wanted. Mr. Eto as well as the others, were very helpful in establishing our roles for us.

Our first order of business was to forge an alliance between the three MITI officials. This was easy, since we all had Japan's best interest in mind. We each spoke with Viewall and Horioka representatives to see what their

goals and aspirations were. We wanted to work with them to build our industry to stay on top of the world market. To do this, communalism was very important. I wanted every citizen working for a better Japan.

My original meetings with Horioka were not very successful. They seemed a bit confused and wanted to stay isolated for a while. This was fine with me so I moved on to Viewall. They seemed more willing to discuss what they were trying to accomplish. Their main objective was money and points. I decided to mull over their general options and get back with them.

The only problem I foresaw was with our distributor. When questioned about his plans, he informed me that he was negotiating with a US company for his 3 credit points. He was in debt and needed capital. After some negotiations to trade our money for his credit failed, he ended up doing nothing. No one could give him the money he insisted on. He was definitely not acting for the good of the culture. He did start to concentrate more on his fellow Japanese citizens with his offers, though. This was what I wanted, so we somewhat succeeded even though no deal was signed.

I then returned to my chief companies to see if anything had been accomplished. Viewall informed me that they had asked Horioka for some financial backing in return for some royalties. They could not agree on a percentage, though, so talks broke down. Meanwhile, Horioka had begun meeting with a few chief members of Mechatronics. They seemed to be headed in a good direction, so I did not intervene at this time.

After much discussion, MITI decided what to use its' money and credits for. We were approached by Viewall with an appeal. They needed \$80M for an option that they wanted. It had a 98% chance of success but involved espionage. I was a bit apprehensive, but had little choice after they informed me that they had spoken with a US financier also. To keep our competitors from getting a foot in our door, I reluctantly agreed to the loan. It would put us on top of the market but it was extremely unethical. I just hope that it does not leak out.

MITI also decided on the rest of our toolkit options. We invested money into trying to gain control over the DIET and also into training programs. All is well in the MITI camp.

Saturday, 4/15/95 - I have just checked my e-mail. The members of MITI received a thank-you note from Viewall.

Monday, 4/17/95 - I received a summary of last weeks class as well as the outcomes of our options. MITI is to be congratulated. All were accepted by the Control team. My great triumph is gaining control of the DIET over my long time opponent, the MPT. I also received a message concerning a patent with Viewall. I quickly replied concerning the request. I was also in contact trying to wheel-n-deal with the prestigious Minister of Finance. He quickly dumped me, though, when he realized that I had no credit points to spare. Pity did not work on me.

Tuesday, 4/18/95 11:45 PM - Today was a challenge. I first met with my cohorts to discuss our triumphs and next moves. Soon after the Minister of Posts and Telecommunications entered our camp to form an alliance. We ended our feud to work towards a better industry. Next, the official from ITPB and I discussed the brewing hostility between Viewall and Horioka.

When asked for the reason for the problems, each side gave me a different answer. It seemed that neither side listened to the other during negotiations and remained stagnant. Each had a contrary opinion on what had been discussed the week before. I tried to start over. Viewall wanted the patent for their new technology. I agreed to give it to them in return for agreeing to reduce the cost of this technology when selling it to Horioka. I hoped that this would get the Horioka product to market at a lower price than Infomatics. This in turn would boost their market share and hopefully level out their 80:20 split. The Japanese distributor would be the only seller of the product so this would be done by him.

After meeting with the keiretsu banker, I became aware of what could happen with the yen. He warned that it would appreciate more if I continued my current stance. After a discussion his fears were alleviated.

Well, I signed the agreement only to find out that they went with more advanced technology and our agreement became obsolete within minutes of signing.

When I informed them that they must begin R&D or fall behind in the quickly advancing market, they realized that they needed money, backing ... they needed Horioka. This sent them back into negotiations.

The Horioka team was extremely stubborn and even tried to walk away a few times. I was standing guard, fortunately. No one leaves when MITI wants you to talk. They finally broke down and signed an agreement that mutually benefited each and most importantly is very good for Japan. I am so proud.

MITI also decided on some options. Working in conjunction with the Japanese Ministers, we decided to concentrate on subsidizing school boards for the students and establishing property rights. These, too, were passed. The night ended very well.

JAPANESE OFFICIALS (Ministries)

PREGAME SCENARIO

The Ministry of Finance (MF) deals with financial policy and specifically the banking and investment arenas. In addition, they interface with MITI on both economic policy and the credit card industry. MITI and MF have some concern over the recent and sustained appreciation of the yen, and wonder if Japanese industry and employment will suffer some severe consequences resulting from overvaluation accompanying this appreciation. With the imminent expansion of the information infrastructure in Japan there is debate over whether funding for this expansion should come from private or public funds.

Key challenges are:

- 1) Assuring monetary stability in the face of appreciation of the yen
- 2) Promote private or public funding for expansion of infrastructure

The Ministry of Posts and Telecommunications (MPT) has responsibility for both public and private networks (both computer and phone). They also deal with communications hardware. MPT is currently battling with MITI (MIB and IPB) over who will control development of the telecommunications industry and policy. The Internet is available in Japan, but has only minimal penetration. It is expected that this will grow rapidly, and oversight is needed. MOFA is also involved since the links are international.

Key challenges are:

- 1) Define or negotiate sole and common responsibilities with MITI, MOFA
- 2) Determine direction and link companies with funding sources

The Ministry of Foreign Affairs (MOFA) has responsibility for foreign policy and interfaces with MITI when foreign and trade policies collide. Recently MOFA has wanted to exert more influence over trade policy but has been rebuffed by MITI. They have also been in discussion with MPT over the increasing international links to a worldwide information infrastructure. In a related issue, MOFA has been a point of contact for the US Department of Commerce over the alleged illegal acquisition of US software by Horioka.

Key challenges are:

- 1) Define or negotiate sole and common responsibilities with MITI, MPT
- 2) Deal with the Horioka robotics software issue

STRATEGIES, PRIORITIES, AND REASONING

Ministry of Finance

Strategy: MF's strategy is two-fold. The first is to stabilize the appreciating yen by lowering interest rates to stimulate the economy; to stimulate the US markets by lowering interest rates. Spending will increase here and hopefully abroad. The second is direct private companies to invest in R&D of Japanese companies. With alignment of MITI and the private banks, spending should be moving toward our new goal.

Priorities: 1) Stabilize the appreciating yen; 2) work for more private funding on a global level to finance the R&D of our Japanese companies; 3) work for a consensus in R&D so competition among companies will produce a more efficient SAMSON.

Reasoning: The yen needs to be stable so companies can make rational economic decisions. If private companies and banks fund the R&D, there's more pressure to get the product out more quickly and efficiently since personal funds are at risk.

Ministry of Posts and Telecommunications

Strategy: Win over someone with a credit to allow my offer of \$100M for 50% chance to be in the lead role for NII. Favor deals with Viewall and Horioka over other options.

Priorities: To control and have lead role in implementing information highway technology. Pursue strong Japan-only technology to lead to global domination of SAMSON market.

Reasoning: Japan already has some cultural assets which make this easier to pursue than the US, such as strong training, life-long job security, etc. Private toolkit option offers good chance at MPT having the lead role.

Ministry of Foreign Affairs

Strategy: To establish workforce training programs to focus on high skills needed for domestic electronics manufacturing. Make Japan the global leader for business and consumer electronics.

Priorities: List and define common responsibilities with MITI and MPT. Try to solve the issue over illegal acquisition of US software by Horioka. Keep environmental issues under control.

Reasoning: To avoid issues of illegal acquisition of US software. By having people trained, Japan will be able to come up with better software than the US.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:30 PM

Japanese Media, Ministry of Finance

The Japanese media will trade 1 credit for exclusive inside information from the Ministry of Finance - source will not be revealed. Source will also give information about MPT and MFA when available.

4/11/95 9:38 PM

Ministry of Finance, Ministry of Foreign Affairs

Ministry of Finance will buy 1 influence credit from the Ministry of Foreign Affairs for \$35M.

4/18/95 7:59 PM

Ministry of Finance, Japanese Distributor

Ministry of Finance purchases 1 credit from Japanese distributor for \$20M.

4/18/95 8:05 PM

Ministry of Finance, Japanese Banker

Ministry of Finance invests 3 credits in the Japanese bankers private toolkit option to 'Realize a very low loan default rate despite appreciating yen.' **UNSUCCESSFUL at 59%.**

4/18/95 8:50 PM

MITI, Ministry of Posts and Telecommunications, Ministry of Finance

Joint funding of policy toolkit option 'Industry-government partnership to enable virtual enterprises.' MITI invests \$200M, MPT \$100M, MF 1 credit. **SUCCESSFUL at 54%.**

4/18/95 8:50 PM

Ministry of Foreign Affairs, Ministry of Finance, Japanese Banker

Joint funding of policy toolkit option 'Japanese government subsidy of school boards to provide SAMSON and NII to students.' MFA invests \$50M, Japanese banker \$300M and 1 credit, MF \$50M. **SUCCESSFUL at 66%.**

MINISTRIES JOURNAL EXCERPTS

Gavin Gillette - Ministry of Finance (MF)

Sunday, 4/9/95 - Checked my E-mail to discover my role, Ministry of Finance. Read through players manual to understand game and the dynamics of playing.

Tuesday, 4/11/95 - The actual game begins. As the Ministry of Finance (MF), my main goals are to overcome the key challenges that the players' handbook lists which are trying to stabilize the Japanese economy in the face of the appreciating yen, and whether public or private financing would be better for expanding the infrastructure. As soon as the game actually began, the two other Ministries and I decided on a general direction of where Japan should be going in the race to get SAMSON to the market.

The Ministry of Posts and Telecommunications (MPT), the Ministry of Foreign Affairs (MOFA) and me, the MF decided on a strategy to try and remove barriers for our Japanese companies and foster inner competitiveness among themselves. This was our global goal, even though each individual Ministry has their own agenda to do. During the discussions between the other Ministries, a control group member handed me a private toolkit option that was exactly what I needed. The toolkit option needed 2 credits to have a 50% probability to basically stabilize the Japanese yen. Since this toolkit option falls directly in line with a key challenge, I thought this would be a perfect option to exercise provided I get 4 credits - to have a 97% chance of success.

My strategies are simple: 1) Lower the interest rates, to stimulate the economy to spur economic growth to decrease the yen or at least stabilize it, so the American dollar will hopefully rise so it's not too expensive to do business with Japan. 2) Persuade the private sector banks to lend money to the Japanese computer parts companies so they'll have a vested interest in the success of the SAMSON projects.

My starting resources were 150 million. After speaking with Manabu Eto, the visiting Japanese scholar, and understanding that the MITI and (MF, MPT, and MFA) are adversaries, I decided to talk to the Japanese banker about possibly lowering the interest rates so companies could borrow more money. He was not too convinced this would work, so I went directly to the Viewall and Horioka companies and asked them if they would want lower interest rates to borrow more money for R & D. My angle was to get these two Japanese companies to lobby the banker towards my lower interest rates idea. I even offered them (the companies) money in exchange for a credit (for my toolkit option). Both companies said they'd think about it and get back to me. So far I'd hit a wall, no credits yet. I approached the Japanese distributor, the one who's in debt, and proposed giving him money in exchange for a credit. He wanted too much money for 1 credit, so we broke off negotiations. Right after my conversation with the distributor, a control group member informed me that the US dollar took a huge hit and plummeted again. Time was running out.

At about 9:00 PM the MITI approached me, knowing that I was looking for credits. They wanted some money for a policy to get passed in exchange for 1 credit, but they insisted that I do not speak to the Japanese distributor again because they were in negotiations with him. After 15 minutes of getting nowhere, I went to the Japanese media. I told them I would leak only factual information of what was going on in Ministry affairs in exchange for a credit. They were open to the idea, but needed some reassurance. That's when the MPT reassured them that I would give factual information only. The MPT wanted 50 million for their part in getting me a signed contract with the Japanese Media. I gave the MPT 50 million and signed their contract, and the Japanese Media made me sign their contract and I got my first credit at 9:15. The 50 million that the MPT wanted was to get a leading edge on the information infrastructure of Japan, which would also promote the goals that all three Ministries wanted to accomplish.

Getting close to the end of the class, I desperately needed another credit to have a 50% chance of success for stabilizing the economy. I spoke with the MFA and negotiated 1 credit for \$35M dollars, so the MFA could buy

compatible software and thus help Japan get a leading edge on compatible computer systems. I signed another agreement for the exchange of \$35M for 1 credit. Now I had 2 credits at 9:30 p.m.

I have 50% of my goal complete. I still have 65 million left, and I am looking for 2 more credits so my probability will be 97% to stabilize the Japanese yen. My next move is to either E-mail or personally speak to the Japanese distributor and to Viewall to see if I can get the two needed credits.

Thursday, 4/13/95 - Checked my E-mail and received message from the Japanese distributor. He was inquiring if I'd thought any more about his offer. He asked for a large sum of money in exchange for a credit. He definitely needs money and he asked if I'd pressure the Japanese banker (again) to loan him some money. I told him that I'd work on it. I also E-mailed one of the MITI members and tried to open negotiations so I could get a credit from them in exchange for... whatever they needed, whether it be information, support or influence or maybe even financial support for a policy they're trying to get passed.

Monday, 4/17/95 - Checked E-mail, had several messages. The Japanese distributor wants to negotiate a deal on Tuesday for money in exchange for a credit. A MM member was wondering if I still needed a credit. The MITI still were not very receptive to all three Ministries goals, and as a consequence, they are not helping the MF very much. I received the update from the control team, including the individual questions asked to me (MF). I responded to the control team with a brief outline of my goals and that I was trying to address the key challenges that were set forth in the players handbook. I hope to get at least one more credit so I will have at least a 75% chance of halting the appreciating yen. Tuesday's class will hopefully be more productive than the first class.

Tuesday, 4/18/95 - Today's class had its good and bad points. Some good points were me getting a 3rd credit to try and stabilize the Japanese economy, the 3 Ministries got together and passed 2 policies and everyone helped the two Japanese companies get together start working on joint research for SAMSON components. On a very bad note, my Private Toolkit option failed and the Japanese economy did not improve. My negotiations with the Japanese distributor paid off. Originally, he wanted \$50-75M for 1 credit, but after lengthy talks and E-mail messages, he sold me 1 credit for only 20M. But my toolkit option did not work because of the new probabilities that were assigned at the beginning of class, by the control team. Originally, the economy had a 75% chance to improve (with my 3 credits), which is a great percentage for improvement. After the newly assigned probabilities, my chances decreased to just above 60%. The control team 'rolled the dice' and my toolkit option failed, causing the yen to continue to appreciate. The whole credit negotiation process took me one and half class sessions, one week of E-mail messages and cost me \$105M. After that slap in the face, there wasn't much to look forward to because as the Ministry of Finance, that was my MAIN goal.

The 3 Ministries regrouped at this Point and talked about what we could do with our money and resources. We decided to get two non-technology policies passed that would help out Japan as a whole. The MPT, MFA and the MF all gave money and lobbied the Japanese banker to put up the rest of the money that we be needed to ensure reasonable odds of getting the policies passed. Both policies passed with flying colors. This was the nights biggest successes, at least for me.

After a brief news report, we heard the US had 80% of the market share of SAMSON. So Manabu Eto, acting as Japan's President, gathered a task force to get Japan back on track of being the leader in SAMSON technology. The task force consisted of a MM member, the Japanese banker and me, the MF. The President stressed the importance of getting Viewall and Horioka to work together to compete with the US. After the meeting, we all spoke to both companies and negotiations started to take place. In fact, negotiations were taking place with Viewall, Horioka and the Japanese and US Distributor right before class ended. The goal of the President was being worked out, and all the details of the two companies meetings were going to be released to the press ASAP.

Things seemed to be going smooth, but not as realistic as it should have been. What I mean by this is, Manabu explained to me and MPT that in reality, all Japanese companies need their government more than this simulation was showing. He said that all companies needed to go through either MITI or the Ministries to accomplish most international tasks. Neither Viewall or Horioka ever contacted any Ministry or MITI for help or guidance or merely for their support. This was a drag, because all three Ministries were willing to help remove obstacles to accomplish their (the two Japanese companies) goals. The MPT and me were thinking about explaining this to

Viewall and Horioka, but it would have been a mute point. There were no rules to this game, so those companies probably wouldn't have been too receptive to us.

In reflecting on the game and it's processes, I learned a lot about the art of negotiations and the dependence that each player had on each other. If a certain outcome happened or did not happen, a certain chain of events was the likely result of that outcome. And, all players were strategically placing themselves in a position based on an outcome or event that would happen or would not happen. In the real world there are always more outcomes to consider, but the probability of the outcomes is unknown so one must base their actions on all the information. The Game Theory simulation was trying to get individuals to think outside the lines and look at the big picture, I think it worked. No one can make choices in a vacuum, because there are always additional factors and repercussions associated with those decisions. I would like to try this game again, but I think there needs to be a few more rules added. Rules such as getting the governments permission on some things before they actually happen and so forth.

Tuesday, 4/25/95 - Overall, the class census was that better rules need to be established with roles. I learned that everyone was frustrated with little initial direction but as time was on, people got into their roles and played them well in the end.

John Gregory - Ministry of Posts and Telecommunications (MPT)

Tuesday, 4/11/95 [Toronto, Canada] 9:00 AM - Occurs to me that if SAMSON existed, and if I had one, I could easily get to my e-mail message informing me of my role! As it is, I will not know until I arrive in Albuquerque at about 6 PM. Oh well, it's just a grade.

In flight - As I read the Players' Handbook, I wonder whether a business person in the real world would have this sort of overview of all the players and their interrelations, approximate cost data, etc. I struggle to keep my head above water in the whirlpool of initials (MIIIB, MITI, ITPB, IPB, MPT, MFA). I also feel quite afloat in expensive, non-linear, optical and quantum-coupled jargon. I take a deep breath. Wish I knew what an advanced diamond substrate is.

3:00 PM - An aside: As we land in Dallas, the stewardess informs the passengers that American Airlines has a very aggressive recycling program in place and she will now collect any trash we have. Recycle, re-use, etc. has reached 30,000 feet.

