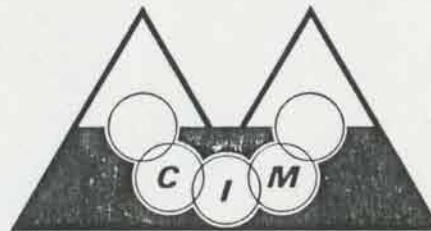


THE CENTER FOR INTERACTIVE MANAGEMENT (CIM)



DECEMBER 1983

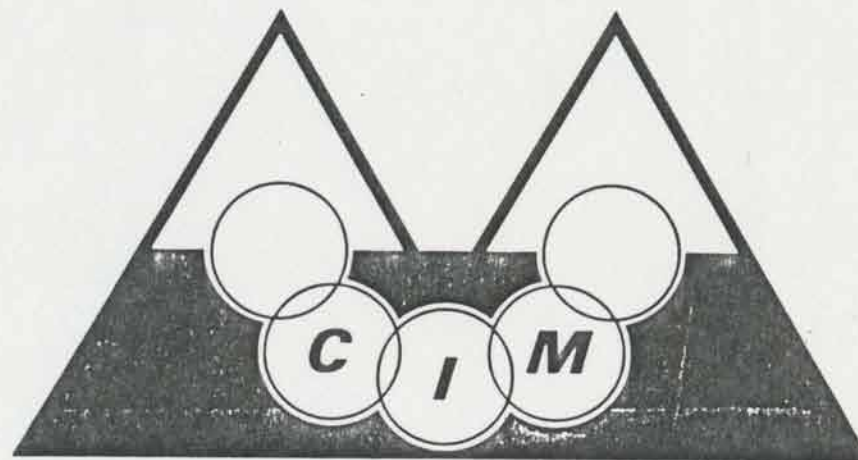
OUTLINE OF CIM PRESENTATION

- I. THE PURPOSE OF CIM
- II. RATIONALE AND PRINCIPLES OF INTERACTIVE MANAGEMENT
- III. EXPERIENCE BASE OF CIM
- IV. POTENTIAL MARKET

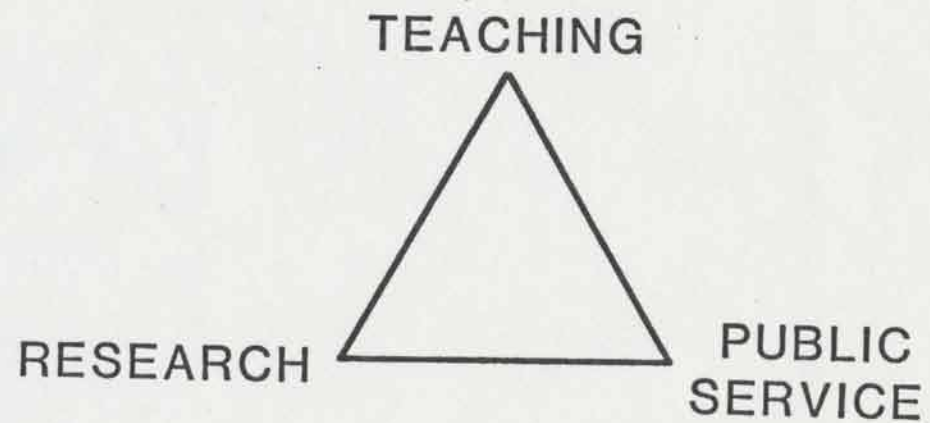
I. THE PURPOSE OF CIM

PURPOSE OF CIM

LINK
UNIVERSITY FUNCTIONS
WITH
MANAGEMENT FUNCTIONS



UNIVERSITY FUNCTIONS



MANAGEMENT FUNCTIONS

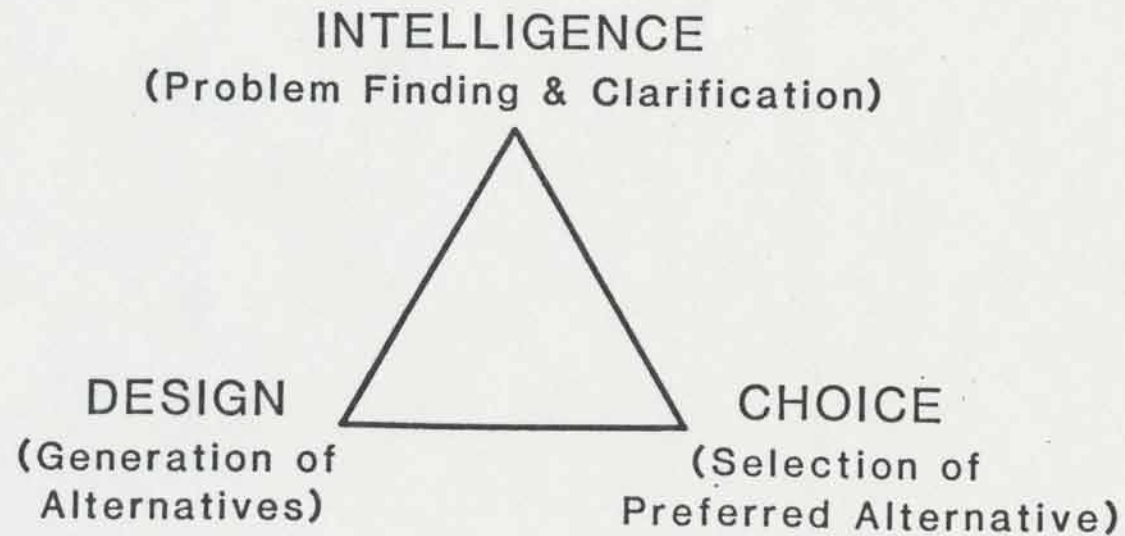
ACCORDING TO HERBERT SIMON, THE MAJOR FUNCTIONS OF MANAGEMENT ARE:

