MISSION, GOALS,

AND

SOME PERFORMANCE MEASURES

FOR THE

CENTER FOR INTERACTIVE MANAGEMENT (CIM)

SECOND DRAFT FOR DISCUSSION

John N. Warfield

September 7, 1982

THE CENTER FOR INTERACTIVE MANAGEMENT

MISSION

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

GOALS.

1. To be the world's foremost source of expertise on the design and conduct of meetings aimed at integration, synthesis, and articulation of organized knowledge; especially as it relates to interactive management, planning, and top-down design.

2. To contribute significantly to the development and refinement of group process designs that incorporate balanced consideration of behavioral and technological knowledge.

3. To transfer the technologies of productive group processes to public and private sector organizations that have a genuine and legitimate interest in improving their productivity.

4. To make a special contribution to interactive management and planning at the University of Virginia, in order to enhance the effectiveness of institutional management.

5. To clarify the important roles in effective group process, and to train people to fill those roles.

6. To apply and assist others in applying the group process to the improvement of organization of the academic disciplines, so that the capacity of scholars in a discipline to comprehend the structure and organization of their discipline and convey it to others will be significantly enhanced.

September 2, 1982

MEASURES OF PERFORMANCE

GOAL 1

To be the world's foremost source of expertise on the design and conduct of meetings aimed at integration, synthesis, and articulation of organized knowledge; especially as it relates to interactive management, planning, and top-down design.

1. Selection by the Saudi-Arabian government to be the source of expertise on planning methodology. In the light of their vast wealth and access to international bodies, the Saudis are in a position to get the services of the best people. The Saudi Arabian National Center for Science and Technology has been using CIM personnel as the source of their planning methodology expertise intermittently for the past two years.

2. Introduction of Methodology coming from CIM into the Planning System of the International Business Machines Corporation. In the light of its worldwide presence, and its great emphasis upon corporate-wide planning, as evidenced by the existence of a Planning Systems group at IBM Headquarters in Armonk, New York, as well as its reliance upon its planning system for its primary management tool, IBM is in a position to incorporate the best existing methodology in its corporate planning activity. IBM has been working with methodology furnished by CIM personnel in its Planning Systems group for the past two years. In addition, IBM has been emphasizing this methodology in its Science Center in Brazil, where a major software effort has been in progress to improve the software associated with the methodology. IBM has sponsored activity with the Futures Research Group in the School of Administration at the University of São Paulo, where the methodology and the software is being applied to problems of national importance to Brazil.

3. Acquisition of the ISM Software and Initiation of a Study Program by the Gesellschaft für Mathematik und Datenverarbeitung mbH Bonn, West Germany, and by the University of Cologne.

Dr. Norbert Szyperski, who directs the Planning Seminar at the University of Cologne, West Germany, is also the Director of the Gesellschaft für Mathematik und Datenverarbeitung mbH Bonn. The latter is West Germany's federal research institute for computers and data processing. Thus Dr. Szyperski can be seen as West Germany's primary expert in computer technology and planning. Having learned of the methodology being used by CIM from the IBM Research Laboratories in San Jose, while on a visit there, Dr. Szyperski is now introducing these methods in his doctoral program at the University of Cologne, and also into the work at the Gesellschaft.

4. Election of Dr. John Warfield as the President of the Society for General Systems Research. This Society traditionally has had presidents who are among the national leaders in systems thinking, such as Anatol Rappaport, Kenneth Boulding, James Miller, and others. Dr. Warfield was elected president for 1982-83 based on his reputation for leadership in research on methodology that is sufficiently broad to qualify for widespread application that goes across established disciplines.

5. Selection of Dr. John Warfield as the first Editor-in-Chief of the new journal of the International Federation for Systems Research, to be called Systems Research and to be published by Pergamon Press.

The new Federation represents the U. S., Holland, and Austria, in general systems research. With both Europe and the U. S. to draw on for editor, the Federation selected Dr. Warfield.

6. Requests to Spend Sabbatical Time at the Center.

The Center has honored requests to spend sabbatical time here. One visitor in 1982-83 will be Professor Carl Moore of Kent State University. Another will be Senior Lecturer F. R. Janes of the City University of London, whose Department Chairman, Prof. P. K. M'Pherson, is internationally known in the systems field, and is certainly one of the best if not the best systems scholar in Great Britain.