3:30 PM - I discover the glossary of terms (App. C) at the back of the document. I do not remember it being referred to in the text. I skim through the 1st few pages and see Appendices A and B mentioned, not C. Suggest moving App. C to the front.

6:00 PM - Now at home, I log into my e-mail and discover I will play the role of Ministry of Posts and Telecommunications. The Players' Handbook gives only a bit of information about the MPT: Battling with MITI over who will control the Telecomm. Oversight is needed for the implementation of, and expected large growth in use of, the Internet in Japan. Need to (1) define MPT responsibilities in relation to MITI and MFA, (2) determine direction and link companies with funding sources. Off to class.

MF Issues:

- 1) Monetary stability in face of yen appreciation
- 2) Whether to heavily subsidize Internet, etc. by government

MITI official approaches me with a motherhood/apple pie set of statements. Asks MPT's approach. I say we want to control the implementation of the Internet. He says it's fine with him.

7:45 PM - out of role - *This means to me that he doesn't understand the problem which has been given to the class. I think there should have been about a 30-minute introduction by the Control team as to what we are to do. I predict less than optimal 8:00 PM submittals.*

My strategy has been submitted.

Felt rushed to develop strategy - so just went with the private toolkit option for MPT official. You put words in my mouth.

I approach Horioka - they are still developing strategy. Others have approached them for funds. Do they support a keiretsu initiative? Yes. I need someone's credit in order to go for a chance at the lead role.

It is not clear to me why for example the Japan Banker would favor or not favor the MPT in their role. Not enough info given as to who would or would not favor this.

I approach MITI reps, but in a nutshell they say I'm their enemy. Some too-simplistic notions have entered early and will be difficult to undo.

Questions about whether funds shown on Appendix A are multiplied by a factor of 2 when used on a given option. Answer from Control group is no - the amounts shown are total amounts available.

Viewall tells me they are on verge of getting funds from MITI and in turn Viewall will give support to MITI. They can't define what 'give support' means. I don't understand the quid pro quo.

Saturday, 4/15/95 - out of role - *It occurs to me that having committed 2/3 of the funds I was allocated, the need for negotiation, strategy, persuasion, and 'log-rolling' will increase. Probably reflects the real-world rather accurately.*

There seems to have been a tendency for the businesses to go off and talk among themselves without much involvement of the Ministries. People probably feel more comfortable negotiating with those from similar institutions. But perhaps the biggest payback comes from spanning those boundaries which are the most uncomfortable to deal with.

Monday, 4/17/95 - I learn that my offer to obtain lead role in infrastructure development was 'too little, too late.' I guess I didn't understand the rules well enough. I thought the option was open to me during the 1st session and that the only possible reason it would fail, if I made an offer, was if the roll of the dice went against me. Apparently there was a hidden time factor involved wherein MITI got there ahead of me.

Tuesday, 4/18/95 - Problems with toolkit options: can't buy your way to success. Now is 1997.

Met with MITI. I argued that our common goal as Ministries is to foster Japan's political, economic success, etc. And that one of the few policy options targeted at (or available to) Japan is subsidizing school boards, etc. which would create an immediate market for Horioka and Viewall to market SAMSONs. MIB is somewhat skeptical about dealing with a non-MITI entity. I repeated the whole argument for her benefit. She is negotiating something (unknown) with Horioka and Viewall, and won't give me an answer. Seems we could, together, easily invest more than the 50% level \$240M and create a solid market for SAMSONs.

Met with Horioka: Viewall is not giving them the amount of discounts they desire on 3-Ds. This runs counter to pro-Japan cooperation.

Its 1999 now.

2nd generation device is out by Infomatics. Has 80% of market now. Viewall presumes this means that most of their 3-D products are being sold through Infomatics.

Managed to combine funds with other Ministries and succeed on two proposals which will help boost market share and sales of Japanese products. Those were (1) infrastructure for virtual enterprises, (2) subsidizing data assistants for school kids.

Because of time constraints, we were not able to obtain more cooperation from and between Horioka and Viewall as a quid pro quo for our actions.

Their failure to cooperate reflects a situation which would not really happen in Japan.

This seems to be changing rapidly. Viewall has agreed to distribute 60% of their products to Horioka and only 40% to the US. This seems to have been somewhat dictated by the distributor, with whom they had previously agreed to a standard price, whether US or Japan sales.

My discussion with Eto indicates that the wheeling/dealing of Horioka/Viewall/ distributors with little involvement from the Ministries reflects a flaw in the game. MPT would actually have lots of influence, but the game allocates MPT no credits. I feel the game did not reward attempts to get broad-based multi-agency strategy and joint effort as much as it did the wheeling/dealing of aggressive individuals, whether in the role of govt. bureaucrats or industry.

Sunday, 4/23/95 - I feel I did try to reach some win/win solutions. I argued for pursuing policies which would help create, through government policies, a strong market in Japan for SAMSONs, which in turn would help supply the market Japanese industry would need for its products. I finally obtained multi-agency (Ministry) cooperation on two policies which we pooled funds to pursue. And the rolls of the dice on both of those options were successful.

After these policies had been successful, a Horioka team member later approached me, belatedly asking if they could participate or cooperate in these market-expanding activities. The game was simultaneously being brought to a close by the Control team, so I guess the offer was 'too little and too late.' In any event, I feel it indicated Horioka had finally seen what I had been talking about in terms of the need for Japan Ministry - business cooperation, and that this mind-set was finally coming about.

I realize that one goal of the game makers was perhaps to see if some Japan-USA win/win strategies could be developed, and some of the businesses were beginning to make these types of arrangements (US company dealing with Japan company). But this seemed to me to be company initiated and consummated without much government involvement, which probably isn't very reflective of the real world.

The game would be most effective if one could get real experts in each of the roles to then strategize about true win/win, international, joint ventures, etc.

I'm glad I had a chance to participate in the game, and I appreciate the volunteer efforts of the Control team and others. But I feel it bit off a little more than could be chewed in terms of technical detail, lack of participant preparedness, and very limited time frame.

Tuesday, 4/25/95 - What I learned tonight - My answers on the survey have probably moderated (moved to the middle on both US and Japan). Horioka was probably too slow in their deliberations, in an effort to get consensus, and may have slowed Japan down too much. My two interviews with the Japanese media were never reported, even though in one case they agreed to pay \$50M to a third party in a 3-way trade for the story I gave them. But even so, I should have used the media more.

Luisa Gutierrez - Minister of Foreign Affairs (MOFA)

Tuesday, 4/4/95 - The introduction made by Mr. Manabu Eto about Japan's economical strategies were very interesting. I was not aware of Japan's agencies like MITI (Japan's Ministry of International Trade) or that Japan did not sell or do any research on products such as arms that could harm society. In addition, I learned that Japan devotes so much more time to R&D than the United States making them more effective in quality control.

The rules of the University Prosperity Game were also explained and I was then eager to know what my role was going to be so that I could identify with it.

Tuesday, 4/11/95 6:00 AM - Early in the morning, I found out that my role was to be the Minister of Foreign Affairs (MFA); subsequently, I was responsible for foreign policy and had to interface with MITI when foreign and trade policies collided.

7:00 PM - I met with the Minister of Finance and the Minister of Posts and Telecommunications (MPT). At first I thought there was going to be an overview of what we were going to do, but after we saw we were on our own, the MOFA, MF and MPT started to question what policies we should implement and how in order to make Japan success in its economical endeavors.

8:00 PM - I turned in my strategies, priorities and reasoning for my assigned role. As the MOFA, I wanted to establish workforce training programs and wanted to focus on high skill requirements needed for domestic electronics manufacturing. By implementing this policy, I thought that Japan could avoid issues such as the one of Horioka acquiring illegal US software and the trained people could develop a better PC's software than in the US. I also wanted to make Japanese companies the companies of choice for global business and consumer electronics.

8:15 PM - The three ministers (MOFA, MF and MPA) considered to work together in making policies in order to get Japan ahead but we were confused as to what policies to create since we did not have a complete background of what was going on.

8:30 PM - Because it was said that Horioka had acquired US software illegally, I thought that it was a good idea for them to develop their own software; this way the US could not continue to say Japan was stealing their ideas. I went to talk with the people of Horioka company to propose them to work together with a Ukrainian software company who had claimed to be developing a full OSPC-compatible software package. Such a package got around the OSPC limitations for SAMSON while achieving up to a 180% performance improvement. Horioka members liked the idea of working together with the Ukrainian company but they had their doubts about the Ukrainian company as to how reliable they were.

8:40 PM - One of the members of the Ukrainian company came to me asking if I could support him in dealing with Horioka. He stated that all he needed was a unit from Horioka to validate the data about the software and that he could go to the Horioka facility to work there so that Horioka members could be sure about their reliability and integrity. He asserted that when he got the results, Horioka was going to be the first company to know about the outcomes and had first option in buying the software.

9:00 PM - I met with Horioka members and informed them about the Ukrainian company interests. They were enthusiastic and were ready to write an agreement on the deal. The Minister of Finance approached me in order to negotiate my credit to pass a policy that would appreciate the Yen and I agreed to give him my credit for \$35 million; he would submit agreement in 1999. In addition, the Minister of Posts and Telecommunications asked me if I could support him financially with \$50 million to pass a policy to gain favor of the DIET in battle with MITI over NII development.

9:10 PM - Went back to Ukrainian representative and told him Horioka was willing to make business with him but he started to be more demanding and said Horioka had three minutes to decide. I told Horioka about the deadline and they decided to write up the agreement, when suddenly, the Horioka representative stated she did not want to make any deals since the Ukrainian agent would not give them an estimate of how much the software would be if it was successful. He would commit to show Horioka the results but would not commit to sell the software to Horioka unless Horioka paid whatever he wanted; otherwise, he would go ahead to make business with the US.

9:25 PM - After all the stress I had trying to make an agreement among Horioka, the Ukrainian company and me, I felt frustrated about the deal; I thought we were so close to make something good for Horioka and for Japan as a whole but time was up and I had to move on.

Monday, 4/17/95 8:30 PM - I found out that the Yen had continued to appreciate but MITI had gained favor of the DIET over NII development and DIET had concerns over military uses of SAMSON. This outcome was not good for me because MITI could gain more power over foreign and trade policies.

Tuesday, 4/18/95 7:00 PM - It was already 1999 and Horioka members were glad to know that the former Informatics operating system developers they hired were going to produce a new operating system for Horioka and it would be compatible with both PC's and SAMSON.

7:45 PM - The Horioka members would not collaborate with Viewall representatives to invest in technology and it started to concern us the Ministers because it was Japan as a whole who was suffering due to the US taking over new markets as a result of these problems. Horioka tried to pass the technology option of high resolution, 3-D, direct retinal projection display would be available at \$500/unit but it failed. Viewall tried by itself and it passed. Viewall had now advantage over Horioka.

8:40 PM - MITI, MF, MPT, MFA, and the Japan banker pooled resources to pass two policies by which the industry and government partnership would create infrastructure for virtual enterprises to facilitate product realization and the government would subsidize school boards to provide every child (10 to 18) a personal data assistant and free access to the Internet. Both policies succeeded and Japan had now a competitive advantage

over the US. Our joint efforts worked and finally we saw Horioka and Viewall working together and signing an agreement. It was good to see companies working toward a common goal, putting their efforts to get the country ahead but it is real easy to see them fighting too.

During the game, I started with a win-win approach but as we played more, I was getting more competitive and wanted to beat the US up. The people who played in Horioka and Viewall got very involved emotionally to the point that did not want to talk to each other; they forgot the common goal for a moment but went back to the right track. At the end, the three Ministers thought that in reality, they have more power over the companies in Japan, but during the game, the companies had too much freedom and ignore the government; maybe the roles were not very well defined since the beginning.

I think two classes were not enough to cover so much but overall it was a very good experience.

US FINANCE

PREGAME SCENARIO

The primary objectives of the US banker/venture capitalist/Wall Street interests are to maximize his yield at a minimum or reasonable risk in a relatively short time (1-3 years) and to support public policies that help the US financial sector.

Key challenges are:

- 1) Determine best method to get Glass-Steagall Act repealed - get industry support or use PAC contributions to support key legislators (notably the California Senator)
- 2) Provide capital to Mechatronics?

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Assuming that I have access to a virtually endless supply of financing, I will use this to invest in projects that will bring me quick and significant returns with as little risk as possible. I will also use my resources to alter the business environment so that I can make even more money in the future.

Priorities: My top priority is to allocate my capital resources in the most profitable way possible. I want to assume as little risk as possible and recover my funds as quickly as possible. As far as the business environment is concerned, I will barter with other influential parties to repeal the Glass-Steagall Act and probably use my influence credits to push up interest rates.

Reasoning: I want to quickly make money on my capital resources and use my influence to ensure that I continue to make money in the long run.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:05 PM

US Finance

US Finance invests 2 credits in private toolkit option 'Continued appreciation of yen, US interest rates rise.' **SUCCESSFUL at 50%.**

4/11/95 9:11 PM

Infomatics, US Finance

Joint funding of technology toolkit option 'Validated simulation and modeling tools reduce design time from 15 to 4 months.' Infomatics invests \$90M, US Finance \$50M investment based on return potential. If measure fails, Infomatics will fund \$25M toward finance venture. **SUCCESSFUL at 50%.**

4/18/95 7:45 PM

US Senator, US Representative, US Worker, US Finance

Both incumbents were defeated in the 1998 elections. The US Senator was defeated by the former US Worker, and the US Representative was defeated by the former US Financier. Role switches were done at this time.

4/18/95 8:20 PM

Infomatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Infomatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Infomatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (=\$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 8:30 PM

Infomatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of "Technology for America," a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Infomatics will have access to this. Technology will be available to US companies only. US Senator invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 8:41 PM

Rootska, Infotronics, US Finance

Infotronics gets exclusive rights to Rootska OS for 4 years in return for \$400M. Financing: Infotronics \$200M, US Finance \$200M. Finance gets stock options from Infotronics, DOD gets access to this cutting edge technology for 1 year. Rootska will receive 2% of all future SAMSON sales that use the Rootska OS.

4/18/95 9:08 PM

Infotronics, US Finance

US Finance trades 1 credit for virtual reality glove development in exchange for 1 million shares new stock at \$6 par value. Infotronics issues new shares.

4/18/95 9:10 PM

Infotronics, US Finance, Technology for America, US Lab

Joint funding of US Labs to develop a virtual reality glove for SAMSON (through a new toolkit option). Infotronics will have the patent for this leap-frog technology. TFA invests \$30M, Infotronics \$26M, US Finance \$5.6M. **SUCCESSFUL at 91%.**

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

4/18/95 9:35 PM

Technology for America, US Finance

TFA invests \$50M in US technology firms at the request of US Finance.

US FINANCE JOURNAL EXCERPTS

Dante Di Gregorio

Tuesday, 4/11/95 - I have been assigned to play the role of the US financial sector. Given my personality and ideology, this will be a stretch for me, since I view the financial sector as being short-sighted in its practice of seeking rapid returns on investment without any long-term goals, which I see as leading to a lower level of net utility in the long run for both the financial sector and the economy as a whole. Nonetheless, I will do my best to seek investment opportunities that offer quick returns with little risk.

I really do not know what to expect once the game begins. Although I find game theory very interesting, I know little about it, but I do see it as being a valid way to analyze international economic relations. In foreign policy, we are often so determined to see our side win that we end up in a win-lose, lose-win, or even lose-lose situation when a win-win situation is possible. Exercises such as this should show how the international arena can be modified to promote win-win results in negotiations. Nonetheless, I am very confused as to how the mechanics of the game will operate, and I wish it were possible to begin the game with more preparation.

Thursday, 4/13/95 - The first session of the game was initially as confusing as I thought it would be, and I wasted much time wondering what I should have been doing. Yet I also got a lot out of it, and I have a much better feel for how to pursue the best interests of my role.

As the US financial sector, my top priority is to allocate my capital resources in the most profitable way possible, focusing on recovering my funds quickly and assuming as little risk as possible. As a secondary priority, I am attempting to alter the environment in which I do business in order to make it easier for me to make money and to ensure that I will be able to make money in the future.

Once I figured out how much money I initially had available to me, I began to speak with entities that might need financing, beginning with Mechatronics and Infomatics, then even approaching Viewall and the US distributor. Mechatronics appeared to be so clueless that they didn't even know if they needed financing, Infomatics was very receptive to trying to work out a deal, the US distributor and I discussed the possibility of financing new distribution channels, and Viewall was receptive but non-committal. By the end of the session, I had only finalized a deal with Infomatics, but they are in need of a great deal of financial assistance and seem to be working out an alliance or merger with Mechatronics. The actual terms of the deal were very favorable to me and improved even further when I exercised the tool kit option to try to raise the prime interest rate. I encouraged the Senator from California to repeal the Glass Act, and I used the media to get out the message that US competitiveness would slip if we don't repeal the Glass Act.

Tuesday, 4/18/95 10:00 PM - I went into the second session planning to continue my original strategy as the US Finance representative. However, the opportunity arose to run for office against an incumbent who was caught up in a scandal. Thinking that I could maintain the two positions simultaneously, I decided to run, since the US financial sector could use congressional support.

Being that all the parties in the class had a direct interest in trade with Japan, I decided to run on a nationalist, isolationist platform such as that of Ross Perot. By playing up the threat of being taken over commercially by Japan, I could strengthen my power base, and after all, the Japanese couldn't vote against me. I realize that my actions represent the type of behavior that I criticized earlier in this journal for seeking a win-lose situation instead of a win-win situation, but I believe that my behavior is in the best interest of my role. Since politicians are held accountable for only the short-term effects of their policies, they often pay little attention to long-term effects, such as increased tension and animosity in international relations.

I found the election results to be interesting. Both the other guy that ran for office and I beat our incumbent opponents by a margin of 9-7. I would be curious to find out if we received all our votes from the same people.

Once in office, my strategies and priorities changed. Aside from the fact that I still wanted to see the Glass-Steagall Act repealed, my priorities were completely different from those when I was US Finance. I decided that since 100% of my constituents had an interest in the high-tech industry and trade with Japan, I would promote issues on these subjects that would help me strengthen my support base. I decided I would start off by helping fund projects that were political plums, i.e., improved training for American workers and zero emissions technology. These were projects that had a clear social benefit attached to them, and I benefited as well by gaining support from business, activists, consumers and workers. It would have been nearly impossible for anyone to criticize me for taking part in these projects.