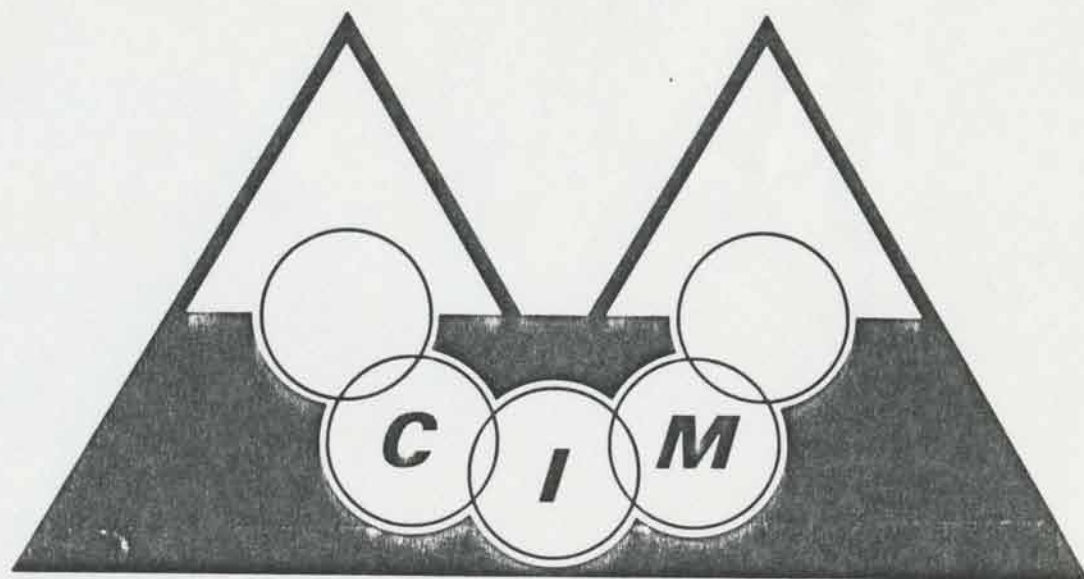
INTELLIGENCE Problem-finding or problem defining

DESIGN Conceptualization of alternatives

CHOICE Selection of preferred alternative

MANAGEMENT FUNCTIONS





MISSION OF CIM

To introduce in society innovative methods for enhancing significantly the productivity of groups in their performance of work that has a high intellectual and a mixed quantitative-qualitative content.

ACADEMIC GOALS OF CIM

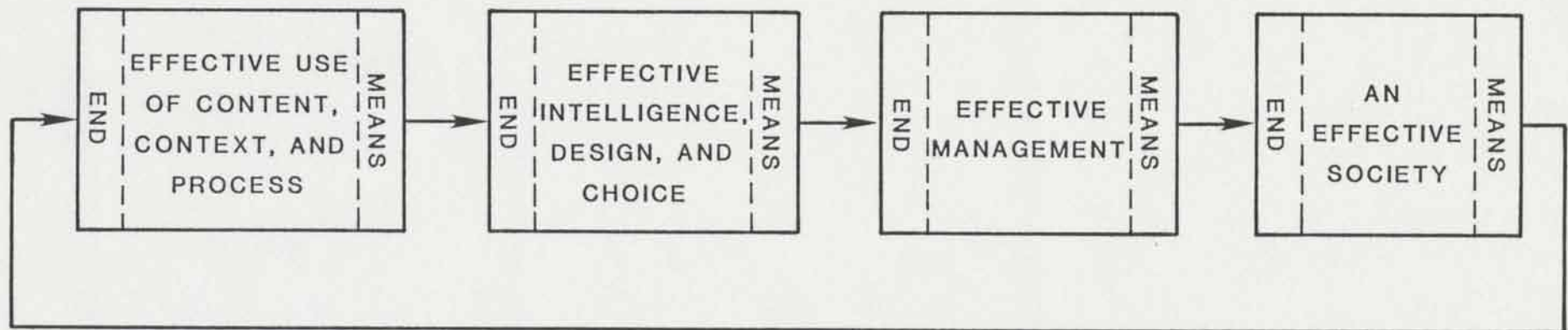
- To be the world's foremost source of expertise on the design and the process of integrating and articulating organized knowledge
- To clarify the important roles in effective group process and to train people to fill those roles
- To apply and assist others in applying the group process to the improvement of organization of the academic disciplines and the conduct of interdisciplinary research
- To transfer the interactive management approach to public and private sector organizations that have a genuine and legitimate interest in improving their productivity

FINANCIAL GOALS OF CIM

- To generate enough financial support to become self-sufficient within two years
- To provide financial assistance to faculty and students interested in the interactive management approach
- To help the university in the design and preparation of interdisciplinary proposals for government and industrial sponsors
- To build university/industry research partnerships on a variety of innovative technology projects

II. RATIONALE AND PRINCIPLES OF INTERACTIVE MANAGEMENT

RATIONALE OF INTERACTIVE MANAGEMENT



A CYBERNETIC MODEL OF SOCIAL DEVELOPMENT THROUGH MANAGEMENT

MANAGEMENT'S FUNCTIONS

Interactive management is the first system of management decision making to be designed around the three principal functions of managers

<u>INTELLIGENCE</u>	THE FINDING OR DEFINING OF PROBLEMS
<u>DESIGN</u> *	THE GENERATION OR CONCEPTUALIZATION OF NEW OR IMPROVED ALTERNATIVE SOLUTIONS
<u>CHOICE</u>	THE SELECTION OF THE PREFERRED SOLUTION

* By including design, interactive management is distinguished from narrower "management science" concepts which deal only with final choice.

TWO LAWS OF DESIGN

1) THE LAW OF REQUISITE VARIETY:

The variety of a design aimed at effective system performance must be as great as the variety of the problem to be resolved.

(Ashby, Cybernetica, 1958)

2) THE LAW OF SHIFTING LIMITS:

In any human endeavor something is always acting to limit effectiveness. A guide to the use of resources is to find that limit that is presently strongest and remove it as a limit.

