MANAGEMENT 42-1

SESSION - MANAGEMENT INFORMATION SYSTEMS

MODERATOR

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PARTICIPANTS

Richard A. Gilbert	Burlington Management Services Co.
John T. Gilmore, Jr.	Keydata Corporation
Dr. T. William Olle	Radio Corporation of America
Frederic G. Withington	Arthur D. Little, Inc.

In his introductory remarks, Professor Kriebel emphasized the popularity of the MIS topic, as well as the variety of opinions about its usefulness. He noted that the Society of Management Information Systems is about a year old, with a charter membership of 1000. In the selection of speakers he had avoided members of the academic community in favor of professionals from the business world, to tell it as it is, not as we wish to think it is.

Mr. Gilmore described the role of a timesharing company in providing business data services for the MIS problems of small companies ($6 million annual sales on average). Through online access these services include routine accounting, customer billing and management reports.

Mr. Withington based his predictions of technology upon improvement of price performance in electronics: large-scale integrated circuits promise an immediate 3-fold improvement, minicomputers being available at reasonable prices for incorporation in networks, and a 5-fold improvement in magnetic mass storage. Even the last will be overtaken sometime by nonmechanical technology. Corresponding to this he finds a general decrease in user competence relative to their aspirations.

Withington: User plans for data base oriented management information systems are growing faster than the supply of operating experts and competent systems analysts to implement them. Furthermore, the situation is deteriorating because of the increasing proportion of programming systems resources that must be devoted to updating the past, the programs that are still running.

If you combine the technology trends with the user trends, you see a trend to make products that are easier to use because they incorporate automatic brute force methods. We see:

- Virtual hierarchical memories, with automatic algorithms for moving data between the high-speed store and the main store. The user cannot interfere with these and doesn't even have to know about them.
- Nested operating systems, governing one another and emulators in various partitions. The 370 offers this, and soon all manufacturers will. The old programs are done in the old language for the old machine and run under the old operating system. It is not possible to change this.

- Increasing use of file managers, and general purpose communications in terminal management.

Mr. Withington had firm opinions on the inevitability of waste.

Withington: Systems will be, and already are, less efficient than their potential, wasting large fractions of their resources in brute force operations. Running up and down to change operating systems for every job initialized is not the most efficient way of doing things, yet that is the way they will be done.

If a user substitutes a machine at the same price that has 5 times the performance and becomes 1/5 as efficient, he is not worse off.

Withington: Emulation is obviously inefficient; high-level languages are accepted to be somewhat less efficient. The screaming about the cost of inefficiency can be reduced, not by correcting it but by decreasing the cost of it.

He predicted that systems would also be more adaptive.

Withington: Eventually, failure of any unit will be identified by software messages. The machine will schedule itself, to the degree it can, around the failed device. It will monitor its own performance, too. It will be, if you like the term, a "self-conscious" system. Furthermore, the user will not need to understand how it works or what it is doing at a given time.

He thought that the trend to brute force systems had both advantages and disadvantages.

Withington: It is good that highly sophisticated and responsive tools will be made available to a much larger population that does not have to know too much. On the other hand, unalterable methods impose constraints. If what you want to do falls within the group of possible applications that the designer had in mind, fine. But if for some reason they incorporated nothing for you, you cannot use it at all. With time and evolving applications, the possibility exists that these machines will increasingly hold people back from going in new directions, and this is bad.

However, I don't get too upset over this. If the algorithms become too restrictive, manufacturers will have to generalize them a bit. Simple capitalism. Also, user-accessible versions will probably be available for those who are motivated to go to the trouble. Read only stores, for example, are physically accessible to the user, although the manufacturers prefer not to say so. But if you insist, the manufacturer will probably permit this, after being signed off from any responsibility.

It reminds me of automatic transmissions in cars. They don't let you shift for yourself, but 98% of the population seems to find this satisfactory. There are still cars available for those that like to shift their own gears. The same goes for computers, and I conclude this is a good thing, as we enter the age of brute force. I hope it will be possible to continue to say that.

Dr. Olle talked about data base management systems, emphasizing that the current trend favors the use of generalized (as opposed to customized) systems. Within the

generalized group he identified 2 classes: post-language systems, enhancing a conventional language such as COBOL, and self-contained systems, for use by nonprogrammers who do not wish to concern themselves with data flow. He recommended the selection of post-language systems for applications with predictable information usage requirements, like banking, insurance, airline reservations, etc.

Olle: Unpredefinable transactions are the high-level management needs, where the bank president suddenly wants to know how many of his customers under 25 years of age have a standing balance over $10,000. For a high volume of these you would do well to stay away from generalized systems.

Dr. Olle described briefly the work of the CODASYL Data Base Task Group. (Ed. Note - this group is in the process of defining the data base management functions and language statements that are to be incorporated into COBOL.)

Mr. Gilbert said that normally there are large differences between EDP services supplied by inhouse staff and those offered by service companies.