Once I succeeded in the actions that had the highest social benefit, I still had some money left over, so I decided I would help US industry develop technology that could help it compete with Japan. I was approached by Infomatics for assistance in developing display technology. Because directly funding a private research endeavor could be seen as being improper, I suggested that we funnel the money through a neutral, third-party

organization. Upon further discussion, I suggested we create an organization called 'Tech for America' that would obtain funding from the US Congress, federal agencies, private high tech firms and other private concerns in order to fund research and development projects. By uniting entities from different areas of the public and private sectors, we became able to cooperate in pursuing projects that are in the best interest of all concerned parties. Personally, by publicly announcing the formation of this organization, I was able to take much of the credit for Tech for America and the projects it funded, while distancing myself from having to openly disclose how much I appropriated for specific projects for which the primary benefactors were private companies. Tech for America took off rather well, and by the end of the night we were able to carry out a few projects, including a display technology which utilizes brain wave technology.

I feel that the second session went well for my role. While my actions were not in the best interest of the whole globe, they generally benefited most American stakeholders. The one major exception is the average taxpayer, who probably wouldn't benefit too much from the tax money I spent. But since the average taxpayer was not well represented in the game, as is often the case in such negotiations, I was able to carry out these projects without losing public support.

In all, I gained a lot from the Prosperity Games. I had to stretch to fit into the roles that I played, but I must admit that I enjoyed playing them. My actions as a politician may have been a little slimy, but I truly believe they were in the best interest of the country. I just realized that most real politicians probably think the same thing.

JAPANESE BANKER

PREGAME SCENARIO

The primary objectives of the Japanese banker are to enable keiretsu endeavors while maximizing yield at minimum risk and to expand the banks portfolio outside Japan. The Japanese bank is also concerned about the continued appreciation of the yen and the resulting potential for default on some existing projects.

Key challenges are:

- 1) Reduce financing of Japanese business because of yen?
- 2) Finance a US company such as Mechatronics?

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Maintain keiretsu by using my financial influence. I will try to maintain good relations among the Japanese contingencies by manipulating my loans. I will try to use my influence to get investments from Horioka and Viewall to obtain some new technology. This will help to expand my portfolio. I will need to check out companies past balance sheets to ensure that I will not experience a default on my loans.

Priorities: Would like to maintain keiretsu endeavors. Need to maintain relations between Japanese contingencies. I also want to maintain and maximize my yield and expand my portfolio. Consider funding of Mechatronics to expand portfolios (possible conflicts if they don't distribute to Horioka).

Reasoning: By maintaining good relations between Japanese contingencies, it will enable Horioka to expand development. If Horioka maintains a stronghold on the SAMSON market, then this in turn will help boost our economy. If I can expand my portfolio then this in turn will enable me to finance companies with a bigger loan at lower interest rates.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:15 PM

Horioka, Japanese Banker

Horioka will fund the Japanese banker \$200M for software purchases. In return the banker will provide Horioka 2 influence credits to pass policies.

4/18/95 8:05 PM

Ministry of Finance, Japanese Banker

Ministry of Finance invests 3 credits in the Japanese bankers private toolkit option to 'Realize a very low loan default rate despite appreciating yen.' **UNSUCCESSFUL at 59%.**

4/18/95 8:50 PM

Ministry of Foreign Affairs, Ministry of Finance, Japanese Banker

Joint funding of policy toolkit option 'Japanese government subsidy of school boards to provide SAMSON and NII to students.' MFA invests \$50M, Japanese banker \$300M and 1 credit, MF \$50M. **SUCCESSFUL at 66%.**

JAPANESE BANKER JOURNAL EXCERPTS

Shawn Brown

Objectives: To maintain the keiretsu endeavor, lower the value of the yen, and to maximize my bank's profits.

Tuesday, 4/11/95 - out of role - *I just finished reading my game pack for tonight. I am a little concerned right now, because I am not sure what we will be doing tonight. I understand what my role will be but I am not really sure how I am to obtain my objective. I talked with a fellow classmate and she informed me that nothing will be explained as far as what we are to do. It seems like we are to just go right in and start acting out our parts with no real instructions. I for one do not think it will go well, but I guess we will see. The strange thing is I had a dream about this game. In my dream I was sitting in the corner while everybody was running around the room. I was scared because people seemed to know what they were doing, where as for me I did not have a clue. Let's just hope I don't have a recap of that dream in class. Well, I've got to go to class, let you know what happened later.*

I have a meeting today with the board of directors at Horioka. We will be discussing next years funding for their continued production of the SAMSON device. Hopefully everything will go well so that I can get a return on their loan. I also have a meeting with the executives at Viewall to discuss continued funding of their products. Note: Don't forget to discuss their ratio of distribution.

10:15 PM - out of role - *Just got done with the first round of my Prosperity Game. It started out kind of slow. It seemed like I wasn't the only one that was confused about what was going on. After people started to become situated, the game started to move a little smoother. As for my role as a Japanese banker, I think I stink. I became so frustrated because it just did not seem like I was accomplishing anything. Horioka and Viewall were not getting along and it seemed like there was nothing I could do to get them to work together. I just hope things go well in our next meeting. Personal note: Purchase stock in Tums. After tonight I think a lot of people will need it.*

I tried to have a joint meeting with Horioka and Viewall. It was a complete disaster. Horioka tried to make a big power play against Viewall. Horioka demanded that Viewall should distribute their device to Horioka at cost as well as pay Horioka 5-10% of their profits on outside sales. This just started a big argument between the two companies. I found myself arbitrating the whole meeting. If the relationship between Horioka and Viewall breaks down then the Japanese products will be overrun by the competition, which in turn could cause the value of the yen to go up. For Japan to succeed, they need to produce better products at a cheaper price, so that they can eliminate the competition. This in turn will lower the value of the yen. And according to some of the news reports that I have been hearing, Informatics may get their product on the market first. As for the meeting I could not accomplish anything. Horioka was adamant about receiving part of Viewall's profits as well as receive their device at cost. Viewall would do neither, they believe that they can not make any money for themselves if they distribute their device at cost, as well as give up 5-10% of their profits. Negotiations ended on a bad note with Horioka claiming they would go to another company for the product. I traveled back to Horioka with the board of directors. It was at this time that I found out about Horioka wanting a loan to purchase a revolutionary device that

makes Viewall's device obsolete. I for one am quite upset because the device comes from the Ukraine. I do not like the idea of Horioka getting their products from an outside source, especially if it means hurting a Japanese company. Needless to say I did not give them a definite answer about their loan.

Thursday, 4/13/95 - Ran into one of the executives from Viewall today. It seems they would like to meet with me this coming Tuesday to discuss financing a new venture. They would like to invest in a new retinal scanner that would help to improve the SAMSON device. Told him I would consider it if they would resume negotiations with Horioka. He said he would get back to me.

Saturday, 4/15/95 - Received a little note from one of the executives at Viewall. It seems that they are willing to continue negotiations with Horioka in order to secure financing for their new device. Hopefully I can use this to my advantage to force the two companies to come to some form of mutual agreement.

Tuesday, 4/18/95 - *out of role - Well its the second night of the game. I sure hope that everything goes a lot smoother than it did last time. Hopefully I can get Horioka and Viewall to come to some kind of agreement. If I can then I will have at least accomplished one part of my role. As far as lowering the value of the yen and maximizing my profits, I am not quite sure how I will accomplish this. Well I need to go.*

10:30 PM - Just finished negotiations between Horioka and Viewall. It started out a little rough in the beginning, but they finally came to a mutual agreement. I did receive some help from the MITI officials. They basically came in and told the two companies that they need to work together. I on the other hand threatened to pull funding for both companies if they did not resolve their differences. With the news that Infomatics had captured 80% of the US market the two companies were more than willing to come to some form of an agreement. They started to discuss whether it was worth the effort to continue with their SAMSON device. It seems like they may keep developing it, but are considering producing a new virtual reality device. I am not sure of the specifics, but as long as the two companies are working together then I am happy.

The game seems to be done with. I managed to accomplish my role of maintaining the keiretsu endeavor, and if things go well then the value of the yen will go down. It seems like we managed to come to a win/win situation by all of the companies working together (partes pro toto). I did not accomplish my one goal of maximizing my profits. I did finance Horioka and Viewall, but it was a risky venture considering we are not sure whether the product will sell. Well I am glad that it is over. It was a fun experience but quite taxing at the same time.

US LABORATORY/UNIVERSITY

PREGAME SCENARIO

This role represents both a high laboratory official (or committee of high officials from several laboratories) and a university professor (or consortium of Universities with a common purpose). National laboratories have traditionally had national security-related activities as a primary role. However, there is increasing discussion that their role could include environmental and industrial components now that the Cold War is over. University professors are continually weighing the balance between education and research.

Key challenges are:

- 1) (Lab) Stick to traditional national security roles and/or pursue industrial ties
- 2) (Lab) As a taxpayer-funded organization, can you work with individual companies who seek to better their market position through application of your technology?
- 3) (Univ) Promote education for next generation and/or secure research funding
- 4) (Univ) Secure funding alliances with industry or government or both or others

STRATEGIES, PRIORITIES, AND REASONING

Strategy: To team up with DOE to keep research funding and team up with private business to increase chance of funding.

Priorities: Lab jobs; supercapacitors; anything that keeps funding to not hurt national security.

Reasoning: Want \$; better chance of increased funding if blend of government, private, profit and nonprofit.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 8:30 PM

Infomatics, US Lab

Infomatics funds development of supercapacitors at JNL for \$65M (Clarification at 4/18/95 7:41).

4/11/95 8:30 PM

Infomatics, US Senator, US Representative, DOE, US Lab

Joint funding of policy toolkit option 'Encouragement of critical industries consortia with national labs.' US Lab invests one influence credit, DOE \$100M, Infomatics \$50M, US Sen. \$50M, US Rep. \$50M. **SUCCESSFUL at 69%.** Immediate benefits given by Control: DOE funding up 5%; US legislators private option costs reduced by half; Infomatics given 1.5 factor multiplier for any technology toolkit option.

4/18/95 7:41 PM

US Lab, Infomatics

Clarification on US Lab/Infomatics development of supercapacitors of 4/11/95 at 8:30. Infomatics gets exclusive rights to overall developments for 17 years.

4/18/95 8:17 PM

Horioka, US Univ.

Horioka contracts with US Univ. to develop 3-D retinal display technology (toolkit) within one year. Horioka to spend \$400M and have an exclusive license to the technology for 5 years. **UNSUCCESSFUL at 94%.**

4/18/95 8:30 PM

Infomatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of "Technology for America," a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Infomatics will have access to this. Technology will be available to US companies only. US Senator invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 8:41 PM

Rootska, US Lab

Rootska sends beta copies of software to US Labs for validation funded by DOD at \$10M. Validation performed using toolkit probability calculation. **SUCCESSFUL at 84%.**

4/18/95 9:10 PM

Infotronics, US Finance, Technology for America, US Lab

Joint funding of US Labs to develop a virtual reality glove for SAMSON (through a new toolkit option). Infotronics will have the patent for this leap-frog technology. TFA invests \$30M, Infotronics \$26M, US Finance \$5.6M. **SUCCESSFUL at 91%.**

4/18/95 9:15 PM

US Univ., US Lab, US Senator, US Representative, DOC, DOE, Infotronics, US Finance

US Universities is forming a purely academic consortium of diverse interests relevant to the US industrial/commercial competitiveness to meet monthly as a task force to address barriers to US competitiveness as

outlined in the assigned class readings. The university will chair the meetings and hopes to have results on how to succeed better in global competitiveness within six months.

US LAB/UNIV. JOURNAL EXCERPTS

Lisa Brown

Tuesday, 4/11/95 - This session I spent mostly trying to ferret through the ton of detailed info provided to figure what was important for me to know and how I might build alliances to accomplish my purposes. The tool kit threw me in that I didn't understand how it worked and how it related to my role.

I now have a clue. My strategy will be to retain and/or increase funding for the universities/labs through private/public sector alliances. I think these are the strongest alliances since government likes to see industry backing any deals and private business likes to see somebody else taking risks with them to decrease their burden. Universities have no affinities to any particular businesses so I had latitude.

In seeking alliances, I feel very protective of USA knowledge/brainpower in regard to R&D because I feel a responsibility to keep the USA's leading edge in technology development, to keep us world leaders, and to retain the prestigious image of our universities. Because I feel we need to keep ahead of our Japanese competition, I have not considered including any Japanese funding in any of my options, though I did mosey on over to look at their tables/groups on the other side of the Pacific.... and get a free overseas cruise.

My first tactic was to team up with the DOE to keep funding for the labs, plus obtain funding for Jefferson National Laboratory's supercapacitor project. DOE took a gamble on it, resulting in a 1.3 year timeline to complete the project. At \$50M a year, we needed \$65M to see us through, so that little hustler Matt from DOE sweet talked Infomatics to fund it. And we needed \$200-250M to form the toolkit's consortia with the labs, ARPA, and industry. So Matt and I teamed up with Infomatics money, my one credit, and the two Senators to pool funds for the consortia gamble.

I approached both Congressmen on general support for continued lab funding and found them amenable, especially because labs/universities are economic boosters to their home districts. I shall follow up on this.

I also hustled the activist for a credit, saying the labs do environmental cleanup, but she'd already given up her credit. I hustled the Distributor for a credit, saying our research could help create electronic thingdoies for her to sell, that the labs provided the basic info from which industry created products, like nylon, plastics, and transistors. She said maybe. Media said they'd give me a credit for a scoop., though I'd have to give up my morals and be a spy... wow! I'll hustle the US Worker next. What I need credits for is the toolkit's 2 credit cost to convince lawmakers to increase my funding 5%.

I am also considering forming a nonprofit consortia of private/public to study how we can work better together... kind of like a Japan's 213 government-business councils. A University could be an impartial guide/facilitator... maybe look at the ethical issues of joint planning/ monopolistic approach that has made Japan so successful.

Wish me luck!
Strategy: win/win

My major tactic this time around was to try to establish the Labs/ Universities as players in the international competitiveness game. Last time I felt a bit lost since there was such a flurry of activity around me and I felt on the sidelines, despite feeling strongly that I had a lot to offer. In order to do this, I wanted to put together a board of diverse interests to tackle US competitiveness barriers as outlined in our readings. Not to be focused particularly on technology, but on the politics and internal competitiveness and legalities involved in bogging us down globally. I was constantly sidetracked in this endeavor, but I did accomplish it. I felt strongly as a US University that it was good for our population as a whole to serve them in this way; and as a US Lab, I was interested in facilitating CRADAs, which have lots of hoops to jump. As a University, I felt we could play the part of unbiased facilitator, generally acceptable to all parties.

I was very surprised to have Dante/Finance approach me about this topic right away when class started since he had turned me down flat last week when I had approached him on funding the labs/universities to enhance US competitiveness generally, or for putting money into a public/private pool for research. I asked him if he would be on the task force and if he would put money into a pool for research... and he said yes! Off I went to gather matching funds.

Later, Dante and Monica for Infomatics/tronics approached me to write up a contract for this pool approach and I found that a whole new entity had formed from my seed, with Dante's hard efforts for further funding. They wanted to call it Tech for America. Naturally I agreed, since it fed into my own goals to begin with, and went on again to pursue my academic board/ task force. I wanted to be like the Japanese VLSIA (from the assigned reading) formed to 1) influence future economic development and technology and 2) strengthen international competitiveness. I had the idea outlined in my first journal, but hadn't read the CRADA material yet, which solidified my idea.

People were very surprised when I asked for intellectual participation and not monetary. I wanted a good mix and would've pursued more breadth of industry had it been available. But I did get a Congressman to represent the elected government and DOE to represent national security and DOC to represent business from the government's view and Finance to represent Wall Street. It was the start of a good mix.

I had an ethical dilemma to deal with when the Japanese approached me to work on a project to develop retinal displays in one year. I wasn't sure if I could help the other side, until a Control member said I could as a University but not as a Lab. So I put on my University hat and grabbed the money! My reasoning was that any research is good for academia, and had to be funded somehow and that the US would eventually benefit anyway (I insisted on a limited exclusivity clause so they couldn't hoard the results.) I feel there is enough 'dog in the manger' thinking in the USA where everyone worries too much about what their neighbor is getting in comparison to themselves. What's wrong with *everybody* getting bigger pieces, instead of worrying that the other guys piece is bigger too? Does a dog have to guard the hay that is of no use to him? I'm not sure how well this fits with my fiercely patriotic nature, but there ought to be a way. I repeatedly had to tackle personal property and patent fights for potentially profitable endeavors developed with US taxpayers' help via the use of their labs and universities. Everyone wants exclusivity and as a tax supported entity, I can't give much of it.

I started a deal with Mechatronics to do some leapfrog SAMSON tech development through working on a virtual reality glove to use with SAMSON. It got more complicated as we went but in the end it succeeded... it ended up being funded by Tech for America. It was a way to keep jobs and funding at Labs and stay on the leading edge of technology.

Another deal was with the Ukraine and the DOE to get a hold of their super OS. I felt if the DOE thought it was important to do, so did I. I kept trying to get the Ukrainians to defect, since I wanted America to keep the technology and its edge in the competitive world. And I didn't trust the stability of their government. As a lab, I was fascinated to work on the neat new stuff. Again I insisted on the US keeping the rights for the first few years.

Time flew and I was tired at the end. I tried a little PR hoping for some good press for the Labs/ Universities for my task force, but I never made the front page. Maybe next time!

Voted as I did because not enough support from current representatives, so wanted to try new... however, polls closed before I could cast my ballot.

Conclusion: not surprised at anything except that Dante had ulterior motive in channeling \$ to Tech for America. I just thought it was a good idea to create R&D jobs and get public/private working together for the greater good.

US ACTIVIST

PREGAME SCENARIO

This person represents two groups whose objectives are to limit pollution in California and to keep jobs in the US. Previously, you have supported the efforts by the New Mexico Representative to lobby Horioka to locate a plant there. However, with the recent allegations about environmental problems with the Representative's former business, you have called for a full investigation and are considering withdrawing your support from Horioka.