(Ashby, Nature, 1945)

SOME PRINCIPLES OF INTERACTIVE MANAGEMENT

(Warfield, Proceedings of Conference on Cybernetics
and Society, forthcoming, 1984)

PRINCIPLE 1: THE MANAGERIAL ROLE

The more interdependent the components of a society become, the more critical is the managerial role in the society.

PRINCIPLE 2: THE EVOLUTIONARY REQUIREMENT

As a society evolves from a collection of relatively independent parts to a collection of progressively more interdependent parts, management thinking and practice must evolve apace to meet the ever-changing situation, if the society is to become or to remain effective.

PRINCIPLE 4: THE QUALITATIVE-QUANTITATIVE MIX

Many complex situations require that a mix of qualitative factors be dealt with in the same analysis or synthesis framework, in order for solutions or resolutions to evolve.

PRINCIPLE 5: SOCIAL SYSTEM DESIGN

A social system is a collection of interacting roles. In an effective society there is a match between actors and their roles for improving the effectiveness of the society. This match is a function of design and should be included in academic curricula.

PRINCIPLE 6: RESPONSIBILITY OF ACADEMIC INSTITUTIONS

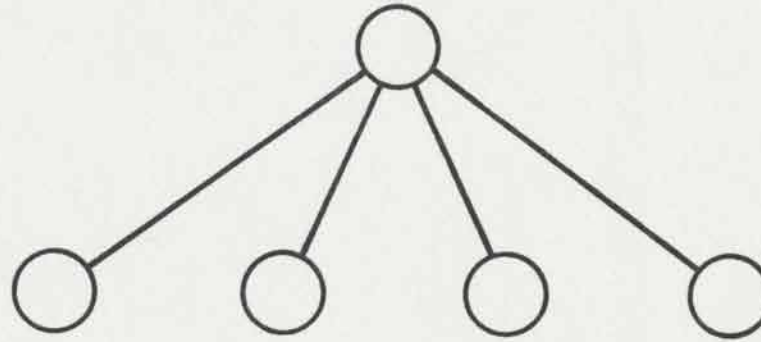
Academic institutions must anticipate evolutionary needs of managers, and install practices that offer managers the opportunity to acquire the needed skills and to practice the roles that are required.

PRINCIPLE 13: THE ARENA FOR INTERACTIVE MANAGEMENT

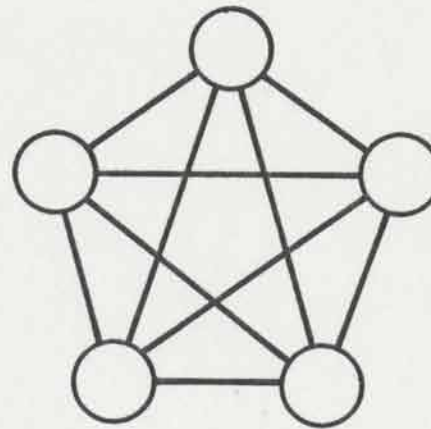
The primary arena for carrying out interactive management is the meeting. It is the site where the essential communication must take place.

TWO TYPES OF MEETINGS

HIERARCHICAL:



PARTICIPATIVE:

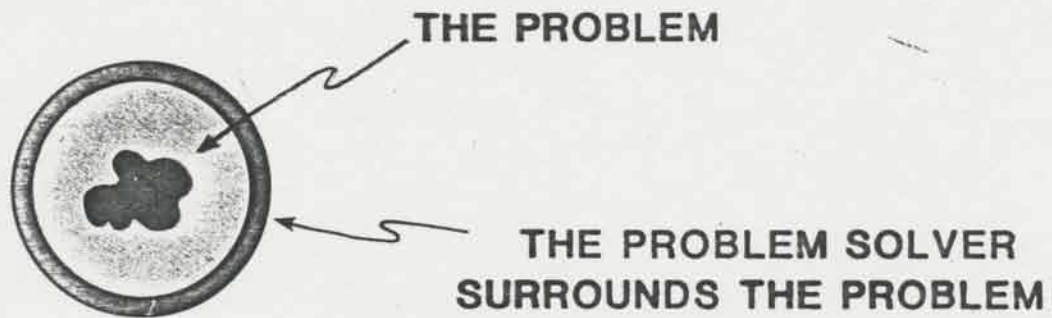


III. EXPERIENCE BASE OF CIM

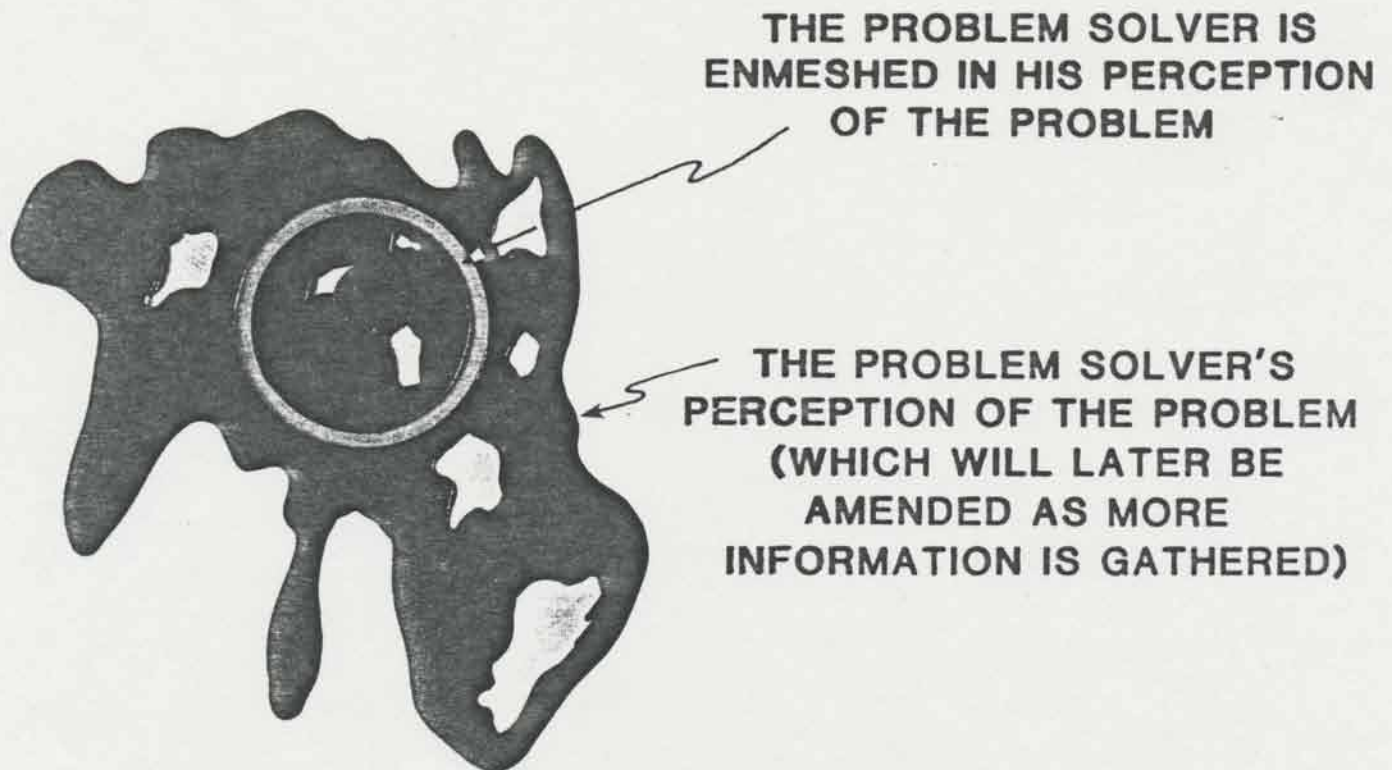
**CIM Started Operating at the
University of Virginia April 1982.**

**The Practice of Interactive Management Involves
the Careful Design and Conduct of Meetings
for the Resolution of Complex Problems.**

ILLUSTRATING TWO PROBLEM SITUATIONS



(a) The problem is in the grasp of the problem solver.



(b) The problem solver is in the grasp of a certain perception of the problem.

CLASSIFICATION OF PROBLEMS

HORIZONTAL
(by discipline)

VERTICAL
(by discipline)

HORIZONTAL
(by organization)

VERTICAL
(by organization)

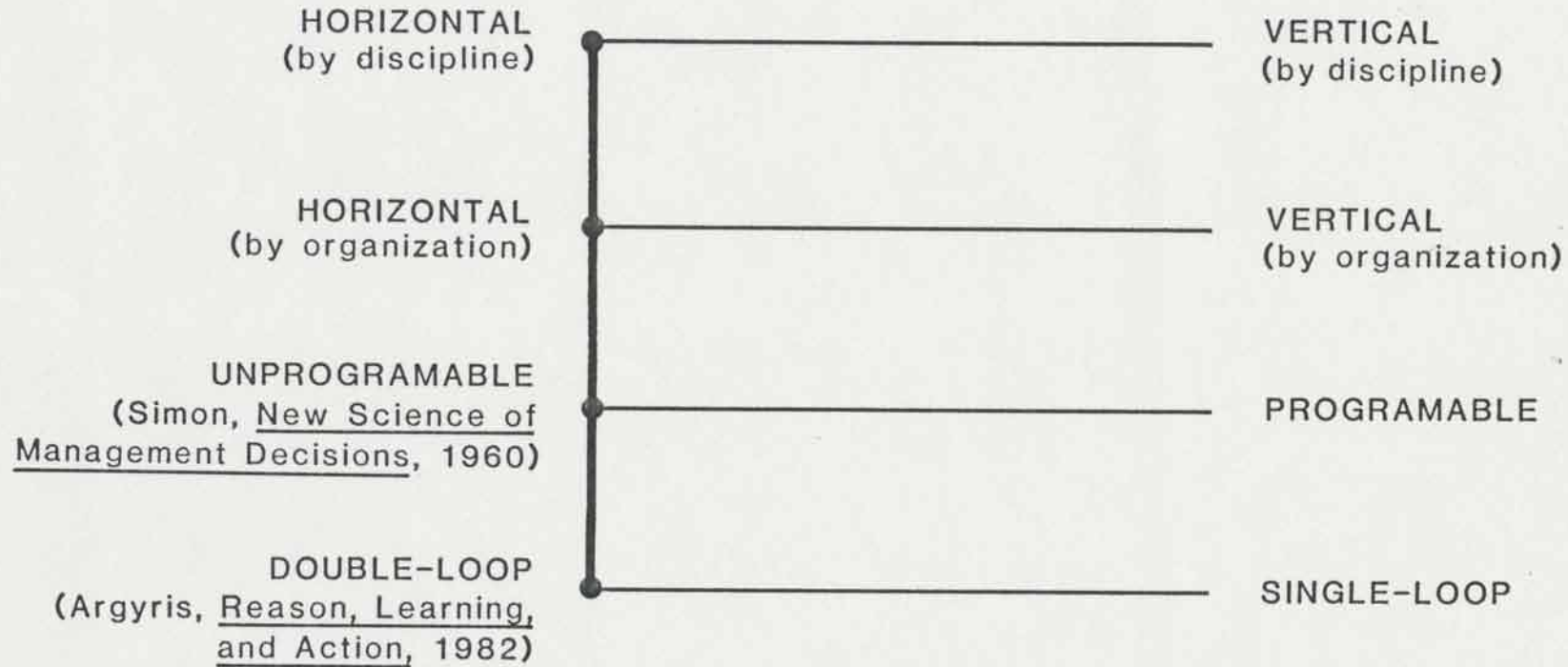
UNPROGRAMMABLE
(Simon, New Science of
Management Decisions, 1960)