Gilbert: In my experience, an inhouse staff works in a less demanding environment. The service company operates within strict time constraints, and it must deliver a workable product for predetermined cost. These same demands might be made upon an inhouse staff, but often are not.

Mr. Gilbert's company specializes in the development of customized management information systems.

Gilbert: We differ from most of our competition in that we are geared to development of a specific system, implementation, and finally (if at all feasible) actually processing the system on our own computers.

First we make a 1 to 2 week survey, and then a formal proposal to do a structured piece of work, either a part of or a complete management information system. We set forth the objectives and commit to a time frame for completion. Unless it is an unusually large project, we report back to the client on a milestone basis to make sure that developments are in accord with his desires and objectives.

Mr. Gilbert stressed the crucial influence of assigning a competent crew and project manager, and of estimating and controlling costs. The latter is done with their own internal data processing system, on a weekly basis and to considerable breakdown in detail. He thought that more companies would be offering such complete services in the future, and this would lead to changes in inhouse operations.

Gilbert: Larger corporations are approaching the point where the inhouse staff must make commitments similar to those of service companies. Many inhouse EDP systems are not now required to continuously justify the cost of their constructing and operating management information systems. The day is here when inhouse EDP organizations must be treated as profit centers, and they must be competitive with outside service companies in order to survive. The reasons are simple:

- There will be less emphasis on the desirability (or prestige) of having your own computer.
- It is increasingly difficult to find the necessary highly capable people, particularly because the talented individuals prefer the challenge of the variety of projects offered by the consulting companies.
- Many companies are going to find it more profitable to devote their entire management energies toward running their primary business. In today's world it is too much to expect management to be expert in running more than one integrated profit line.

My conclusion is that the computer utility concept is becoming an attractive alternative for many companies to control their MIS programs.

John Lady: (National Cable Television Association) Do you see an opportunity for management information systems for small companies with limited budgets to devote to the area?

Gilbert: It is no longer necessary to have an expensive computer in your back room. You'll take advantage of a larger computer. Advances in communication and design will help the small company in this, but you'll have to grow into it.

Audience: How do you classify the value of MIS?

Gilbert: This is a good question. We had a client with some $80 million in sales, operating 16 warehouses in 8 states. He had to know his turnover, his inventory in each warehouse, because that would give him the margin to make profit. We made an analysis and agreed that the objective was to cut inventory by 10%. This is not an answer in dollars and cents; it was a matter of survival or no survival.

Audience: Mr. Gilbert, have you tried to pin a user down as to what functions he wants in his management information system, or do you tell them how to use the system?

Gilbert: Most companies know what their problems are; they may not know the economically feasible solution. I don't think that anybody can come in from the outside and run the company. But you can come in and solve specific problems.

Audience: Mr. Withington says the trend will be to nested operating systems. There is a cost and judgment factor associated with this, and I wonder if the rest of the panel agrees that this is the proper way to go?

Withington: You are entirely right. It is inordinately costly to continue old errors and suffer the dead end when you can, in principle, make a conversion to something all new and beautiful. It's true, but irrelevant. It hardly ever happens. The fact is, the resources are not there.

Gilbert: When I was on the corporate side, people used to ask "Why do you emulate"? It does sound stupid to emulate a 1401 on a 360/50, but there are tradeoffs. You must ask if it is more important to use good programmers to get the utilization out of that computer or to solve some of the problems hanging over us that are really hurting the business? I agree, it's grand to talk about all the things that could be done, but people never get to it.

Audience: Can you give the ratio between the retrieval and the analytical portion of the system?

Withington: Situations vary. In situations for which you already have the analytical algorithm you go straight for that. Those that do not, go for the retrieval part first, hoping that if they look at the data long enough they can develop the analytical tools afterwards. As far as auditing the system, you have to build the auditing tools to the case in point.

Audience: Does Mr. Withington believe that we can realistically expect development of information systems where the tool itself is buried, and thus benefit the researcher and scientist, as well as management?

Withington: Sure. If the company data base does not help both sides, it's pretty poor or very partial. I know an automobile manufacturer just beginning to get it off the ground, and engineers, salesmen, and manufacturing controllers are equal in their enthusiasm.

George Moller: (H. H. Robertson Co., Ltd.) Mr. Gilbert, you stressed rather strongly your better project cost accounting system. Is it written up?

Gilbert: Yes. We use it, and it is a product of our company.

Moller: Is it public?

Gilbert: No, it is not. It represented a major development for us, and we decided that we would be rather foolish businessmen if we did not try to recoup a part of our development costs.

Audience: Do you have some kind of measurements on the benefits once a system is installed?

Gilbert: You are talking about a point in time when you can do this. Now we do not do this on our own. You can implement a data base and you are over the first big hurdle. From that point on you must see how to use it from the management side with the management of that company. Most people are tired of hearing about all of the fringe benefits of computers. What they want to know is, what are you going to do for me now?