Key challenges are:

- 1) Both Infomatics and the California Senator want you to reduce your pressure on Infomatics to make their California plant emissionless
- 2) Work to discredit the New Mexico Representative?
- 3) Support location of Horioka plant?

STRATEGIES, PRIORITIES, AND REASONING

Strategy: 1) Pursue the environmental emissions of the Infomatics plant in CA by emphasizing the need for zero emissions. I can use to my benefit the fact that I want more jobs in the US for leverage; 2) keep pushing the search into the NM Reps environmental violations in his former business. May have to contact the US media.

Priorities: 1) Environmental issues with Infomatics as well as the US Rep; 2) obtaining jobs by locating a plant in US for Horioka or convincing Infomatics to expand its CA plant. Even though the labor costs in CA are high, the labor is highly skilled. I may also be able to get with Viewall to stop selling unless environmental standards are met.

Reasoning: Because the US Lab person has some contact with environmental issues, as well as the US media, I will hopefully get their help. I figure that Infomatics will eventually have to come to me, so I do not want to be too forceful. We want to make the US the best manufacturer of electronics, but not at the environment's expense. I also need to get with the CA Senator.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:06 PM

US Activist, US Representative

US Activist gives one influence credit to US Representative to promote industrial environmental association.

4/18/95 7:54 PM

US Representative, US Activist, Mechatronics

Industry association and government environmental agencies form partnership to improve effectiveness (performance and cost) of environmental regulation and implementation ... In addition to the \$80M already invested by Mechatronics, the US Representative invests \$80M, US Activist invests 1 credit. **UNSUCCESSFUL at 57%.**

4/18/95 8:20 PM

Infomatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Infomatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Infomatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (=\$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 9:05 PM

US Activist, Technology for America

US Activist transfers 1 credit to TFA in exchange for a seat on the board (for life) of TFA. They, in turn, will be dedicated to ensure that the technologies they promote will be environmentally safe. I reserve the right to veto any issue that I feel violates environmental policies. I also demand that TFA promote jobs within the US.

4/18/95 9:25 PM

Technology for America, US Senator, US Representative, US Activist, US Media

We request access to the brainwave technology for private use because both public and private funding was used for the R&D. Rejection of this request could result in withdrawal of private sector support and confidence in TFA, and thus its downfall.

US ACTIVIST JOURNAL EXCERPTS

Catherine Hammonds

Tuesday, 4/11/95 7:00 PM - The confusion has set in. I feel my position is to back the only policy tool kit option that has anything to do with environmental issues. Reducing industry costs by 50% should be fairly attractive to Infomatics. I cannot see any way to manipulate the information about the Senator and Representative and their pollution connections into any policy options. I may be able to use this information later in the class for the elections. I can see the connections between Viewall and Horioka as well as Infomatics and Mechatronics. Mechatronics seems to be the company in the worst position at this point. I want to block the expansion of Infomatics if they continue to pollute, and talk to Horioka to relocate to the US to promote jobs in NM

Personal: The packet was extremely confusing. I understand all of the different roles, but I am not quite sure who is interconnected at this point.

8:00 PM - The first Japanese news broadcast hit the air. David told of Horioka's continued success and that they would have their products on our shelves in a couple of weeks. I received two credits worth of information concerning the environment issues of Infomatics. I did not pursue this route because it is too early in the game to jeopardize potential jobs in California.

8:45 PM - I have been talking a lot with the US Worker, He and I want to promote jobs, but he will not back me on environmental issues like the Representative or Senator will. The US Distributor appears impartial to the California expansion or the Horioka development. US news has now broken and Mechatronics is trying to get funding. I think they can pressure Infomatics into compliance by helping me on environmental issues. I have told them that I will shut Infomatics, their main customer, down if they continue to emit pollution and garbage into the air.

I have gone over to Horioka with the NM Rep to ask them to come to NM. We got very little response.

I also spoke with Infomatics at length with the US Media listening in. They kept reassuring me they were taking measures to stop polluting, but I have not seen any money on the table. They also want to go ahead with the expansion of their plant in California. This is why I am keeping things loose with the Japanese and NM Representative. I have continued talking to the Representative and Senator to keep abreast of where there money is going. The US Labs have approached me several times so far, but I feel at this point that I have no interest. I have been watching what is happening with US Finance and Dept. of Commerce. Not much has happened with them thus far.

9:00 PM - Mechatronics has agreed to pay \$80M, the NM Representative will pay \$80M, and I will give one credit for the environmental policy option. Mechatronics got some help from the NM Rep on other issues so they pulled her into this one. Since the elections are next time we meet, I put some pressure on her to back the programs. I told her that if she did not I would go to the US Media and expose her lack of enthusiasm and reiterate her past pollution problems. I would also tell the Japanese Media so that Horioka would lose faith in her as well.

Mechatronics has struck a pretty good deal with Infomatics. My understanding is that in order to get funding from Infomatics, Mechatronics had to pay the \$80M for the environmental option. I am not sure what technology options have failed or passed in connection with the funding.

The US Labs and DOC have been talking to each other a lot. US Labs continues to ask if I will back her programs. I am not going to until I see what happens with Horioka and Infotronics.

The US Worker keeps trying to get me to help him to pass the life long training and workforce programs. We say if others will join in we will back each other. I still have not found out if the environmental policy passed or failed. News reports did not do too much damage. It seems like all of the companies are primarily concerned with securing technology options now and other options will be addressed later. They are not realizing we could increase their success rate 10% on each option. We will see what happens next week.

Personal: The game is becoming more exciting. People are finding more ways to expose each other and how they relate to everyone.

Monday, 4/17/95 - Received all e-mail from control group. My environmental issue was not passed. I will have to continue trying to get funding. I will approach Infotronics directly

Tuesday, 4/18/95 7:00 PM - Japanese media broke with a huge scandal on Mechatronics. He has accused them of pointing the finger in order to avoid further investigation. Last week I had given him the information about the closing of the Infomatics plant, and in turn they shared information with me about the scandal at 3:00 today. He also told about the interviews he was going to perform on the NM Rep and CA Senator. I was sworn to secrecy. The Japanese media is counting on the failure of Mechatronics, but I do not think Infomatics will let that happen. It seems like there is little contact between any US and Japanese authorities. The US Distributor is the only person I have seen across the ocean.

7:30 PM - I was presented with a chance to reduce Infomatics emissions to zero! This is now my main priority. Infomatics has approached me for help. I am more than willing to give them any assistance they may need. We have gone to talk to the NM Rep, the CA Senator, the US Media, and the US Worker. Infomatics will put in anything that we need. The US Senator gave \$50M, the US Finance gave \$100 M and the US Media and US Worker both gave one credit each. I have put in a credit and Infomatics has put in enough money to give us a 98% chance of passing.

The elections have taken place and both of the prior officials have been uprooted. I am glad that I had put so much time in to the US Worker now that he is the NM Rep. I am also glad that I got them to sign off on the environmental policies before the changes took place.

I voted for the previous NM Rep Camillia because I worked closely at the beginning with her at Horioka. I still was not sure if the zero emissions would pass. I also voted for the new US/CA Senator, former US Finance, because I knew he would give me \$100M for environmental cleanup. He guaranteed me the money and I verbally guaranteed him a vote.

8:25 PM - ZERO EMISSIONS HAVE PASSED! I am thrilled with the way we worked together, but I feel like Infotronics should have given more.

9:05 PM - I gave my last credit to Tech for America in exchange for a seat on the Board of Directors for life and also one key element. I have secured veto power for all issues violating any environmental policies I support. We will be supporting the promotion of jobs and technologies for America.

Tuesday, 4/25/95 4:00 PM - I have received two e-mail messages from Monica. I do not know how we can talk the DOD out of his position, but it will be necessary if we want to be successful.

We were under the impression that the Control Team took the technology (initially). We would have to continue a struggle against the DOD, or wait for his term to expire. Tech for America will be a success in the long run because there are so many public agents.

Personal: I feel that the game was a little bit confusing, but I also think that it fed a lot of creativity. I think helping the Japanese to understand the keiretsu and way of doing business would help them to unite.

US MEDIA

PREGAME SCENARIO

This Senior Investigative Reporter has great credibility throughout the industry and with readers throughout the country. You recently wrote an exposé on the illegal (or at the least unethical) acquisition of strategic US robotics design software by Horioka. You have been under pressure by the Department of Commerce to reveal your source of information, as they want leverage for future trade negotiations. In addition, another of your columns made accusations against the company formerly owned by the New Mexico Representative, who is well-liked by his constituents. These allegations have been vigorously denied by the Representative and company officials, who have called for a retraction and have threatened a lawsuit against you.

Key challenges are:

- 1) Reveal your information source about Horioka?
- 2) Retract your allegations about environmental wrongdoings?
- 3) Report interesting and relevant news to the public.

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Mix, mingle, and snoop; be a friend to certain groups and sectors; network with companies; assist in distributing positive data from groups if provided with other data; report facts.

Priorities: Clear our bad name regarding Representative and environmental wrongdoing; communicate public concerns and issues.

Reasoning: You scratch my back, I'll scratch yours, and vice-versa (retribution); without networking, won't get any interesting information to report; imperative to maintain good credibility for belief.

GAME PLAY, AGREEMENTS AND ACTIONS

4/18/95 8:20 PM

Infomatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Infomatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Infomatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (=\$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 9:08 PM

US Media, Technology for America

US media will be on board of directors for TFA for life; media will always be represented in some form. TFA will allow liberal access of media to information, data and support. TFA will donate lots of money to business and journalism schools. US Media retains veto power over any issue or proposal. US Media will provide 1 credit. TFA will provide \$10M annually for purposes as directed by the US media representative.

4/18/95 9:25 PM

Technology for America, US Senator, US Representative, US Activist, US Media

We request access to the brainwave technology for private use because both public and private funding was used for the R&D. Rejection of this request could result in withdrawal of private sector support and confidence in TFA, and thus its downfall.

US MEDIA JOURNAL EXCERPTS

Jim Alsup

Sunday, 4/9/95 - Received role. Pondered role of media in the game. It appears to be a communicator and dispenser of ideas and information back to the group. Need to reread game and rules.
I was interested to find out that the roles were selected randomly.

Tuesday, 4/11/95 8:00 PM - News Report: Mechatronics has been in negotiation with Infomatics and has made an offer of their Robo-APS system with automated assembly and packaging. May license or sell equipment. Infomatics has been beta-testing Robo-APS in their Mexico plant and are very satisfied with the system. Representatives of Mechatronics were also seen visiting the Horioka facility.

9:00 PM - News Report: In an interview, MITI-Machine and Info-Industrial Bureau stated it will work to retain good relations with the US. The Japanese minister of Foreign Affairs and Telecommunications stated "What trade deficit?" when asked about the trade deficit between the US and Japan. Viewall is looking forward to a larger surplus with the US. The consensus is that Japan is not concerned about the trade surplus. The Dept. of Commerce says US firms need to improve quality to compete with Japan products. Regarding quotas, the representative said it was under study. *Would have liked to have Japanese representative provide input regarding the closed mouthness of the Japanese team at this point.*

Infomatics is negotiating with activist & Dept. of Commerce regarding cutting pollution. Infomatics is putting 1/8 of its corporate value to environmental issues. They are waiting for the US activist to commit to a project. "People pointing the finger are holding up the project," stated the Infomatics representative.

Infomatics and Mechatronics are still negotiating.

Thoughts after the first round: Pace was fast. Need to review strategies for getting stories. Should review game guide and determine what possible conflicts can be exposed. Need to map whose money has gone where and for what purposes. Why did Infomatics give Mechatronics \$20M and what did they buy? Impressed by the realism of the participants.

Thursday, 4/13/95 - Questions:

What happens to license agreement Horioka has used that Infomatics owns? What about the robots it gained?

Why did Infomatics give Mechatronics \$20M? What did it buy? ('Hope' per Infomatics person)

What about Horioka's illegally (?) obtained robotics design software?

Senator's brother working for Mechatronics. Mechatronics gets money..

NM Representative's environmental history.

DOE/DARPA-Too connected to aerospace industry. Is he/she supporting electronics yet?

Dept. of Commerce- Gotten anywhere with robotics software issue? What is DOCs position on quotas?

MFA-Japan- Robotics software issue.

US Finance-Getting anywhere with Glass/Steagall Act repeal? Capital to Mechatronics?

Lab-University-Tech Transfer? CRADAs?

US Activist- Whose funding? Are they being co-opted?

US Public-Action on dumping by Techworld/US Distributor?

Many relations to keep track of and deal with.

Tuesday, 4/18/95 - Reread data and roles. Struck by the complexity of decisions and interrelationships.

Election Results:

CA Senator	
Barr	Goldberg
US Worker	Incumbent
9	7

Voting was along party lines.

NM Representative:	
DiGregorio	Sanchez
US Finance	Incumbent
9	7

US and Japan distributor have cross linked and formed an alliance. Japan distributor had no comment.

Zero emissions Goal-Wide ranging coalition

Infomatics	\$45 million
US Financial	\$100 million
Activist	\$100 million (1 Credit)
US Worker	\$100 million (1 Credit)
US Senator	\$50 million
US Media	\$200 million (2 Credits)

Culture of closedness in Japan vs. openness in US-How real is this perception?

Senator said she worked with Mechatronics so Infomatics would grow. No strings attached.

8:10 PM - \$350 million experiment by Infomatics for photonics and display failed.

Mechatronics is rumored to be considering taking the \$350 million they have collected and dividing up the company.

Rootska, Ukraine-Rumored to be in multiple discussions with various parties. Has proven software that is 180% better than other software. Sole possessor of the inference engine for artificial intelligence. Available for all users. Looking for a new application-adaptive learning.

9:10 PM - News Headlines: Watch out MITI-Here comes techno-U.S. Infomatics and Mechatronics have merged to form Infotronics. Another coalition is building. Tech of America. Tech of America is a \$290M and 2 influence credits large consortium of US Labs, Activist, DOE, Infotronics, Congress, Media and others.

Summary Comments: Learned from the game about various interdependent roles. Would like to hear from the Japanese individual about how closed off Japan really would be to foreign press. Also how much do they care about trade deficit. Thought the Japanese camp played a bit too close and unopen. Would have liked more time to see relationships develop. I was a bit surprised it took so long for a coalition to develop on the US side.

I appreciated the opportunity to participate in this game. More discussion of game strategy might have helped participants use strategies (win/win, win/lose) more effectively.

End of class comments: Impressed with realism of participants. Still struck with complexity of roles. I am curious how close to reality the Japan side was. More discussion of game rules would have helped - what was allowed and not allowed.

Paul Gritton

Tuesday, 4/11/95 early - I had read the introductory portion of the packet and all the role descriptions. Due to so many variables, the game is impossible to predict. That's what makes this an interesting project. Looking forward to playing the game.

late, after game - I felt it was ironic that I was given the role of US media in the game. Why? Because I work in public affairs at Kirtland and my primary duty is to work with the local media. I have also worked for two years on the base newspaper. Thus, I've seen the media from both sides.

The fact that Jim (the other US media person) and I each have two credits to use could prove to be important later in the game. For now, we don't feel we need to solicit funds from anyone to implement any of the non-technology options listed. We'll just sit back and let someone come to us later as things get more interesting.

It is quite difficult to gather good, verifiable information to report in this game. A lot of roles are still in the beginning stages of deal making. But Jim and I got a few leads toward the end of the class period. Now it's a question of putting it all together and finding where the most interesting angles lie.

I'm having trouble sticking with my convictions. I want to report stuff that is hearsay or that would be funny in class, but I don't think that is appropriate for 'real' media so I'm staying away from that type of reporting.

We had someone approach us after class offering to be a spy in return for the possible use of our credits later on. I agreed, telling her that if she provides any useful information, I'd be happy to supply one or both of my credits. Why? Since I don't feel I'll need to use credits for any of the options, I might as well use them to trade for information. Information is vital to my role!

The US worker feels that if the US distributor (TechWorld) goes ahead with dumping of Japanese product that would hurt American workers. It would cut jobs here and he told me he has the backing for a boycott if TechWorld does practice dumping. He feels a boycott could lower TechWorld's revenues by about 20 percent, and thus penalize them for their actions.

The NM Rep stated she would not be opposed to TechWorld selling Japanese products. She said the people would decide whether they want Japanese products or not via the law of supply and demand. If the public wants the product, they will buy it. TechWorld confirmed consideration of distributing Horioka's SAMSON, but said it's all still up in the air. Pricing is very much up in the air since they're not even sure of distribution in the first place. The NM Rep said to prevent US jobs being lost if dumping occurs, she would encourage Horioka to build a plant in New Mexico. The public should vote on any tax breaks, etc. if incentives are to be used. The NM Rep and the activist were working together to get Horioka to build a plant in New Mexico. Both liked the fact that it would bring jobs to New Mexico and improve the local tax base.

The NM Rep denied any wrongdoing in regard to environmental improprieties of her former business. She said "I feel I've done nothing wrong. I'm working with activists and the voters toward keeping environmental pollution under control." I asked the activist if she had any dirt on the Rep regarding these allegations. She denied having any information. I feel there's a lot more to be found out here! Perhaps I find out more as the game progresses.

The NM Rep gave \$100 million to Mechatronics. In return, Mechatronics must give \$80 million to environmental causes. Maybe that's why the activist wouldn't tell us anything 'bad' about the NM Rep. The activist might get part of that \$80 million or at least it furthers her cause.

Either way, Mechatronics keeps the net of \$20 million taxpayer dollars, while they look good because they've given \$80 million to environmental efforts. That's very fishy, but if I were them, I position myself as looking good in the eyes of the community and hope no one figures out that I have \$20 million for the treasury.