PROGRAMMABLE

DOUBLE-LOOP
(Argyris, Reason, Learning,
and Action, 1982)

SINGLE-LOOP

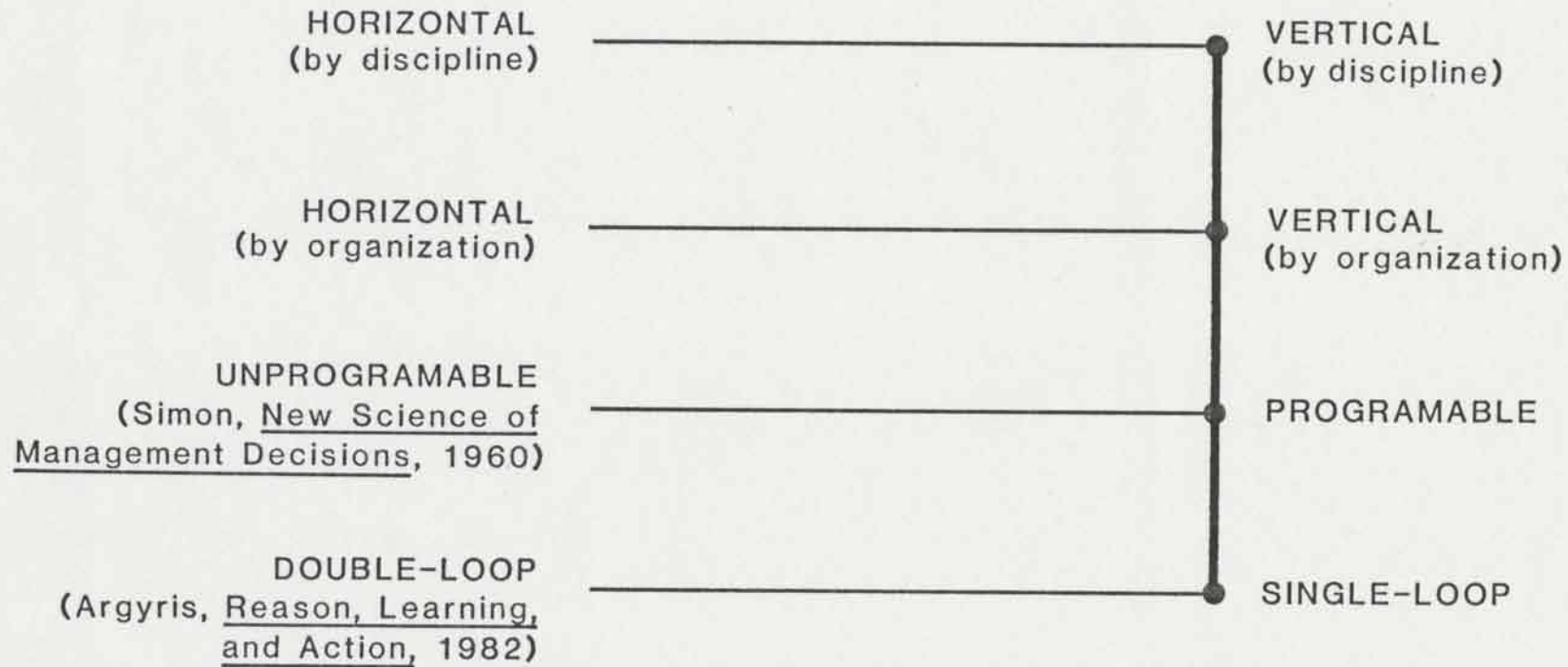
COMPLEX PROBLEM PROFILE



EXAMPLES

- University/Industry Partnerships
- Impact of Automation on Organizations
- Boundary Spanning among Organizations
- Organizational Design or Redesign