7. Introduction of Methodology coming from CIM into the Planning System of the Southwest Fisheries Center, La Jolla, California.

As a result of an exposure to CIM methodologies at a Seminar organized by the U.S.D.A. Graduate School, the Planning Officer of the SWFC recommended the use and installation of CIM methodologies at his Center. They are currently using CIM methodologies to conduct internal management and staff meetings and intend to use them later for designing and conducting meetings with constituents.

8. Invitation of Dr. Alexander Christakis to participate in a Seminar, organized by the Ukrainian Academy of Sciences, on Efficiency of Research Units.

The Ukrainian Academy of Sciences, under sponsorship from UNESCO, is organizing a Seminar in Kiev, Russia, on the subject of Efficiency of Research Units. The organizer of the seminar is Professor G. Dobrov, Deputy Director of the Kiev Cybernetics Institute. Dr. Christakis was asked to participate in the seminar with partial support provided by the organizers.

MEASURES OF PERFORMANCE

GOAL 2

To contribute significantly to the development and refinement of group process designs that incorporate balanced consideration of behavioral and technological knowledge.

1. Discovery and Refinement of Interpretive Structural Modeling (ISM).

   The process called ISM has been designed with a documented behavioral and technological perspective. Continued refinement of this process has been stimulated by CIM personnel, and has been built upon later by others such as Drs. Sugiyama, Tagawa and Toda of the International Institute for Advanced Study of Social Information Science operated by Fujitsu Limited, who have contributed research that will allow automatic computer organization and printout of structured knowledge based on prior research by Dr. Warfield of CIM. (See IEEE Trans. Syst., Man, and Cybern., July, 1977 and February, 1981).

2. Development and Testing of the Options Field/Options Profile Design Concept. CIM staff have developed and are now testing, along with others, a pair of closely related methodologies called the Options Field Method (OFM) and the Options Profile Method (OPM) for top-down system design.

3. Development and Elaboration of the Concept of Consensus Methodologies in Relation to Interactive Management. CIM has developed the concept of "Consensus Methodologies". These methodologies form a synergistic set, the members of which can be used singly or in various combinations to blanket the set of management functions identified by the Nobel Laureate Herbert Simon as making up the major functions of management. By employing the methodologies in the manner outlined by CIM, all of the qualitative and some of the quantitative functions involved in management and planning can be efficiently carried out in a systematic and articulate way.

4. Invention of the DEMOSOPHIA "Situation Room" Design.

CIM staff have originated the concept of the special type of "situation room" called DEMOSOPHIA (community wisdom). While the original idea of situation rooms dates back at least to the late remarkable Yale professor, Harold Lasswell, these rooms have not been designed with a combination of behavioral and technological orientation, nor have they been designed specifically to facilitate the use of a synergistic set of methodologies, such as is furnished by the consensus methodologies.

The first such room of its type was created at CIM in the University of Virginia. In view of the apparent benefits of using this room, the U. S. Forest Service decided to build a virtual duplicate of the room in its Atlanta regional office. Another room much like DEMOSOPHIA in design and concept is being built at the University of Northern Iowa, where it will be operated by the School of Business, and directed by a former vice president of Stokely-Van Camp.

5. Invention of the Concept of the Sigma-Five Meeting.

The Sigma-Five Meeting concept has been originated at CIM. The Sigma represents that the meeting is intended to bring together and in the limit integrate knowledge. The Five refers to the five critical factors that maximize the likelihood of meeting success. These factors are: the participant group, the skilled facilitator, the use of the digital computer with its peripheral communication equipment, the use of selected members from the set of Consensus Methodologies, and the impact of DEMOSOPHIA (the room designed to facilitate the use of the methodologies and to attend to the personal comfort of the participant working group).

MEASURES OF PERFORMANCE

GOAL 3

To transfer the technologies of productive group processes to public and private sector organizations that have a genuine and legitimate interest in improving their productivity.