The California Senator is working toward expansion of Infomatics Inc. and the activist is worried that if Infomatics expands its California plant, it will produce more pollution. (The activist is already working toward zero pollution from Infomatics.) Activist did acknowledge expansion would create more jobs, which would be good. I sat in on a meeting between the activist and Infomatics. Both invited me to attend, feeling full disclosure would be beneficial to all concerned. I found that refreshing, yet somehow unnerving from a major company. I just don't trust too much of what I hear from big companies. The activist stated she wants zero pollution, but acknowledged that no one in the industry is currently meeting this goal and that it's unlikely to happen in the near future. Infomatics asked her what they should do to curb pollution, but the activist was caught off guard. She said more investigation was necessary to propose solution. Infomatics is working with CA Senator to repeal Glass-Steagall Act. Infomatics said this would allow banks to invest in them, freeing up capital to use toward pollution control. Infomatics emphasized this would create jobs for both environmentalists and their own industry while reducing pollution so this would be good for everyone. Infomatics said this would benefit the Senator by producing jobs and reducing pollution. Senator confirmed this would help her in the public's eye. So she's possibly trying to buy re-election by giving taxpayer dollars to Infomatics. Infomatics said they are trying to be world leader in pollution control stating that they are well above standards for pollution control in several other developing countries. US worker in favor of expansion of Infomatics since it would create more jobs (his priority). More jobs is more important than zero pollution levels he said. Pollution was acceptable as long as 'wasn't at dangerously high levels' and the creation of jobs overrides small levels of pollution.

The US Finance rep is also in favor of repealing the Glass Act. He said it's vital to the success of the American economy. He sees that it (absence of the Act) works in Japan, giving an unfair advantage to Japanese companies

over American ones. He feels repealing the act would level the global playing field making US companies more competitive. He also said US firms better get their butts in gear. Japanese firms are nearing production on SAMSON, and American firms could be seriously hurt if they don't get a product developed soon.

DOE, US Lab, Senator, Rep and Infomatics got together for a deal. Funds from all but Lab. One result is that Infomatics provided \$50 million annually to Jefferson National Lab for development of supercapacitors, which are rechargeable power cells for automotive and portable electronics applications. These will be marketed within 1.3 years. Since Infomatics provided funding, they will profit from any sales of this product. It appears that DOE pushed for this deal to meet a goal of theirs to get private funding for laboratory development of the capacitors. However, if the Senator and the Rep gave money to Infomatics, then it's not really private funding for the labs, but simply a matter of switching who makes the final payment using taxpayer dollars.

Viewall company was trying to attract backers for development of a 3-D display. They said they want to 'corner the market.' Viewall used industrial espionage to get the technology they desired for their advanced 3-D displays. (They were unable to attract an investor from either country) This espionage enabled them to garner patents before the US or Japan could get them. This means control over this market! I happened to see the toolkit sheet for this information!

Senator gave Mechatronics \$100 million to 'improve their long-term viability' and assist the state job market. Senator's brother works for Mechatronics. I asked her about the public's perception of this move. She said, yes, my brother works for them, but that is not the issue. The issue is that the 'grant' will benefit both Mechatronics and Infomatics and the state of California. In return for the \$100 million, Mechatronics is giving \$50 million toward the cause to repeal Glass Act, which everyone seems to want to do away with. Senator said Mechatronics will use the extra \$50 million to update their equipment and to integrate with Infomatics (whatever that means). She also restated that repealing Act would allow banking to hold equity in corporations which would benefit job market in California. She said the benefits outweigh the ethical question here! I don't agree and I don't feel the public will either in this case. This would help her bid for re-election if not discovered.

Senator also gave \$50 million to Infomatics. Infomatics gave Mechatronics \$30 million for nothing in return. This is very strange and I hope to find out what's going on here before the next class!

Tuesday, 4/18/95 after game - Neither Jim nor I had to make many decisions concerning policies. One thing we discovered was that our credit supply (two each) would've been replenished had we used them the first week. We weren't aware of that and maybe we could have been more aggressive with our credits the first night in exchange for news.

Our main decisions dealt with what news we should report. That means we had to decide what information we had was authentic, in good taste and had mass appeal. We did not go in for the humorous side of the news like the Japanese media did, but I did enjoy their slant on a few reports. That added a break from the game.

We also had to decide whether to run for Senator or Congressman. I chose not to run for either because I don't think I'd ever like to hold public office. I feel it's unfortunate, but holding public office has a negative connotation to it now-a-days. I know there are good people out there, but if you're a public official, no one trusts you, they consider you generally lazy and I feel the bureaucracy keeps you from doing any real good. Also, I did not want to change my role in the prosperity game more than halfway into it.

I felt the election results were somewhat predictable. With all the purported improprieties, I thought the challengers would win in a landslide. What did surprise me was how close the elections were. I guess the incumbents had some serious deals working and that allowed them to 'buy' some votes in their favor. That is probably very close to how it works in the real world. Incumbents get lobbyists to funnel thousands of dollars into campaigns which buys the ads which often help an official get elected.

After we announced the election results, I was approached by the environmentalist for use of a credit to pass a policy which would reduce pollution to almost zero in the industry. I gave both my credits for this policy since that helped us get real close to the 90 percent success range. The attempt succeeded. I felt good using my 'influence'

toward this end since environmental problems are a concern of mine and I felt this was my best chance to show that during the game. Also, I did not see any other opportunities to use my credits forthcoming.

Some interesting deals were worked on during class. The US and Japanese distributor merged which I felt was interesting. But I tried to keep an eye on what Viewall was up to because I knew of their previous espionage. However, they kept information from me very well until I searched all the agreements which were part of the public record. Viewall continued to deny any wrongdoing in the technology acquisition arena. It turns out that that first use of industrial espionage paid big dividends for Viewall. Though unethical by American standards, I don't think they felt they were doing anything wrong. In fact, to the contrary, they were simply using every means at their disposal to move ahead in the market.

I did ultimately track Viewall's rise to the top of the technology world. First, they used industrial espionage to get the then-new electro-optic laser technology from a European firm called Eurolaser. The Japanese Machinery and Information Industries Bureau of MITI helped fund a large portion of this espionage. MHB gave \$80M and Viewall chipped in \$320M for the espionage work. Viewall acquired the US and Japanese patents for this technology before the developers in Europe could. In exchange for MHB's assistance, Viewall gave MITI \$1 million and agreed to sell at a discount to Horioka.

Viewall later acquired some 3-D technology that cost Viewall \$300 million and two credits. Viewall didn't have any credits, so they had to deal to acquire credits. The Japanese media generously gave Viewall one credit to use toward the 3-D technology. I say generously, because they received nothing in return.

It was harder for Viewall to get the other credit. Viewall gave \$25 million to the Japanese distributor (to aid their expansion) in exchange for one credit. The distributor also gets to distribute the 3-D technology if development is successful. And the Japanese distributor agrees to sell the 3-D product at a 10 percent markup to Infomatics, an American company. The Japanese distributor also agreed to work with the Ministry of Finance to try to depreciate the yen, but their attempt at a policy option failed. The MF also gave the Japanese distributor \$20 million for helping out toward their cause.

Then Viewall gives the Retinal Display technology to Horioka at a 60-40 ratio in relation to the US market. In return, Horioka gave \$400 million for the next technology - virtual reality. If the option passes, Viewall will sell exclusively to Horioka for two years.

It turns out that Viewall did develop the virtual reality technology and should profit immensely from their breakthrough. It should be noted that they would never have reached that level or at least it would have taken them much longer had they not stolen the original technology.

There were many other stories going on throughout the period, but it's impossible to keep up with everything when there's only two of you. I thought I had a really promising story as I researched Viewall, so I passed up several other stories that were certainly worthwhile as well.

I felt the game was interesting, but it was also very hectic. I know that's supposed to be part of the game - trying to make decisions under deadlines and all, but perhaps it was a bit too hectic. I know a lot of interesting deals were made anyway, so I guess it worked out fairly well. I was interested to see how groups and individuals who held contrary beliefs would try to work together to get some policy passed. Often it served both their purposes by giving them a relative advantage over a competitor. Overall, it was a fun experience.

I did not feel too constrained, except that it was hard to get info by searching for it. People weren't talking to the media (out of fear?).

I voted for both challengers simply to liven things up and to get rid of 'corrupt' politicians. That's my method of enforcing term limits!

Really an interesting experience, best project I've done in MBA program (I'm almost done). Actually pretty fun!

JAPANESE MEDIA

PREGAME SCENARIO

The Japanese media has traditionally acted almost as an arm of government and has presented information slanted entirely to the Japanese party-line point-of-view. Their style is emotional, inflammatory and can often promote misinformation. Your primary sources of financial and foreign policy information within the government will both retire in the coming weeks. As a result you must develop new information sources quickly or you may lose your status with your boss and within the media establishment. Additionally, your best friend, a fellow journalist, has written a draft exposé on the dangers of disloyalty among Japanese workers. He claims that too much technology and know-how have already fled to the US in search of affordable housing. You have concerns that if his piece is published it will simply serve to plant ideas in more young Japanese minds.

Key challenges are:

- 1) Develop new sources of information among MITI and other ministries
- 2) Do you prepare a harsh rebuttal to your friends' intended exposé?

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Engaging in talks with business and government to gain information. Use media influence to quell false and malicious reports of Japanese workers' loyalty. Strengthen ties with government officials by continuing favorable reports about its' policies.

Priorities: 1) Establish new information sources; 2) contain negative and erroneous reports about Japanese workers' disloyalty; 3) further and expand pro-Japanese reporting.

Reasoning: Self-preservation and the relentless pursuit of the truth.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:30 PM

Japanese Media, Ministry of Finance

The Japanese media will trade 1 credit for exclusive inside information from the Ministry of Finance - source will not be revealed. Source will also give information about MPT and MFA when available.

4/18/95 8:18 PM

Japanese Media, Viewall

Japanese media donates 1 credit to Viewall to pursue 3-D retinal display technology.

JAPANESE MEDIA JOURNAL EXCERPTS

David Ashley

Tuesday, 4/11/95 - The game begins. In my role as a Japanese Media Representative, I am trying to be true to the style outlined in the manual. According to the manual, my approach is 'emotional, inflammatory, and can often promote misinformation.' With these traits in mind, I began to circulate the room searching for stories. My partner and I decided to work as a team rather than as competitors. We decided, for the most part, that he would work the Japanese side of the room, to gain information favorable to Japan, and I would cover the US side in search of more colorful stories. According to the manual, we are allies of the Japanese government.

I did work the Japanese side occasionally for the primary purpose of letting them know that we were going to be sympathetic to the Japanese point of view. I let it be known to several Japanese participants that I was very interested in any incriminating information about any US role as this information will help us achieve our pro-Japanese goal by undermining the Americans.

I spoke with Mechatronics executives first. I was interested in their response to Mechatronics weak financial status and wanted reasons for this poor performance. At first, they were receptive to my questions but began to shy away when I pressed them. On my second trip to speak with them I was first met with resistance. They said that they did not like what I said about them in the JNN newscast. They felt that I was biased and that I twisted their position and comments. I said that I was returning to get their reaction to my comments and that I wanted to offer them the opportunity to correct me. I mentioned that I was new at this reporting game and wanted to make sure that I being factual.

Later I investigated Infomatics and its executives. Their balance sheet indicated that they were doing quite well financially. Convinced that there must be more to the story, I went to Infomatics and asked its executives a few questions. They seemed more organized with their responses than did Mechatronics executives and better at playing the interviewing game. Still, it did not take much to illicit indelicate comments. They tried to redirect my quires questioning their rosy balance sheet. However, my nose for news informed me that there must be a skeleton or two in Infomatics closet. It turns out that they had had some trouble with the EPA regarding alleged emissions violations. They were even forced to close a California plant due to EPA violations. They assured me that they had reduced emission and that this problem was being resolved at all levels.

I caught up with the US activist who was fired up about Infomatics. Careful not to push her toward comments that she might regret, I was pleased that she offered a bitter indictment of Infomatics.

The US Congresswoman did a good job of answering my questions in a politically correct way. Perhaps wise following the first newscast.

The California Senator talked with me about the deal between Mechatronics and Infomatics. She said that there was no significance to the fact that she helped Mechatronics, who is financially troubled, given her brother's employment there.

Once the game got underway, it moved increasingly smoothly. I fear that it will become harder to get the scoop because the players will be more confident in their roles and busier with deals. Although I do not see any real problem in getting a story.

The newscasts were fun. I enjoyed trying to make them a little interesting and, as is my role, inflammatory, emotional, and slanted. I plan to step up the pressure for the final day and really get a good angle on the situation.

Thursday, 4/13/95 - I spoke with the US distributor about her feelings both in her role as a distributor and as a student. She had positive feelings about the game. I told her that I was going to talk to her next class and I wanted the poop! The lab. tech. said "no comment" when I approached her after class.

Friday, 4/14/95 - I had several conversations with a key member of Viewall. He said that he had some glorious deal in the works with MITI. I advised him that I was interested in propping up the Japanese position and attacking the American one. We decided to work closely together to obtain indelicate information about the Americans. I advised him that I would be interested in any and all dirt from him or any other Japanese source. I reiterated the Japanese media position of being pro-Japanese. I told him to inform all other Japanese interests that I was interested in embarrassing information about the Americans.

Saturday, 4/15/95 - I had a conversation with a couple of the members outside our roles. We agreed that the game was fun and that it had some relevant applications. We did express that a longer briefing before the game began would have been better. We felt that the first part of the class was largely devoted to learning the mechanics of the game. I thought that the packet, although helpful, was too confusing. It could have been assembled more clearly with precise and easy instructions. When I began reading the packet, I felt that I should have already known the mechanics of the game.

I began thinking of stories to follow and angles to pursue. I asked several people if they had any news to report. Most did not as yet but promised me that I could get the poop from them later.

It was today that it dawned on me that the upcoming Tuesday would be the last day to perform my duties as the eyes and ears of the public. I decided to get even more immersed in my role of being inflammatory, emotional and prone to promote misinformation. I decided to spice up my role hoping to make the reports more interesting. It was then when I conspired with David Nielsen to put together The Japan Times. I felt that this project would be both fun and different. This paper was put together without Erik's knowledge. David and I both knew that Erik, a good friend, would not be offended at seeing himself on the cover.

Sunday, 4/16/95 (Easter) - I went to church and later had a sinfully delectable repast. I discussed my role with my brother who is, ironically, a TV anchorman set to move to San Francisco. He gave me some advice about getting the story and making my reports interesting.

Monday, 4/17/95 - I received the e-mail and promptly printed a copy. I immediately noticed that the Senator and Congresswoman were in big trouble. I thought about doing an interview with them and decided to ask Prof. Logsdon about it Tuesday. I thought such an interview would be a good opportunity for both to defend themselves and to make the media role more diverse and interesting.

The US activist spoke with me regarding Infomatics. I assured her that I was planning a full blunt assault on the company alleging emissions violations. She was pleased about my plan.

I noticed that the US distributor role was asked the question, "Do you prefer to sell US or Japanese products." I hoped that I would be able to get her to admit that Japanese products were superior to American products. I would then rewrite her remarks, keeping the essential facts intact, as to make the story more colorful. She did not want to get trapped into a position on the subject and I decided to try again Tuesday if the situation arose.

A key Viewall player crafted a statement that he wanted read on the newscast. The statement regarded a report, which was made up, that a 'major player' in the US was interested in financing a Viewall project. The Viewall member hoped that this announcement, false only to us, would prompt a bidding war that would favor Viewall. Reluctantly, I agreed to spread an untruth hoping to help an allied Japanese company.

Tuesday, 4/18/95 - Game day. I met David Nielsen at his house to print The Japan Times. We both felt that this dastardly deed would be funny. We also polished my remarks regarding the before mentioned false statement.

I arrived in class and asked Prof. Logsdon to allow me to interview the Senator and Congresswoman. After getting her approval, I approached the politicians with the idea. Both were exceptionally good sports given my controversial style. I wanted to be fairly nice as a courtesy to them. I refrained from reporting allegations that the Senator was seen ducking into a hotel with a Mechatronics executive.

I thought that the interview went well. Both candidates had the opportunity to present their positions and to rebut allegations on financial impropriety. After the interview, I spoke to the candidates as a fellow student. I thanked them for appearing and wished them well in elections.

As the evening progressed, the stories were bigger and somewhat harder to get as the players were frantically trying to close deals. They did not have as much time for the media. So instead of asking outright for a story. I often closely positioned myself to the deal-makers. I pretended to be occupied but was of course eavesdropping. I was able to get a lot of information. I was astonished that some players were so desperate to get a 'secret' deal that they did not notice, object to, or care that I was listening in.

Newscast Highlights: On the reported backing of Viewall by US company: In the coup of the century, Viewall is securing backing from a Major US player to finance the development of the world's best 3-D display. Sources at Viewall confirm that they are moving quickly with negotiations and are confident that a successful conclusion is near.

On the election loss of the incumbents: Senator Goldberg and Congresswoman Sanchez fall in a tight race as the incumbents are overwhelmed by scandal. Both to fade into obscurity in the hope of rebuilding a tattered image. In a related story, on the campaign trail new CA Senator offers a vitriolic indictment of US productivity. In a non-answer, Freshman Senator and Congressman waffle when pressed to continue the investigation into Infomatics

and Mechatronics. The investigation is stalled by high spending, fast talking newcomers. The US president, who supports the investigation, exclaimed, "I'm ashamed of those slick do-nothing two-timers!"

DOC training program: The US DOC is launching a workforce training program that will focus on advancing high school requirements for electronics manufacturing. This new program is hailed as a triumph for America's youth.

Buyout offer by Mechatronics: In a bid labeled laughable, broke Mechatronics offers a nickel and dime buyout of Infomatics. Incredible, Infomatics is entertaining the prospect in an attempt to placate Mechatronics who reportedly has incriminating photos of Infomatics executives. Analysts chuckled calling the buyout, the broke leading the mediocre. The proposed *Infotronics* hopes that combined resources will enable it to improve its feeble competitive position with Japan.

US. financier: A prominent US financier attempts to expand dealings with private firms claiming that the US government is incompetent. "They couldn't sell ice to the Eskimos," decried another Wall Street arbitrageur.

New Congressman attacks Japan: Japan bashing congressman offers a bitter appraisal of Viewall and Japan in general. In a feeble attempt to divert attention from allegations of voter fraud, the freshman congressman denies widespread reports that Mechatronics stuffed the ballot box to elect a week-kneed lapdog. Mechatronics executives vote the Chicago way, early and often, say critics. An anonymous source at Mechatronics revealed, we could not afford the senator so we settled for him. We wanted to get the Senator's response so we caught up with him on the back nine. The Senator said he would like to investigate the anti-Japan rhetoric by his inexperienced colleague, but does not feel that there is much truth to the story of unfair trading practices by Japan. International experts laughed off the Congressman's remarks saying that Japan might not prop up the dollar if the US does not play nice!