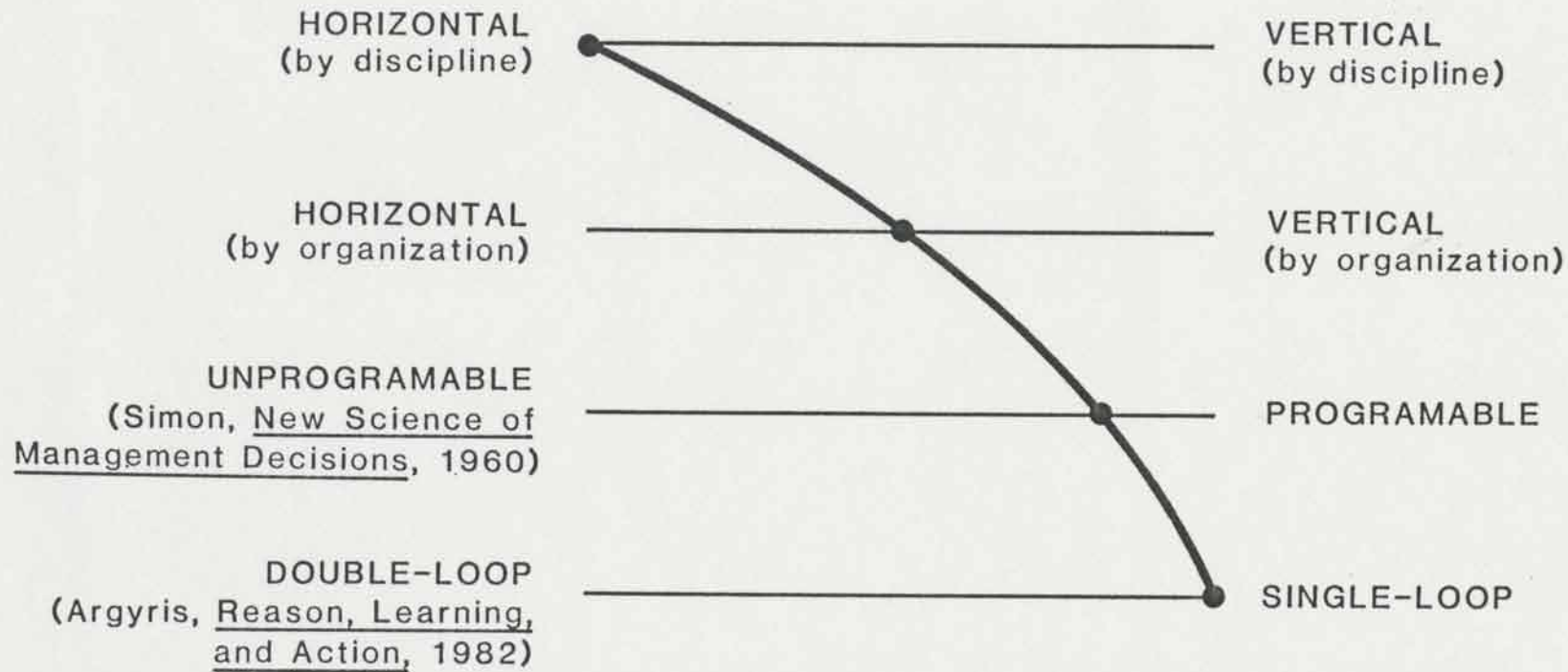
NORMAL PROBLEM PROFILE



EXAMPLES

- Computer Network Design
- Capital Budgeting
- Materials Requirement Planning
(Linear or Non-linear programming)

MIXED PROFILE



EXAMPLES

- CAD/CAM Development
- Inventory Control
- Econometric Modeling
- Knowledge-Based Systems

**Interactive Management is Most Useful
for the Resolution of Complex or
Mixed Profile Problems**

COMPLEX PROBLEMS ADDRESSED BY CIM WITH CLIENTS

A. MANAGEMENT OF NATURAL RESOURCES

United States Forest Service, U.S.D.A.
Virginia Division of Forestry, Va. Dept. of Economic
Development and Conservation

B. STRATEGIC PLANNING

Naval Surface Weapons Center, DOD
National Computer Graphics Association
Southwest Fisheries Center, NOAA
Saudi Arabia Center for Science and Technology

C. INTERORGANIZATIONAL PARTNERSHIP FORMATION

Southwest Fisheries Center, NOAA
COMSAT

D. ASSESSMENT OF TECHNOLOGIES

Naval Surface Weapons Center, DOD

DESIGN OF MEETINGS

THE DESIGN AND CONDUCT OF EFFICIENT AND PRODUCTIVE MEETINGS REQUIRES ATTENTION TO:

CONTEXT – THE CHOOSING OF A TOPIC.

CONTENT – THE IDEAS OF PARTICIPANTS

PROCESS – THE USE OF SELECTED METHODOLOGIES WHICH FACILITATE GENERATING CONTENT WITHIN A CONTEXT.

COMPONENTS OF MEETINGS

INTERACTIVE MANAGEMENT MEETINGS ARE DESIGNED TO MAXIMIZE THE INTEGRATIVE BENEFITS OF THE FIVE TYPES OF MEETING COMPONENTS:

1. Informed Participants
2. A Highly-Trained Facilitator
3. The Computer and Peripherals
4. A Specially-Designed Situation Room
5. A Set of Consensus Methodologies.

CLASSIFICATION OF MEETINGS

WE USE THE LETTER SIGMA (Σ) TO REPRESENT INTEGRATION OF KNOWLEDGE OCCURING AT THE MEETING.