1. All of the technologies have been successfully transferred to the U. S. Forest Service regional office in Atlanta, where they have demonstrated their capabilities to run successful Sigma-Five meetings. For example, one of their staff recently conducted such a meeting in Minnesota at the request of a member of the Division of Natural Resources, in connection with state forest planning.

2. Most of the technologies have been successfully transferred to the Virginia Division of Forestry.

3. Some of the technologies have been transferred to the IBM Corporation and to the Futures Research Group at the University of Sao Paulo, Brazil, which has already demonstrated their value in studies with the Brazilian soybean industry and the Brazilian Alcohol Fuel program.

4. Beginnings have been made at transferring the technology to a host of other organizations, including the Saudi Arabian National Center for Science and Technology (SANCST), the National Science Foundation (NSF), the Gesellschaft für Mathematik und Datenverarbeitung mbH Bonn, Kent State University, the University of Northern Iowa, Old Dominion University, Vanderbilt University, University of Dayton, University of Queensland, University of Cologne, and the City University of London.

MEASURES OF PERFORMANCE

GOAL 4

To make a special contribution to interactive management and planning at the University of Virginia, in order to enhance the effectiveness of institutional management.

1. Development of Initial Interest by Several Colleagues.

Since opening its doors on April 1, 1982, CIM has been fortunate to get initial, experimental use of the facilities and services by several people:

- o Mr. Ray Hunt, whose concern was with the Health, Safety, and Security program of the University
- o Mr. J. E. Gibson, with a variety of concerns, including an eventual response to his Industrial Advisory Board's suggestions that the School of Engineering and Applied Science prepare a strategic plan for its study at its April, 1983 meeting.
- o The Engineering School Rodman Committee, which used the CIM facilities to develop a goals structure for the Rodman program.

2. Plans for Joint Effort with Other University Components.

CIM has held discussions with faculty in the Institute of Government and in the Department of Planning. We expect that we will be able eventually to do some cooperative activities with these and other University components.

3. Straws in the Wind.

Several other university components have expressed interest in eventually using CIM facilities. We have encouraged these expressions, and believe that several of them will bear fruit.

MEASURES OF PERFORMANCE

GOAL 5

To clarify the important roles in effective group process, and to train people to fill these roles.

1. Graduate Student Training. Several graduate students have been trained by CIM staff to fill the important roles of facilitator and technician.

2. Role Clarification. Several literature publications by CIM staff have emphasized the importance of distinct roles in group process (especially as these roles are supported by the consensus methodologies and DEMOSOPHIA), have distinguished these roles from each other, and have indicated how the roles interact.

3. Short Courses. One individual short course has already been carried out to train a facilitator, Dr. Larry Edwards of the National Science Foundation, but more formal short courses are planned for 1982 and the future: one on November 8, and one from December 7-10 inclusive. These will include some components of role training. (Role training will begin in earnest in 1983.)

MEASURES OF PERFORMANCE

GOAL 6

To apply and assist others in applying the group process to the improvement of organization of the academic disciplines, so that the capacity of scholars in a discipline to comprehend the structure and organization of their discipline and convey it to others will be significantly enhanced.

1. Surrogate Progress. CIM has made no direct progress toward this goal. However indirect progress has been made by persons at other locations who have used and acknowledged CIM methods in their own work aimed at satisfying this goal. Among the contributors are:

   - Dr. Sato of Nippon Electric Company, who has applied ISM to the development of curriculum in the Japanese schools, and has designed and made available equipment to the schools to provide that capability to teachers. The principal reported application is in grade-school arithmetic, emphasizing teaching of fractions
   - Professor Himmelblau, Chemical Engineering, University of Texas, who has applied ISM to graduate curricula in chemical engineering, and who is also doing research that will extend the automation of the organizing and drawing of maps of learning sequences.
   - Professor Orwig of the University of Central Florida, who is working cooperatively with the U. S. Navy Recruiting Command on military applications

2. Discussions with the Marine Corps.
CIM staff have held several discussions with representatives of the Marine Corps who are interested in using ISM to develop curriculum. The Marines have a very difficult task in educating marine recruits in the computer field, with emphasis upon marine applications of computers.