Tech for America announcement: Attempts to compete with Japan labeled futile. Tech for America, a would be juggernaut combination of many US interests to compete with Japan, is seen as a lightweight. "They will need it if they are to attempt to challenge Japan," say analysts. "America clings to hopeless dream of competing with Japan," decries the International Competitiveness Council. "It's a pipe dream!" exclaims The World Bank. Japan shrugs off the electronics cartel as a red tape maze of outdated technology. Japanese executives snickered, "They're welcome to our vacuum tubes."

Control team member caught spying: Vigorous denials of corruption labeled futile as federal agents descend with an avalanche of evidence. Good evening everyone, the breaking crisis tonight: former University professor turned control team member is immersed in scandal. Well placed sources on the control team confirm that the disgruntled member spied on Japan on behalf of Tech for America in what is labeled as a tangled web of deception. It is alleged that this member became bitter and disillusioned when the control team refuse to pay her and that Tech for America began mysterious shipments to her home of expensive clothes, fancy jewelry, and snooty highbrowed perfume. Federal authorities report that they are poised to nab her on computer hacking charges in her attempt to access Japan's computer network. When asked about these allegations, she confidently responded, "I'm innocent of these malicious charges." However, a photo of her, appearing drugged, gaining illegal computer access soon surfaced. When confronted with the picture, she suddenly became flustered and shaken. However, quickly regaining her composure, she launched into a vituperative diatribe promising to make the photographer pay! When the photographer appeared before her, she had to be restrained when she lunged at him shouting, "I'll get that sneaky, backstabbing, pencil-neck!" After a brief attempt to flee on foot was foiled, she was taken into custody and failed to convince the authorities that her colleagues were also guilty. We understand that she is resting comfortably in the federal poky awaiting arraignment.

The morning papers are following this story, here are a few lead headlines:

"Rapscallions member implicates colleagues in face saving ploy"

"Embattled member decries, "They'll never take me alive!"

"Guns blazing, defiant member vows to go down swinging"

"Tearfully repentant, control team member agrees to take ethics course"

Other key headlines:

"California Senator caught in Washington love nest"

"Informatics executive excommunicated"
"Freshman congressman seen staggering from sleazy nightclub"
"Disguised Mechatronics executive seen leaving geisha house"
"Money grubbing senator fights corruption charges"
"Informatics executive was a former Vegas showgirl"

Conclusion: I enjoyed the prosperity game and felt that it offered insight into negotiating. The only drawback to the media role is that this role is separated from the other roles. It is difficult to make deals and find stories. Despite this drawback, I believe that the media role is very important as it provides a break in the action. These breaks enable status reports to be read which can be valuable to everyone.

I noticed that some coalitions held together better than others. Some people rushed to form coalitions deal by deal rather than building an overall strategy for success. One player was so focused on one particular group that she ignored many other groups. Some people were so desperate to get a deal that they seemed willing to give more than they should have. Patience would have yielded greater success for some of the players. However, I do think that the class performed well overall.

The second session was very important as the class worked more efficiently that day. By then the rules were increasingly understandable and goals became more clear.

I was very happy with my role and I tried to embody the spirit of its characteristics. My partner and I worked well together. I did not realize, until a few minutes before, that we had to do a newscast. The manual should have mention that responsibility thus enabling the press players to better prepare. And again a more clear layout of the manual with less extraneous information would help the players.

Most of my friends reported to me that they enjoyed the game and felt that it was useful. It was an interesting, fun, and relaxing way to end the semester.

David Blankenship

Tuesday, 4/11/95 - The game has begun. My colleague and I (we are the two Japanese Media representatives) have decided to break up the two countries and split the work. Strategy will be to uncover news wherever it is. We will also try to use our credits to trade for exclusive information leaks. I am covering all news that has to do with the Japanese companies and the Keiretsu, while he takes the US and all of the related relationships within. My colleague has a nose for rooting out a good story (even when there isn't one!). For the first class, I reported on the exciting new product release of the SAMSON device by Horioka and of its distribution being handled by the Japanese distribution company. Even though these are not certain events, it is hoped that by reporting it, the press will nudge the actors into making decisions. I have covered information coming from MITI and the three Japanese Ministries, as well as Horioka, the Japanese distributor, Viewall and the Japanese banker. My colleague is covering all of the stories from the US. I have struck a deal (with my partner's OK) with the Ministry of Finance to provide me exclusive inside information on all of the MF deals (and any others he may find out about) in exchange for one of our credits. Trade was written down and turned in at the end of class. I may also be able to strike a like deal with a MITI official. This would be good since they have been very close-lipped about any information they may have.

Sunday, 4/16/95 - Sent out E-mail to MF and a Horioka official asking for news or information on new developments. Will check for reply tomorrow.

Monday, 4/17/95 - Did not receive a reply from the MF or from Horioka. However, according the game update E-mail, there will be a lot to report on tomorrow. Checked later and had received a reply from Japanese Ministry of Finance, unfortunately he had no news for me.

Tuesday, 4/18/95 - Second and last round tonight. This night there was much happening, including the usual blend of rumors and accusations from the Control people. We bartered away another one of our credits to Viewall, in order for them to gamble on obtaining new 3-D technologies. The MM players, after at first being rude and uncooperative, have finally started using the Japanese media to their advantage. The other players,

however, are slow in realizing that the Japanese media can help their cause. The MF finally collected enough credits to gamble on reducing the Yen against the dollar, but he lost on the roll of the dice. It was announced around 7:30 that Informatics had made a breakthrough with their SAMSON device and now controlled 80% of the market. An emergency meeting with the Japanese President was held with the MF, MITI and of course, the Japanese Media. My colleague and I held a news conference at 8:00PM to report on this and several other items. The items I covered were: The President's meeting and the subsequent push for technological innovation within Japan, involving MITI, the Ministries and the Japanese banker all working together to achieve a common goal. I added words to have the effect of promoting Japanese nationalism. My colleague presented some rather flowery criticism of American politics.

There were deals being struck and trades being made all over the place, and at all times. It was impossible to know everything that was happening. I do not feel that anyone is making effective use of the media, there is a lot of distrust between players, and especially between the players and the media. Why are the Japanese acting so much like individualistic Americans?

The Americans, in true Japanese fashion, have all banded together and are using their pooled resources to influence things their way. Horioka and Viewall will barely talk to each other, though the Ministries and MITI are trying to facilitate a dialog. By the end of the class, Horioka and Viewall had finally signed a partnership. If this had been reality, they probably would have been out of business by now.

OTHER: I have included my slides presented in the class debrief. I want to stress that, contrary to what my slides may seem to indicate, I found this exercise to be extremely rewarding. The excitement of the game itself provided for much personal enjoyment, as well as from an educational standpoint. I do feel that some roles fit people better than others, and while some people were shy and uncomfortable in their roles, I enjoyed mine.

SLIDES:

THE BIG PICTURE

A lot happening (too much to capture)

Too much interference by control

Too much chance and not enough logic

Many of the events did mirror reality in a compressed and exaggerated form

Very little win/win or cooperation, most antagonistic (lose/lose)

THE JAPANESE MEDIA

Japanese players did not use effectively until late in the game

Players were unsure how to effectively use the Media (not enough instruction)

Possibly due to negative rumors spread by Control, or by comparing to US media

MY BENEFIT

Macro business on a micro scale

This was a good lesson in the dynamics of international business

Much better appreciation and understanding of Japanese business practices

CRITICISM

Not enough up-front explanation or write-up on the dynamics of the game

Did not know about giving newscasts

What could and could not be done was not clear (deals, etc.)

Too much going on in too short of a time frame

SUMMARY

Very useful if taken in context

Suggest the number of rumors generated by Control be reduced or eliminated

Quality of game interplay and strategy would be greatly enhanced with more up-front instruction

For Mgmt 508 specific: spend a prior class on discussions of the business roles

Tuesday, 4/18/95 - Newspaper published by the Japanese Media for distribution to students at the beginning of class.

THE JAPAN TIMES

Backpedaling Executive Denies Ethical Lapse

Well known Mechatronics Executive denies persistent reports of impropriety regarding an increasingly criticized deal with the government. He bristled when confronted with allegations that his company reneged on a \$50 million effort to repeal the Glass-Steagall Act. Many have called for a full scale investigation into his actions in an attempt to clear up the matter. The defiant executive exclaimed "I'll fight to the death!" The embattled company can ill afford another financial scandal. "It could be lights out for Mechatronics," predicted a rival company. Vowing to stay on, the tainted executive points to others in the company in a last ditched effort to shift blame.



Battle Cry: "I'll die with my boots on!"

California Senator To Resign

The California Senator resigned a letter to the President requesting that ethics courses be dropped from the university curriculum after the first letter was lost. Many have attacked the letter as yet another attempt to tamper with the prestigious university system.

US DISTRIBUTOR

PREGAME SCENARIO

TechWorld is a medium-sized distributor of computers and related products with nationwide clientele. Distribution is primarily through regional stores operating with high volume and low markup. You have traditionally carried and sold a large volume of Infomatics products. Recently, however, Horioka has informed you that they are willing to sell to you in bulk at below wholesale cost, especially in the new SAMSON market. You are skeptical that they will raise prices as soon as they feel they have sufficiently penetrated the market. Meanwhile, Infomatics is pressuring you to 'Sell American,' both in existing product lines and in the new SAMSON market. You perceive that the future market for SAMSON products will be enormous and are currently working to position yourself as the leading US distributor in that market.

Key challenges are:

- 1) Retain loyalty to US companies?
- 2) Reap short-term profits by dumping products for Horioka?
- 3) Forge alliances that will make you the primary US SAMSON distributor

STRATEGIES, PRIORITIES, AND REASONING

Strategy: 1) To establish a firm, long-term contract with Infomatics to distribute SAMSON; 2) establish complete, sole-distributor rights and privileges with Infomatics; 3) establish distributorship with DOD; 4) find out if Congress has incentives to not distribute Japanese products.

Priorities: Discuss options with outside influences before discussing distribution, remaining open to the possibility of distributing Japanese products, but while maintaining good relations (long-term) with Infomatics.

Reasoning: To date, I don't know if it's feasible to distribute competing products, but I don't want to close the doors on any options.

GAME PLAY, AGREEMENTS AND ACTIONS

4/18/95 7:55 PM

US Distributor, Japanese Distributor

As of this day, the US and Japanese distributors agree to merge existing companies, and all assets to form **The Electronics Distributor** for the US and Japan, and reserve the right to distribute globally. All decisions must be agreed upon by both parties.

US DISTRIBUTOR JOURNAL EXCERPTS

Isabelle Baird

Tuesday, 4/11/95 - out of role (initial thoughts) - I have no idea what to think of this game. I don't know what's going on. I don't know how the game is structured, or what the rules are, or if the class could totally bomb the game. I know who a few people are, like the Japanese Bunker, and the media teams for both nations. To be honest, I am very nervous. Right now they are moving tables around in the classroom, and will not let us in. I feel like a lab rat... waiting for the test. Maybe I'm just a little too stressed & need to relax. That's probably it.

I ate - WOW! I really enjoyed that. I have not been in the wheeling/dealing atmosphere in a long time. I'm very excited about this game. Never before has a night class passed by so fast. Before the assignments were given, I was afraid I would have an assignment that I could not fill properly because I did not know how... but now I see that almost everyone is encountering problems of uncertainty in their roles, except the media, who are doing a wonderful, entertaining job. I am actually thankful that I have this position. I think I'm in one of the best positions here. I'm a monopolist, and the companies need the products distributed!

I am uncertain as to what I am going to do. Upon introducing myself to members of Infomatics, whom I have done business with before, and various other US officials, I see that everyone feels a time crunch. There is not enough time to do everything. I see that Infomatics recognizes that I could distribute competitors goods, and I have been urged not to do so. A proposal was made that I may have exclusive distribution rights of all Infomatics products, but only if I guarantee not to distribute competing goods. I don't know if I want to limit myself to Infomatics, after all, they may not market the SAMSON technology first. The Japanese companies seem to be less restrictive in their agreements, saying that they would not mind if I distribute competing goods. I feel that I must make a decision as to whose products to distribute: US or Japan? Which would put me in the best possible economic position? I have contacted various US & Japanese government officials to see if there are any laws/regulations/etc. in either country that would serve as an incentive/disincentive to me. Unfortunately, neither government had much to tell me.

I also spoke with the Japanese distributor, who is feeling the same as me. Either choice we have, we lose out on something. If I choose the US, I am restricted not to distribute Japanese products. If I distribute Japanese products, the US will not contract me to distribute their goods. The Japanese distributor and I have discussed the possibility of forming a joint venture, so that we can effectively capture both markets, while maintaining a monopoly, and learning how to successfully distribute to another country, despite language, cultural, and legal factors.

Tuesday, 4/18/95 - out of role - I feel good about the game now. I can see that there really are no rules, and we do what we must, with certain notations, to reach our goals. The problem is conflicting goals, and conflicting groups, with conflicting purposes, and (sometimes) conflicting personalities.

I can say now that I feel like I made the right decision. It's so risky. You make a decision, thinking/hoping it's the right one. I decided to merge my company with the Japanese distributor, and form The Electronics Distributor. After I signed the agreement to merge corporations, my stomach was tied in knots when I saw some of the reactions to the news. The Infomatics representative looked at me and said, "Thanks for letting me know," and went back to work, leading me to think that I had made a wrong decision, and that Infomatics decided to distribute their own products. Japanese response was similar. I was really afraid that I had made a huge mistake. But, after it was announced that we had a contract to distribute goods for a company that acquired the 3-D technology, and other companies wanted it, we were approached by other companies. Even Infomatics, who had virtually severed all communication with me and replaced it with rudeness, approached us toward the end of the game. By the end, we had three contracts signed, two with Japanese companies and one with a Yugoslavian company. Our goal of becoming international had succeeded (for the most part), and we were able to acquire as much of the market as we wanted.

End of game - out of role - I have not felt this spiteful in a long time. I know it's just a game, but the crummy treatment I received from Infomatics really got to me. The representative was cold and indicated to me (through actions) that she was not interested in talking to me. She even asked me who the other distributors were, like she had a personal problem with me. By the end of the game, when she approached me because she had yet to have her products distributed, and I avoided her. I did not want to distribute her products... and because of her treatment of me, I refuse to sign a contract with Infomatics, no matter how much money it means.

My motivation for voting for challenger in the US election: The financial guy promised me \$\$ cash and government backing if I voted for him (but after he won he forgot me.)

JAPANESE DISTRIBUTOR

PREGAME SCENARIO

You are a small wholesaler of Horioka and other Japanese products and supply many shops in the Tokyo area with their products. However, an American, knowing that you have mounting personal debt, has approached you

about buying Horioka products from him at below your cost. He would buy the products in the US and ship them back to Japan at a lower cost than you get from Horioka. In addition, a US company, Infomatics, has approached you to distribute a current entertainment product, SameBoy, and has indicated that they will allow you to carry their new SAMSON product if you sign up now. Meanwhile, you are receiving pressure from Japanese manufacturers to increase your mark-up on US goods so that you can decrease your mark-up on Japanese goods.

Key challenges are:

- 1) Maintain loyalty to Horioka or buy their products from the American
- 2) Increase mark-up on US goods?
- 3) The market for SAMSON will eventually be very large in Japan. You want to remain in favor with both Japanese and US manufacturers of SAMSON products since it is unclear which team will be first to the marketplace.

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Lower the company's debt. First, either get Horioka to lower their costs of products being sold to me to increase my distribution in Japan. Look for other ways in which to increase sales without huge US mark-up. May be forced to deal with American company.

Priorities: 1) Talk to Horioka to lower products wholesale costs; 2) deal with American to lower cost and thus increase sales and lower personal debt; 3) make alliances with US distributor to have distribution in both Japan and America.

Reasoning: I must first remove the debt of the company to help expand my distribution.

GAME PLAY, AGREEMENTS AND ACTIONS

4/18/95 7:55 PM

US Distributor, Japanese Distributor

As of this day, the US and Japanese distributors agree to merge existing companies, and all assets to form **The Electronics Distributor** for the US and Japan, and reserve the right to distribute globally. All decisions must be agreed upon by both parties.

4/18/95 7:59 PM

Ministry of Finance, Japanese Distributor

Ministry of Finance purchases 1 credit from Japanese distributor for \$20M.

4/18/95 8:13 PM

Viewall, Japanese Distributor

Viewall agrees to pay \$25M to the Japanese distributor to aid him in expanding his corporation to allow for larger international distribution. Additionally, the Japanese distributor has agreed to work with the Japanese Minister of Finance to try to depreciate the yen. In return for the rights to distribute Viewall's incredible 3-D technology, the Japanese distributor agrees to give Viewall 1 credit. The Japanese distributor agrees to sell Viewall's 3-D product at a 10% markup to Infomatics. Viewall agrees to sell the future 3-D retinal technology to the Japanese distributor, allowing him to sell to all buyers at an equal price.

4/18/95 9:05 PM

Horioka, The Electronics Distributor

Volume prices for existing and future products. 10% above cost for existing technology. Sole distributor for Horioka now and in the future. Open for future negotiation of new products. Transfer of 2 credits from The Electronics Distributor to Horioka.

JAPANESE DISTRIBUTOR JOURNAL EXCERPTS

Eric Ballantine

Sunday, 4/9/95 - Today roles for the game were handed out. I have been assigned the role of the Japanese distributor. I'm not too sure what my position will be, since I need to finish the readings and since I'm not too sure about the game.

Monday, 4/10/95 - Tonight I got a message from Byron Pouges on his role, he's with Mechatronics. Although he's with an American company, we think that it might be possible to work out something, but we're not sure what.

Tuesday, 4/11/95 - Tonight we started the game, we are to keep a journal of both our roles thoughts and our real thoughts out side of the game. *I (ERIC) went into tonight's game with a few different thoughts, I'm not too sure what to expect on how everyone is going to act. Are they going to act in their roles, or would people interact with their friends in class. How serious is everyone going to take this game?*

As the Japanese distributor (J.D.) I started very slow, I reread the outline of each of the roles on the Japanese side, to get a feel of what everyone needs and what I can give them and vice versa. The J. D. has a few problems that is debt, (how much) The game does not really state how much I owe, so I made up a number 1 million. I decided that the J.D. has to leave his options open. 1) work with Horioka to lower product costs. 2) Deal with Americans and their products. 3) make possible alliances with the American distributor. These are the things I felt the role of J. D. had to do, this would remove the debt the game says I have. Also this could increase my expansion and gain market share once the debt was removed.