$\Sigma 1$: PARTICIPANT GROUP

$\Sigma 2$: PARTICIPANT GROUP AND FACILITATOR

$\Sigma 3$: THREE INGREDIENTS

$\Sigma 4$: FOUR INGREDIENTS

$\Sigma 5$: ALL INGREDIENTS

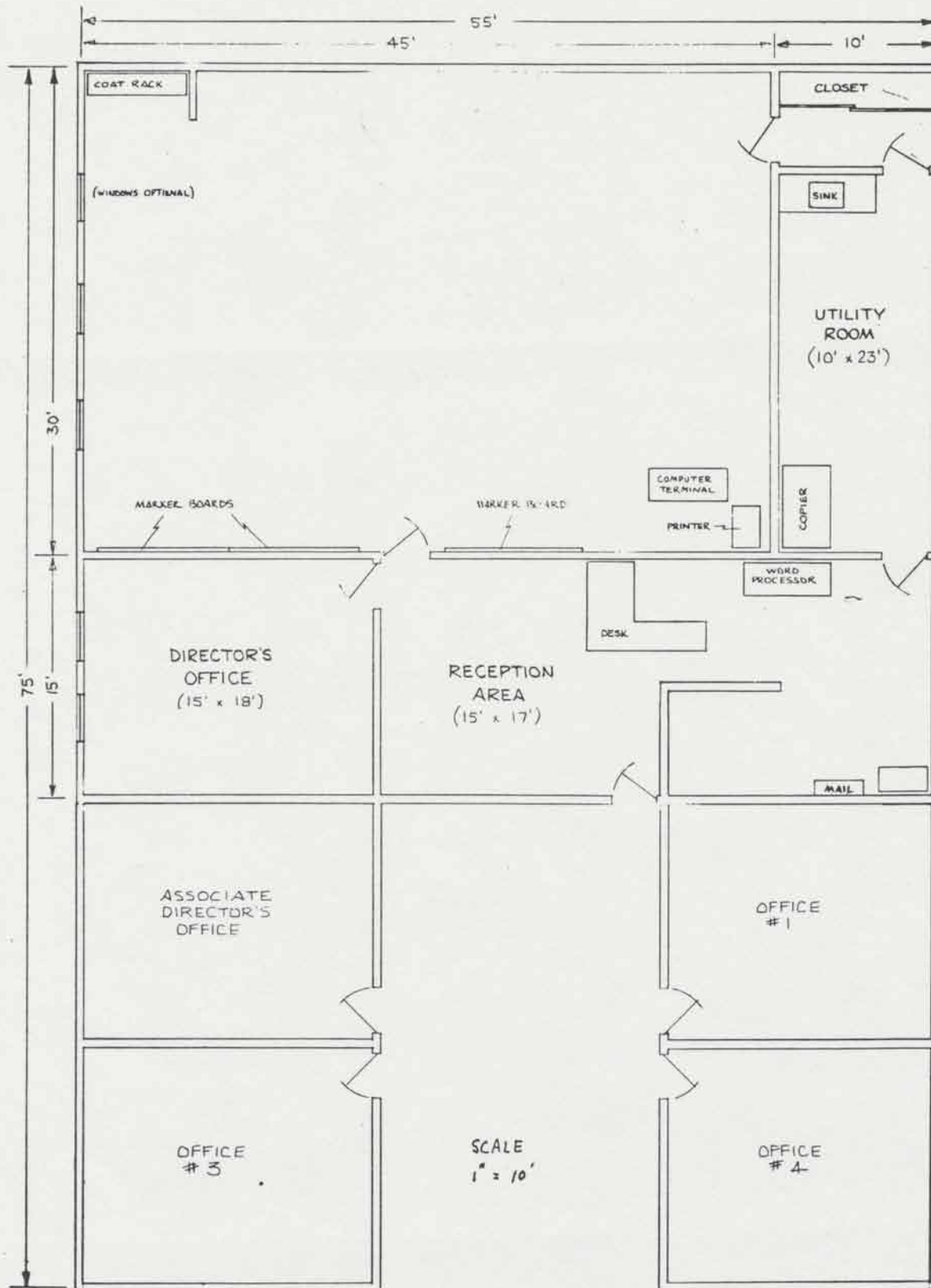
THE MISSION OF CIM REVISITED

TO INTRODUCE IN ORGANIZATIONS THE CAPABILITY
OF DESIGNING AND CONDUCTING $\Sigma 5$ MEETINGS
FOCUSED ON RESOLVING COMPLEX PROBLEMS.

ESSENTIAL COMPONENTS OF CIM

- SITUATION ROOM
- FACILITATORS WITH TECHNICAL AND BEHAVIORAL SKILLS
- CONSENSUS METHODOLOGIES (INCLUDING SOFTWARE)
- INTERACTIVE MANAGEMENT SPECTRUM
- COMPUTER AND PERIPHERALS

SITUATION ROOM FLOOR PLAN



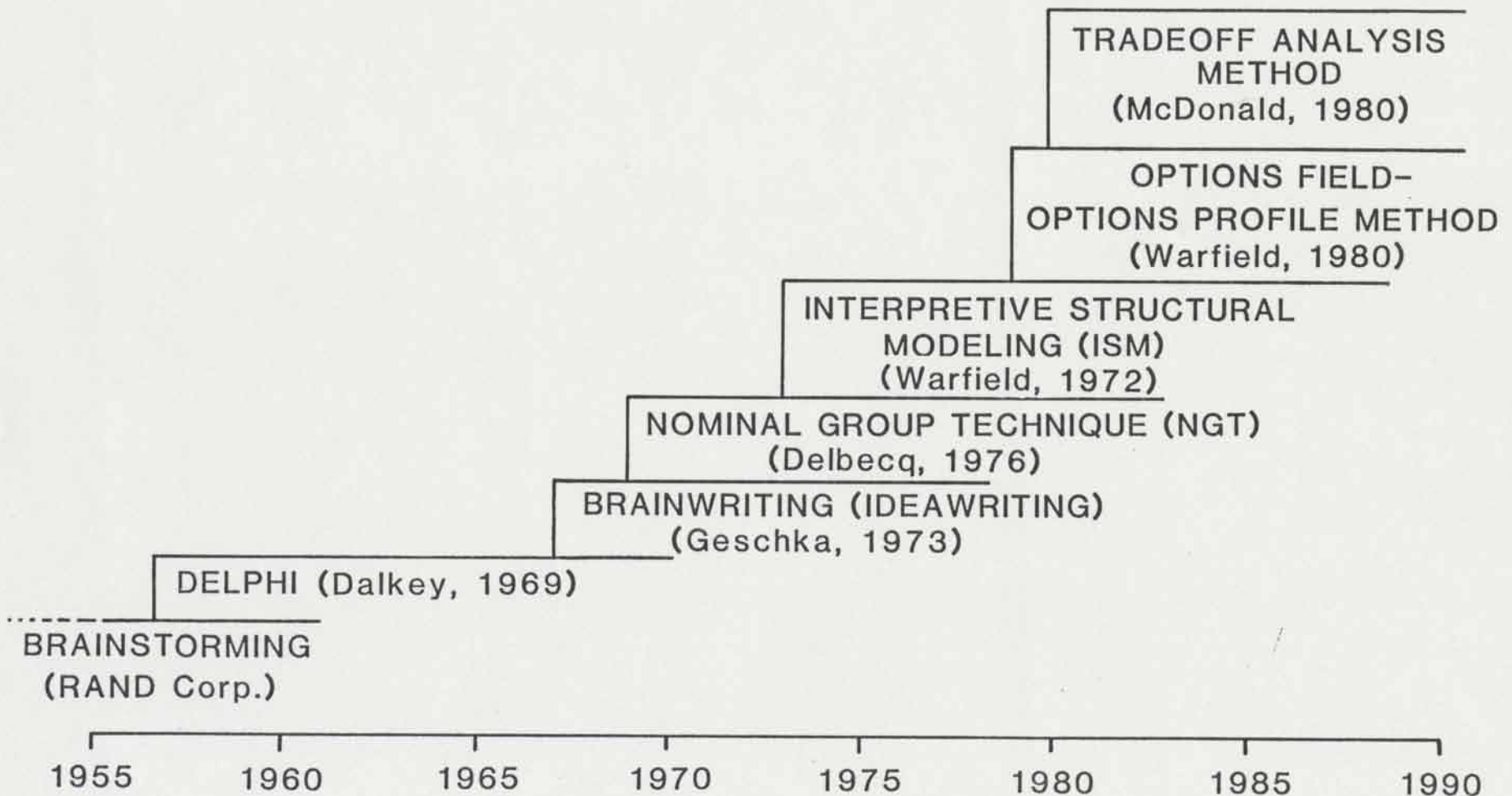
THE ROLE OF THE FACILITATOR

- All participants have an opportunity to give input (exercised or not)
- All participants indicate that they feel they have had opportunity to give input
- Participants' ideas have been acknowledged by the group
- Participants indicate that they feel they have been "heard", i.e., that their views are understood
- Participants indicate that they can "live with" the process outcome