As tonight's class continued what I (ERIC) had thought happened; some of the students are taking their roles a little too seriously. Such is the case for some of the people in the Horioka group. I have had a little trouble dealing with them. As J.D. I stayed neutral in most agreements, the people at Horioka don't realize what I can do for them, I went to them to try to sell their products but they seemed to have the attitude that 'What Can You Do For Me.' They must realize that I'm the only Japanese Distributor and if you can't get your product to market you have no profits.

During the middle of class the J.D. and the US Distributor (US D.) started talking I told her that the J. D. and her should merge and become the largest distributor in the world. She (Isabelle) thought this was a good idea, because she was getting the same thing that the J.D. was, hardball with the American companies. We both feel since we have a Monopoly on the Market, unless the companies want to go it on their own, costing them cash that they need, that they will have to come to us sooner or later. Plus a merger leaves us open to deal with who ever gets the SAMSON first. Thus our options are not locked into one certain company. This is a good thing too, since a control team member keeps asking how the J. D. is going to become the next Walmart. The answer is simple: merge and expand the market base.

Near the end of tonight's class everyone was trying to make quick deals, *I (ERIC) and J.D. think that people are not really thinking things through carefully.* The J. D. as been offered many deals, but has the opinion that 1 credit is worth \$100M. If they're willing to pay that much then a deal may be made. But if not then the J.D. is saving his credits knowing that credits may become a scarce resource and even more valuable. No deals were made by the J.D. tonight he's holding out.

After tonight's class I (Eric) had a few concerns, how do the credits really work. Can I gain credits or is 3 all I have for the whole game. And can you make deals with out cash and credits.

Wednesday, 4/12/95 - Tonight the (J.D.) sent out some E-mail messages I have figured out what the overall position of the (J.D.) is. The J.D. has the plan to supply credits for cash to help make a worldwide distribution network. One message to the Minister of Finance, lets him know that I will supply a credit for some of his cash. No reply yet. Second (J.D.) sent out a message to Viewall letting them know that I would supply either cash if they needed it, or be the distributor of their products. No reply yet. Last I sent out a message to the US Distributor

about our possible arrangement of a merger since that's the best way for both of us to gain what we need. (Market Share of each others countries) No reply yet.

Also tonight as (ERIC), Bryon called me, we talked about the game and what each of us thought of it and how it was coming along. He said something that I didn't really think was right, he said that money can be made into credits and credits into money. I think this would cause the game to basically not work since the whole thing is about working with others to get what you need. I need to call the professor on this. Because if this is the case then the J. D. has no money problems.

Thursday, 4/13/95 - Tonight the (J.D.) got a reply from Viewall basically, they are willing to work some sort of deal with me, either credits for cash, and possible distribution of their product. I will look into this on Tuesday.

Sunday, 4/16/95 - Tonight the (J.D.) got a reply from the American Distributor, she has raised some concerns about our arrangement, but is willing to go forth if we can work a few things out. *As Eric, I think the concerns that the American Distributor raised are valid, but still think that we should merge. I also want to know about the credits, and how they work, because that could be very beneficial to both the J. D. and US distributor.*

Monday, 4/17/95 - Tonight the J. D. got a reply from the Minister of Finance asking for help. He needs credits and is will to give up cash. I think a possible arrangement will be made, which will be very helpful to help solve my debt problems. Also the yen is overvalued so the J.D. may be willing to work a smaller money arrangement for the credits for a possible devaluation in the yen.

As Eric the minister of Finance is trying to use his friendship to gain my credits. I had said earlier that I had thought people may try to use there friendship to help their positions in the game, it looks as if it is as in the real business world the 'good old boy network' is alive and well.

Tuesday, 4/18/95 - Tonight's class was very interesting. The J.D. and the US distributor merged to form **The Electronics Distributor**, (TED) the worlds largest electronics distributor. We both agreed that this was best for both of us. We merged on a 50/50 basis. Agreeing that both of us would be in on all decision about distribution of products. The class was very interesting, because as the (J. D.) and Eric, I was right, credits became more valuable than money. The J.D. had almost no problems in working deals when people realized that the J. D. had 3 credits. As the J. D. now known as (T. E. D.) I made an arrangement with Viewall to be their sole distributor. With this type of arrangement, Viewall now could not start their own distribution network without breaking our agreement. This was the first step in the plan of (TED). Next (TED) began to work with the Japanese company Horioka to work on selling their products, Isabelle, did most of the talking but we soon arranged to sell all of their rising inventory of electronics products, all except the SAMSON, because we were working on how we will sell both the US and Japanese versions. (TED) then moved over to the Ukraine. The Ukraine had a product that needed to be sold, and T. E. D. was working on an arrangement to sell their product. The US company came to (TED) to help sell some of their new products some sort of 'game glove.' We agreed to that. Class ran out.

As Eric I think the class went very well. The class ran a lot smoother tonight then the first class. People were more willing to deal tonight. I think that once people realized that 1) they needed credits to get their projects completed and 2) that with out some sort of distribution network they weren't going to get any products sold, they all came running to (TED). As for the merger with the US Distributor I don't think it could have gone any better, we ended up controlling everything that was produced, a world wide monopoly. Once we made agreements to be the sole distributor of each companies goods, we had it made, because they could no longer make their own distribution networks with out breaking our agreements. Breaking (T. E. D.) agreements I don't think would have happened, and I don't think that any of the companies thought about making their own distribution. The main reason I think that no one thought about making their own distribution, is because it would have cost them money. Everyone was worried about making more money, but in the end the Distributors made the most because we had a world wide monopoly. So that's how I became the next WalMart, to answer the control teams question.

Thursday, 4/20/95 - Tonight I sent out a E-mail to Isabelle about our little merger and what we are going to say in class. No reply yet.

Friday, 4/21/95 - Isabelle wrote back with a few thoughts on what to say in class, I guess the journal will be finished in class.

Tuesday, 4/25/95 - Tonight everyone spoke about their roles. Everyone stressed that the game needed to be explained more. I still think that the credits need to be explained and the money. But overall the game went well.

E-MAIL MESSAGES

4/12/95 Japanese Distributor to Viewall

Hello there, This is the Japanese distributor, I would like to know if you are possible interested in more distribution of your product, or in gaining some much needed capital say to the tune of 300 million? I may be of some help in your ability in obtaining capital, just let me know ... Japanese Distributor out

4/13/95 Viewall to Japanese Distributor

Dear Distributor,

Your money is always welcome. Come talk to us, we'll work something out. We don't have the new 3D display yet but we did acquire the European technology needed. We just need the funding to develop it.

sincerely,

David Nielsen

Viewall

4/13/95 Ministry of Finance to Japanese Distributor

Eric the man,

Listen bud, the Japanese is a yanker, he won't commit to anything. Yes I still need 2 more credits, and I'm running low on cash. I'll try and persuade the banker to float you a loan, but no promises. In the meantime consider this 25 million for 1 credit. What a deal TWENTY-FIVE MILLION Dollars for one measly credit, Think about it. By the way, what ever happened with MITI. They were supposed to help you. I'll can pull more strings then they can, so don't listen to those losers... I'll float you a nice loan

Laters

4/15/95 US Distributor to Japanese Distributor

Eric -

sorry it's taken me so long to get back to you. I've been thinking about it ... and I think that we need to consider a few other things (or at least, I am...)

- 1) Is your client base big enough right now to serve the needs of INFOMATICS? Or, would you have to expand the client base?
- 2) You're having some \$\$ problems right now ... what do you plan to do about that? Have you contacted MITI or the Japanese banker to see if you can borrow some money to grow?
- 3) Have you spoken to MITI about funding for a joint venture or partnership? I read in the reading packet that the Japanese government subsidises/loans \$ to Japanese firms that do these types of things.
- 4) I need to contact the appropriate US Govt agency to see if there are any issues that I should consider before agreeing to do this... if I'm going to receive subsidies or higher taxes if we decide to do so.

Just a few thoughts -- I'd hate to lose our good position right now --and all because we did not think things thru carefully. I hope to make a decision & us come to an agreement by 8:00 Tuesday..Let me know what you think.

- Isabelle

US Distributor

4/17/95 Ministry of Finance to Japanese Distributor

ERIC,

Dude, Don't ever forget where you came from..

See you on Tuesday,

Gavin

4/17/95 Ministry of Finance to Japanese Distributor

Eric, it looks like the Japanese Yen is causing you some problems, You might want to re-consider my offer while it's still on the table. Who knows how long it will be there.

Laters, MF

4/20/95 Former Japanese Distributor to Former US Distributor

Whats up my partner? I think our plan worked out, don't you. By the way I don't think we ever decided who was C.E.O. and who was president. I think that you should be C.E.O., and I will be Pres. Hows that? Anyway have you decided what your going to do with all that cash, I heard that Saint Thomas is nice this time of year.. Now really I think our plan worked out alright, don't you? Have you given an thought about what to say. I think that we should say something to the effect that we both realized the opportunity a merger would have on both our bottom lines and that by mergering we both gained access to the others markets. How does that sound? well just let me know what you think. Thanks again for being a cool partner, oh yea a cool C.E.O. later

The Pres. of T.E.D.

4/21/95 Former US Distributor to Former Japanese Distributor

Partner:

I think that sounds fine. I don't know for sure what else to say ... but that (yes,) we took advantage of a situation where we were both monopolists in our own countries and joined together. I also think we should mention that it's the trend - with international companies. Control told me that very few companies do what we did ... but is that not a shame? You, Mr. Japanese person don't know how to do business in the US, with Americans ... and I don't know how to do business in Japan. That's all I can think of ... but we can say something about how (amazingly) well we worked together & were able to communicate, what with the language and cultural barriers & all! Anyway, just lemme know whos going to speak, or if you wanna split the 4 minutes.

Thanks !!

- Isabelle.

US WORKER (Consumer)

PREGAME SCENARIO

This role represents a cross-section of the American public that can choose between competing products, and suggest improvements that would increase demand. Additionally, this role can represent the worker(s) at any of the American companies. You have heard that the TechWorld distribution chain is considering dumping of Japanese products for profit, pricing them slightly lower than the competing US products.

Key challenges are:

- 1) Would you buy a SAMSON, either for business or personal use?
- 2) Respond to the rumor about TechWorld - Will you patronize them or not?
- 3) Are work practices at Infomatics and Mechatronics fair?

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Protect the interests of the US worker/consumer. Support American made products and jobs. Try to prevent Tech-World from 'dumping' Japanese products on the US market.

Priorities: 1) Help preserve US jobs and products sold; 2) prevent Tech-World's dumping of Japanese products.

Reasoning: Unless the interests of US workers are protected, there is a chance that these jobs will be lost to the Japanese competitors.

GAME PLAY, AGREEMENTS AND ACTIONS

4/11/95 9:22 PM

DOE, DOC, Infomatics, US Worker

Joint funding of policy toolkit option to 'Implement NEMI roadmap.' DOE invests \$20M, DOC \$70M, Infomatics \$110M, US Worker 1 influence credit. **UNSUCCESSFUL at 50%.**

4/18/95 7:45 PM

US Senator, US Representative, US Worker, US Finance

Both incumbents were defeated in the 1998 elections. The US Senator was defeated by the former US Worker, and the US Representative was defeated by the former US Finance player. Role switches were done at this time.

4/18/95 8:20 PM

Infomatics, US Finance, US Senator, US Activist, US Media, US Worker

Joint funding of Infomatics' private toolkit option to 'Develop clean manufacturing techniques to approach zero emissions.' Infomatics invests \$45M, US Finance \$100M, US Sen. \$50M, US Activist 1 credit (= \$100M for this option only), US Media 3 credits, US Worker 1 credit. **SUCCESSFUL at 92%.**

4/18/95 8:31 PM

US Senator, US Representative, US Worker, DOC, Mechatronics, Infomatics

Joint funding of policy toolkit option to 'Establish regional agency for workforce training programs.' US Senator invests \$30M, US Rep. \$50M, DOC \$70M, Mechatronics \$24M, Infomatics \$20M, US Worker 1 credit.

SUCCESSFUL at 54%.

US WORKER JOURNAL EXCERPTS

Andrew Barr

Saturday, 4/8/95 - Today I went through the player's handbook to familiarize myself with the University Prosperity Game and the various roles that are included. I also read the reading packet that I purchased from Alphagraphics to further familiarize myself with some the background information relevant to the prosperity game.

Sunday, 4/9/95 - Today I received my assignment via E-mail. This is where I found that I was to represent US Workers/Consumers. I then proceeded to look up my role in the players' handbook. Although this role did not seem as exciting as some of the others, nonetheless it was still an interesting role.

Tuesday, 4/11/95 - I spent a few hours before class re-reading my role, as well as the others, so I could hope to increase my understanding of what was actually happening. At this point I was nervous and confused as to what was actually going to happen. As I arrived to class I discussed the game with some of my classmates, I found that they were in the same boat as myself. This discovery eased some of the nervousness that I had felt coming in to the simulation.

As we began the simulation it took about half an hour for myself to realize what was actually happening. I read my role once again and began thinking of who would be natural alliances with the US Workers/Consumers. I had hoped to find a group with similar interests. Also, I began thinking of those who might be representing different interests than myself.

It was now time to develop a set of strategic objectives that were consistent with my role. It was important that I protect the interests of those that I was representing. Therefore, it was imperative that I protect jobs in the US and support American made products. In addition, I wanted to protect workers from adverse working conditions. I felt that it was essential that I help protect US jobs, because it was possible that these jobs could be lost to Japanese companies.

I began discussing some of the issues with those seated at my table, the US Activist, the US finance, and the US Distributor. I found that the activist had some of the same feelings as myself on the issue of protecting jobs of American workers. Also, through my reading I found that the US Distributor could be a potential opponent. Upon which time I began probing to see what her feelings were related to dumping Japanese products on the US market. She was unsure of what actions she was going to take. I then made her aware that the US workers would not stand for dumping of Japanese products and hinted at some of the possible ramifications if she decided to do so.

I did not exactly tell her what I was planning to do, but merely hinted that there might be a boycott of their products. I was going to achieve this through a supplemental private toolkit option that I had received. The supplemental private toolkit option stated that 'If Tech World dumps Japanese products on the market, you organize a consumer group to boycott their stores, effectively reducing their revenue by 20%.' I would attempt to implement this option if it was deemed necessary. I also warned the US Distributor that the US Media could be alerted to the possible product dumping.

After which I began to walk around to other areas to see what was happening. I realized that the US Commerce Representative would be a potential ally as well as the US Representative and The US Senator. This was because we all wanted to protect US jobs. After which, the US Commerce Rep. and I went to Infomatics and expressed how we felt about some of the issues regarding US jobs. We later struck a deal with Infomatics to 'make the US the place of choice for electronics manufacturing.' I felt that this was a very important element in protecting US jobs. This is obvious because if the US is the place of choice then jobs should follow.

However, before the deal was finalized, we needed more money so I talked to the DOE Representative and persuaded him to kick in the remaining portion. I then utilized one of my two credits and we handed our proposal in to the control team. Unfortunately our proposal failed.

Tuesday, 4/18/95 - Today I came to class hoping to have some of the policy options regarding US Workers/ Consumers passed. I was planning to meet and continue discussing some of the issues with the DOC Rep. and the US Activist. However, before we could strike another deal I was presented with a proposal from the control team.

A member from the control team approached me and asked me if I would consider running for the US Senate seat in California in the upcoming election. I was rather surprised by this and told him that I would consider the proposal. He then told me that I had about five minutes in which to decide.

While deciding whether to run for the US Senate, I was trying to figure out how my role would be different in this new position. I also wondered how much more power and influence I would have. Then my five minutes were up and it was time to decide. The control team member came to me and said that no body else wanted to run, so I said that I would do it.

Upon deciding to run, the control team member told me that I had about two minutes to prepare a speech. I then had to figure out what I would stand for, very quickly. I decided that I would bring up the corruptness of the current Senator and that I would run a clean administration. I also wanted to bring more jobs to my state, as well as the US. Another position that I took was to be environmentally conscious and to pursue action to improve the environment. It was now time for the election to take place.

After the election results were tabulated, I was found to be a winner by the margin of 9 to 7 votes. Now it became confusing, because I now had to learn and understand a brand new role. This was after finally becoming familiar with my old role. So now it was time for a new game plan. I decided to pursue my original proposed interests mentioned in my platform and had \$200 M in which to do so.

My first act while in office was a contribution of \$50 million to help achieve zero emissions. As a US Senator I felt that it was necessary to help preserve the environment, therefore I felt that this was a worthwhile cause that was justified. So this proposal was sent to the control team and it passed.

As a Senator I found that I was pursued by several people for money for this proposal. I found this to be very interesting, because previously it seemed that I was the one doing the pursuing. I also felt that this role was much broader in scope than that of the previous role. As a US Worker representative, I felt that my role was narrow which was basically to protect jobs. However as a US Senator I felt that I had more latitude to deal with more issues.

My next act in office was to contribute \$30 M to a policy option that would create a regional agency that would establish workforce training programs, with a focus on high skill requirements needed for domestic electronics manufacturing. I also felt that this policy option was very important, because a higher skilled workforce would

help insure jobs in my state as well as the US. Furthermore, this would help to create more higher paying jobs which would create more taxes.

It was now nearing the end of the class and several people were trying to get funds for the Tech for America project. I felt that this was also a good cause because it would also help create more jobs as well as boost the economy. I contributed \$50 million to the operating budget. After which I struck a deal with the Tech for America Coordinator that would put me on the board and give me veto power. I felt that this veto power was essential to protecting my state from any adverse actions from this new entity. This new proposal cost me another \$50 million, but I felt that it was worth the investment because this cause was necessary to remain competitive with the Japanese. Also, this was a proposal that was good for almost everyone (i.e. win/win).

In the election, I obviously voted for myself. Furthermore, I felt that the game was very time constrained, especially when changing roles. However, the switch was interesting because there was a shift in my influence and power in pursuing policy options. As a Senator I became more of a player.

In conclusion, I learned that dealing and negotiating with others is not an easy task. It seemed that at the beginning everyone was looking out for themselves, rather than pursuing a win/win situation, which happened very late in the game. All in all the game was very enlightening and fun. I enjoyed the chaotic aspect of the game because sometimes that is reality.

ROOTSKA, LTD.: Ukrainian Software Company

PREGAME SCENARIO

A Ukrainian software company has claimed to be developing a full OSPC-compatible software package which gets around the OSPC limitations for SAMSON while achieving up to a 180% performance improvement with substantially increased capability. However claims from this company in the past have proven to be exaggerated.

STRATEGIES, PRIORITIES, AND REASONING

Strategy: Verify software performance claims; market to world (approach Infomatics first).

Priorities: Obtain beta-test (fully functional) SAMSON unit either on- or off-site. Keep options open (i.e. no excluding licensing agreements).

Reasoning: Without verifying claims, product appears useless. Approach Infomatics first since they lost software developers.

GAME PLAY, AGREEMENTS AND ACTIONS

4/18/95 8:41 PM

Rootska, US Lab

Rootska sends beta copies of software to US Labs for validation funded by DOD at \$10M. Validation performed using toolkit probability calculation. **SUCCESSFUL at 84%.**

4/18/95 8:41 PM

Rootska, Infotronics, US Finance

Infotronics gets exclusive rights to Rootska OS for 4 years in return for \$400M. Financing: Infotronics \$200M, US Finance \$200M. Finance gets stock options from Infotronics, DOD gets access to this cutting edge technology for 1 year. Rootska will receive 2% of all future SAMSON sales that use the Rootska OS.

4/18/95 8:45 PM

Rootska

Rootska invests \$350M on technology toolkit option 'Inference engine for artificial intelligence software allows practical learning...' **SUCCESSFUL at 60%**.

4/18/95 9:28 PM

Rootska, Viewall

Rootska agrees to license the adaptive learning AI software to Viewall for 2 years for \$60M. Non-exclusive agreement.

ROOTSKA JOURNAL EXCERPTS

Michael Newell

Tuesday, 4/11/95 - Upon receiving e-mail that role is Management Consultant, I spent weekend trying to determine my exact role. I thought of many ways to approach the game. Prior to class, I discussed the general assignment with Prof. Logsdon since the role was not in the Players' Handbook. The goal is to assist and if possible act as facilitator. Some areas and/or techniques to assist me were obtained (e.g., just ask questions, banks do not know amount of capitalization they have).

Options to present prior to action:

- 1) Invalidate patents against Infomatics (Control gave \$250M as 50% point) and Viewall (\$140M).
- 2) One company purchase Mechatronics or Viewall
- 3) Patent Mechatronics machine tools (cost \$5M)

Role changed to software company and government of Ukraine. Now must verify and market software. No money or credits have been determined. Control team will neither confirm nor deny my claims tonight. Future unknown, should be interesting, and I can always fall back on consulting.

Much resistance to obtaining a [SAMSON] unit for verification of entire system was provided by Japanese manufacturer. No deal in end, strange that almost had to beg someone to let me help them.

After reviewing 4/17 update, the fact that Horioka hired top operating system designers from Infomatics sheds some light on resistance to reviewing Rootska system.

Strategy for 4/18

- 1) Verify with Control if Rootska has display technology as European company
If yes - file US and international patents
If no - Obtain technology if price reasonable
- 2) Approach Infomatics on operating system
They lost their top talent
Market advantage on earlier unit
- 3) Verify patents exist on OS architecture and copyrights are in place
- 4) Get DOD to assist in obtaining beta unit if required
- 5) Verify claims with observers

Now have partner and look forward to views on plan and second input.

Interest from US defense is large and will allow a verification (with large % of success). This is much better than expending funds as was plan prior week. If success, the funds would allow a run at controlling operating systems and artificial intelligence. Both succeeded.

Summary:

- 1) Two people see options better than one. Tunnel vision can be prevented.
- 2) International can become very touchy with outside contacts.

- 3) Small companies are bullied or ignored until they become critical. This leaves a bad foundation for future activities.
- 4) Prices become distorted when a technology is deemed required. DOD could have gotten verification for less, but offered high to guarantee obtaining technology.
- 5) Odd partnerships form and playing field and rules change rapidly.

Laurie Rouillard

Initial game assignment was as a management consultant. I did not attend the first night of the game and had not developed a game plan as a consultant. By the end of the first night, 11 April, the management consultant was assassinated and reincarnated as the software engineer for Rootska.

Rootska is a software development company from the Ukraine. We were able to develop an operating system (O/S) with improved performance of 180%. Unfortunately, this claim had not been verified. This was the extent of information in the handbook. The information on this role was very sketchy and no money until the second night.

One of the first goals for the 18th was to verify our performance claims on the O/S. We would like to do this by using a Beta version of the Samson device and not give an exclusive license to any one company. Providing an exclusive license would eliminate our ability to market the O/S to all potential users.

The US DOD/DOE individuals approached us to provide the test equipment and laboratory to validate the performance claims. DOD wanted an exclusive license. During the ensuing negotiations we agreed to a 4 yr. exclusive license and DOD would provide \$400M (from Finance and Infomatics) plus 2% of sales (from Infomatics). We agreed to this because we assessed that without a means to verify the O/S we were dead. An exclusive license of our only product seemed to be approaching suicide. Offsetting the licensing and providing additional capital for R&D efforts was the \$400M. This resulted in a win/win situation for both sides.

Infomatics had trouble initially raising their \$200M, at which point DOD wanted us to agree to the validation testing. Rootska would agree only if there was no license limitations. This was to primarily protect our interests, the exclusive license was offset by the cash. DOD continued to press Infomatics.

As expected the Rootska O/S lived up to the performance claims. Our company was now richer beyond our wildest imaginations. This influx of capital allowed us to pursue development of an artificial intelligence (AI) inference engine. Using \$360M we successfully developed the AI package and we were still 400% better off financially.

Having successfully developed the AI package we wanted to market the software to as many applications as possible. We signed Viewall with no licensing restrictions and were pursuing Infotronics (the new merged company) when the session concluded on the 18th.

Actions taken during the game resulted in Rootska becoming a near monopoly on software and observing a 400% growth in operating capital.

The Rootska role was so undefined that it provided us a lot of leeway. The information provided basically directed us to one main option - validate software claims.

One of the techniques that helped us on the 2nd night was to schedule appointments with people that approached us. This provided us time to prepare and develop our strategy and plan of attack.

I did not feel the complexity of the game as expressed by others. This may have been because I missed the first night or that the Rootska role was so small and therefore I did not feel as much stress or complexity.

TECHNOLOGY FOR AMERICA: Technology Delivery System

PREGAME SCENARIO

None; entity was formed during game play.

GAME PLAY, AGREEMENTS AND ACTIONS

4/18/95 8:30 PM

Infomatics, US Senator, US Representative, US Lab, DOD/ARPA, US Finance

Formation of "Technology for America," a consortium between public and private sectors to strengthen US R&D in world competition. It will also provide jobs through US Labs. First priority will be photonics and display technology development. Infomatics will have access to this. Technology will be available to US companies only. US Senator invests \$100M, ARPA \$50M, US Finance \$50M, US Lab 1 credit.

4/18/95 9:00 PM

DOD, Technology for America

In addition to the \$50M given to TFA's first project, DOD will supply \$120M as an operating budget for future projects. DOD retains veto power on any deals in the interest of national defense.

4/18/95 9:00 PM

DOC, Technology for America

DOC invests \$50M in TFA.

4/18/95 9:00 PM

US Representative, Technology for America

US Congress allocates \$100M of taxpayer money to develop US technologies to improve our international competitiveness and reinstate US dominance.

4/18/95 9:05 PM

US Activist, Technology for America

US Activist transfers 1 credit to TFA in exchange for a seat on the board (for life) of TFA. They, in turn, will be dedicated to ensure that the technologies they promote will be environmentally safe. I reserve the right to veto any issue that I feel violates environmental policies. I also demand that TFA promote jobs within the US.

4/18/95 9:08 PM

US Media, Technology for America

US media will be on board of directors for TFA for life; media will always be represented in some form. TFA will allow liberal access of media to information, data and support. TFA will donate lots of money to business and journalism schools. US Media retains veto power over any issue or proposal. US Media will provide 1 credit. TFA will provide \$10M annually for purposes as directed by the US media representative.

4/18/95 9:10 PM

Infotronics, US Finance, Technology for America, US Lab

Joint funding of US Labs to develop a virtual reality glove for SAMSON (through a new toolkit option). Infotronics will have the patent for this leap-frog technology. TFA invests \$30M, Infotronics \$26M, US Finance \$5.6M. **SUCCESSFUL at 91%.**

4/18/95 9:18 PM

Technology for America, Infotronics, US Senator, US Representative, DOE

Joint funding for new technology toolkit option to develop 'Extremely high-resolution, 3-D, direct retinal and brainwave projection display becomes available at \$450 each.' TFA invests \$150M and 2 credits, Infotronics \$100M, US Senator \$50M. **SUCCESSFUL at 56%.**

4/18/95 9:20 PM

DOD, Technology for America

In the interest of national defense, the brainwave technology will be seized by the US Government and suppressed until further study can be completed.

4/18/95 9:25 PM

Technology for America, US Senator, US Representative, US Activist, US Media

We request access to the brainwave technology for private use because both public and private funding was used for the R&D. Rejection of this request could result in withdrawal of private sector support and confidence in TFA, and thus its downfall.

4/18/95 9:25 PM

US Representative, Technology for America

Transfer of 1 credit from US Representative to TFA.

4/18/95 9:28 PM

US Senator, Technology for America

US Senator appropriates \$50M to TFA in exchange for a seat on the board with veto power for any issue averse to California.

4/18/95 9:35 PM

Technology for America, US Finance

TFA invests \$50M in US technology firms at the request of US Finance.

4/20/95 E-mail

Control Team, Technology for America members

Control Team upholds DOD suppression of brainwave technology as classified information, and suggests further negotiation.

TECHNOLOGY FOR AMERICA JOURNAL EXCERPTS

Monica Rowell

Tuesday, 4/18/95 - I am on board of Tech for America with DOE, NM congress and US Labs - so we can get funding from them indirectly for 3-D displays. Just heard Viewall is not speaking to Horioka. Not sure whether to continue.

9:45 PM - People throwing \$\$ to TFA - win/win situation. Politicians avoiding connection directly with Infotronics by funding R&D through TFA. I retain influence for my company by controlling most of finances. All other board members are pretty distracted. Press not aware of politicians working around their connection to Infotronics. TFA will license findings to Infotronics in 5 year increments if necessary.

Re: Infomatics: roles Monica - display issue; Tom - environment; Dawn - software. All of us without discussion took on our own issue and met to discuss finances as needed. Good teamwork

Wednesday, 4/19/95 - Meeting with Japanese press regarding US govt. seizure of brainwave technology. Experiencing some role conflict. I met with press as Infotronics member but don't want to jeopardize the integrity of my position as TFA representative. Other board members are allowing me to lead, but I know they could remove me if I don't maintain legitimacy, meaning acting in their interests as well. My primary focus is in Infotronics, however. Infomatics merged with Mechatronics without my knowledge. I thought a buyout may have been better or just buying technology. I still don't know the implications of the merger, not sure if that was win/win, although I seem to have resolved the issue of robotics.

As Monica: Problem in accessing contractual agreements all around. There should be a master on campus.

No news on Glass-Steagall act repeal. Need to discuss with Dante. TFA has mucho funds - nowhere to spend it? Could fund Infotronics project but again must be careful. Maybe I could get other members of the board to sign funding contract so my name isn't all over the place. Potential scandal for the press, especially the US press. TFA is more powerful than I had anticipated. CA Senator was upset he wasn't on the board, so gave \$50M and signed petition to get technology back from DOD. Now entire Congress on our side to get it back. Not putting him on the board in the beginning was a good move (but didn't do it on purpose). He has veto power in his \$. Important: veto power is regarding how his \$ are spent only.

Thursday, 4/20/95 - Decided to write a press release to US and Japan regarding DOE's interference. Already met briefly with Dave. He intends to exploit the story. No doubt he will. Still waiting to hear from Kevin (e-mail)

Saturday, 4/22/95 - Never did speak to Horioka. Duality of emotions - in my role I felt very frustrated and wanted to walkout, especially when toolkit options failed at 83% (and higher) chance of success. I began to doubt the integrity of the game. However, I also know, as myself, that the game was designed to create these emotions. I found myself taking mini-'time-outs' of 1 or 2 minutes.

Frustration in getting people to listen, i.e. other Infotronics (Infomatics) members. They were involved in their own projects, but didn't realize that if Horioka got ahead of us, their projects would be defunct. So, I acted on my own with as little spending as possible. I feel that our group members found his/her projects. We were all pretty cooperative and checked with each other i.e.: funding.

I thought the DOE seizing brainwave technology was predictable and realistic, but didn't think the contract allowed for it. (But when does US govt. respect contracts? It does what it wants anyway, no?) Good that Viewall and Horioka not getting along. How long will it last?

Sunday, 4/23/95 - Nobody said "Hey!, What is Infotronics member doing heading TFA!?" I expected it and was ready to step down and act through others. Never happened, happily. That whistle before news reports was very annoying. How about a little bell? or a big bell even? US labs might get jobs.

As Infomatics and TFA member: I tried the 'ganging up' approach to try to get the DOE to release technology. I realize that this won't work. It is better business to work with the government as if it were a customer and try to contract the brainwave project through the DOE instead. We can also market any technology that the DOE will allow to the public and still remain a leader technology and in the world economy. This meets the goals of TFA and is the most I can do as an Infomatics team member. Eventually, I think Horioka will create its own technology and US govt. will release it in the future as it will be available to anyone once Horioka markets it. I'm just not sure if the Japanese government will respond similarly and withhold technology in the interest of national security. That would be interesting to discover.

I agree that it is unlikely that Congress members would sign a contract against the DOE. I hadn't thought of that in class. Everyone seemed pretty mad that the DOE did it and they wanted to act immediately in the interest of time to see that the technology was released.

I was going to orchestrate a press release to further pressure the DOE to release it, but I have decided to withdraw. I wonder if the press will report on it or discover it on its own. I also wonder if we have accomplished all our original objectives as Infomatics and if our objectives have changed after our merger with Mechatronics.

Tuesday, 4/25/95 - Work with government to get exclusive contract on researching strategic implications. US labs working for Japanese could blow it (high risk). Contracts are only way to monitor what is happening - need to have more information flow. I feel I was underutilized by rest of Infotronics. As TFA de facto leader I have \$ and influence.

APPENDIX G - GLOSSARY

AI	Artificial Intelligence (for computer programming)
ARPA	Advanced Research Project Agency
CIT (CCIT)	Civilian Industrial Technology Committee, Mary Good, DOC, chair; Martha Krebs, DOE, co-chair. Subcommittees: Automotive Technologies (Mary Good chair), Electronics (Lance Glasser, ARPA), Construction and Building (Richard Wright, NIST, and Arthur Rosenfeld, DOE), Materials Technology (Lyle Schwartz, NIST), Manufacturing Infrastructure (Joseph Bordogna, NSF)
DRAM	Dynamic Random Access Memory
ESC	Electronics Subcommittee, Dr. Lance Glasser, ARPA
GATT	General Agreement on Tariffs and Trade
GUI	Graphical User Interfaces
Infotronics	Company formed by the merger of Infomatics and Mechatronics
IPB	Industrial Policy Bureau within MITI
ITPB	International Trade Policy Bureau within MITI
keiretsu	Japanese business philosophy developed after World War II and based on the concept of family relationships; the keiretsu system is an interlocking network of business contacts generally closed to outsiders.
MF	Ministry of Finance (Japan)
MFA	Ministry of Foreign Affairs (Japan)
MIIB	Machinery and Information Industries Bureau within MITI
MITI	Japanese Ministry of International Trade and Industry.
MPT	Ministry of Posts and Telecommunications (Japan)
NAFTA	North American Free Trade Agreement
NEMI	National Electronics Manufacturing Initiative
NII	National Information Infrastructure
NSF	National Science Foundation
NSTC	National Science and Technology Council (replaces FCCSET); newly formed presidential council headed by President Clinton.
OEM	Original Equipment Manufacturer; computer assemblers, etc.
OS	Operating System (for computers)
OSPC	PC Operating System (Developed by Infomatics)
PCMCIA	Personal Computer Memory Chip International Association
R&D	Research and development
RF	Radio Frequency
Technology roadmap	A strategic plan that collaboratively identifies product and process performance targets and obstacles, technology alternatives and milestones, and a common technology path for R&D activities.
SEMATECH	Joint industry/government consortium formed in 1987
supercapacitors	Capacitors with very high energy densities, capable of being recharged in a short time (minutes); a possible high technology alternative to batteries.
TFA	Technology for America; technology delivery system formed during the game by US players
Toolkit	A set of technology and policy options that can be invested in to alter the future of the game.

DISTRIBUTION

1 Professor Jeanne Logsdon
Anderson Schools of Management
University of New Mexico
Albuquerque, NM 87131-1221

1	MS0101	C. P. Robinson, 1
1	MS0101	J. C. Crawford, 2
1	MS0149	D. L. Hartley, 4000
1	MS0103	V. Dugan, 4500
1	MS1378	S. Narath, 4501
1	MS0653	C. A. Seyfer, 3525
1	MS1351	R. R. Fairbanks, 3610
1	MS1351	K. Edmonds, 3610
1	MS1351	B. V. Williams, 3614
1	MS1380	W. D. Siemens, 4200
1	MS1380	J. Zaorski, 4201
1	MS1380	K. Murphy, 4211
1	MS1380	M. A. Monson, 4212
1	MS1380	V. Chavez, 4213
1	MS1380	O. D. Thompson, 4221
1	MS1380	D. Larson, 4231
1	MS1380	G. Jones, 4232
30	MS1151	M. Berman, 4271
150	MS1151	K. W. Boyack, 4271
1	MS9018	Central Technical Files, 8523-2
5	MS0899	Technical Library, 4414
1	MS0619	Print Media, 12615
2	MS0100	Document Processing, 7613-2 for DOE/OSTI