CONSENSUS METHODOLOGIES

1. IDEA WRITING
2. NOMINAL GROUP TECHNIQUE
3. I.S.M.
4. DELPHI
5. OPTIONS FIELD
6. OPTIONS PROFILE
7. TRADEOFF

EVOLUTION OF CONSENSUS METHODOLOGIES



INTERACTIVE MANAGEMENT SPECTRUM

Progress →

MANAGEMENT FUNCTIONS CONSENSUS METHODOLOGIES	INTELLIGENCE	DESIGN	CHOICE
1) Ideawriting	●	●	
2) Nominal Group Technique	●	●	
3) Interpretive Structural Modeling	●	●	●
4) Delphi	●	●	●
5) Options Field		●	
6) Options Profile			●
7) Tradeoff Analysis			●

RELEVANT CIM PUBLICATIONS

1. Warfield, J. N., "Consensus Methodologies", Report for the Saudi Arabian Center for Science and Technology, September, 1982.
2. Christakis, A. N., "Pathways to Peace", Futures, Vol. 14, No. 6, December 1982.
3. Christakis, A. N., "Planning, Design, and Implementation: The Sigma-Five Strategy," presented at the New Towns Conference, Cairo, Egypt, April, 1983.
4. Warfield, J. N., "Organizations and Systems Learning", Presidential address delivered at the 27th annual meeting of the society for General Systems Research, Detroit, Michigan, May 1983.
5. Wood, W. C., and Christakis, A. N., "A Methodology for conducting Futures-Oriented Workshops", to appear in Technological Forecasting and Social Change.
6. Warfield, J. N., "Principles of Interactive Management", to appear in the proceedings of the international conference on Cybernetics and Society, Bombay and New Delhi, India, January, 1984.
7. Keever, D. B., and Christakis, A. N., "Design for Improving University Industry Cooperative Research Partnerships". Submitted for publication to Futures, October 1983.

CIM'S EXPERIENCE WITH SPECIFIC CLIENTS

A) MANAGEMENT OF NATURAL RESOURCES

- 1). Virginia Division of Forestry
Charlottesville, Virginia

COMPLEX PROBLEM:

Obtain cooperation of private forest land owners

RESULTS/OUTCOMES:

- Designed and conducted public involvement meetings throughout the state
- Trained in-house facilitators
- Installed a "situation room"
- Enhanced communication and creativity
- Enhanced integration of action-oriented plans and programs

Project Budget-\$100,000

2). Southwest Fisheries Center
La Jolla, California

COMPLEX PROBLEM: Building constituent support for fishery programs, plans, and projects

RESULTS/OUTCOME:

- Defined mission of the organization
- Designed and conducted meetings with constituents
- Implemented strategic planning for albacore fishery (\$800,000)
- Trained facilitators
- Installed "situation room"

Project Budget- \$40,000

3). United States Forest Service
Atlanta, Georgia

COMPLEX PROBLEM: Evaluation of alternative management plans for national forests

RESULTS/OUTCOME:

- Designed a management support system (MSS)
- Improved the productivity of planning meetings by 80 percent
- Trained facilitators
- Installed "situation room"

Project budget- \$50,000

B) STRATEGIC PLANNING

- 1). Naval Surface Weapons Center, Dahlgren, Virginia
(A Navy think tank for surface-ship weapons systems)

COMPLEX PROBLEM: Dissonance experienced by scientists, engineers, and managers created by

- Need for competitive posture as a corporation
- Transformation from manufacturing to RDT&E for the Navy
- Preserve comradery
- Hierarchical to participate style of management

RESULTS/OUTCOMES:

- Within a specific SBU, identified and prioritized market for RDT&E services
- Matched product lines of SBU with targeted market
- Integrated product lines for two SBU's

2). National Computer Graphics Association
Fairfax, Virginia

COMPLEX PROBLEM: To superimpose long-range planning on
operational planning to recapture financial solvency

RESULTS/OUTCOMES:

- Board of Directors discovered mission
- Developed goals and objectives to support mission
- Coupled goals to operational plans and programs

Current Project / Budget – \$30,000

IV. POTENTIAL MARKET FOR CIM SERVICES

- MANAGERS PARTICIPATE IN TOO MANY MEETINGS

- A COMPANY EXECUTIVE RECENTLY STATED:

"It seems as though I have been in an ongoing meeting for the last five years of my professional life."

- A RECENT STUDY BY EXXON AND XEROX CORPORATIONS (1982) DETERMINED THAT 17.5 MILLION MEETINGS TAKE PLACE PER DAY IN THE UNITED STATES
- THAT TOTALS FOUR BILLION PER YEAR

EVIDENCE FOR TAPPING THE MARKET

- Response to short course on "Interactive Management of Natural Resources"
- Response to non-industrial private forest landowners meeting in St. Louis (Convener: Assistant Secretary of Agriculture)
- Response of CIM clients to date already, four clients have opted to install the Interactive Management approach including the use of a "situation room"
- Competitive advantage

COMPETITIVE ADVANTAGE OF INTERACTIVE MANAGEMENT

- Promotes learning
- Improves chances of successful implementation
- Develops anticipatory, rather than reactive, plans
- Uses in-house knowledge of subject rather than using consultants
- Makes efficient and productive use of managers' time
- Adapts to any management style