Future management concerns regarding office automation

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The last few years I have become less interested in the vendor shows and I began wondering why? As I thought about going to a show a year ago I went through the usual process of mentally listing my chores and setting priorities. Well, the usual did not happen. I found that the most pressing activity was management awarness. I was already armed with knowledge of tools and correct procedures for procurement, but I had not adequately staffed management. They were not ready to buy. Why was I running off to another show then? I didn't. I set about putting together some ideas to help me reach management, not with the intention of pushing them into an undesirable situation, but searching for a way to gain their understanding. I am still working on it, and here are some of my thoughts.

First let's take a look at the last few years and see what has happened to date. Here are some interesting facts taken from IBM's "Data Processor," September 1979 issue:*

> Twenty-five years ago it cost $1.26 to do 100,000 multiplications by computer. Today it costs less than a penny. If the cost of other things had gone down the way computing costs have, you'd be able to buy: sirloin steak for about 9¢ a pound, a good suit for $6.49, a four bedroom house for $3,500, a standard size car for $200, an around-the-world airline trip for $3.
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> A magnetic bubble memory device had been built by scientists that can store the equivalent of about 100 pages of the Manhattan telephone directory (25 million bits of information) in an area only one inch square. The magnetic bubbles are only a millionth of a meter, or 1/25,000 of an inch in diameter.
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> In 1953, one million bytes of information could be stored in about 400 cubic feet of space at a cost of $250,000. An IBM processor can store the same amount of information in 3/100ths of a cubic foot, a space about the same size as a paperback book. The rental cost for the storage is about $430.
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> If technology and productivity in other industries had progressed at the same rate as computer-technology, an around-the-world airline flight would take 24 minutes, and a standard size car would get 550 miles per gallon.

Just how fast is fast? Well. . . . .

> If you could take a three foot step every nanosecond (billionth of a second), in one second you could walk around the world 23 times. The IBM 4341 has switching speeds of 3 to 5 nanoseconds, and circuits have been developed that can switch in 13 picoseconds (trillionths of a second).
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> In one second, an IBM 3033 Attached Processor can execute 5.5 million instructions. In that time, the 3033 AP could receive inquires from 180 airline reservation clerks, check on whether seats are available and start information back to the clerks. In some 20 years the work computers can do in a second has increased almost 27 times, and the cost per instruction has declined to 1/37th of what it was.

What do we do with all of these fast and powerful things? Do they fit within our needs today? Can we really use these gadgets to help us with our daily chores? How do they fit with our goals? Productivity is a major concern to us all, improving productivity is what these gadgets are all about!

Let's assume we have grown to tolerate these little beasts and have reluctantly agreed that we *need* these new tools to improve our productivity. What will happen in the next decade then? Do we *want* to use them? Will we learn to use them?

The experience we have gained in the last few years working with computer technology has given us new insights. These insights can be described as ideas learned through mistakes and innovations in using word and data processing devices in conjunction with communication devices. This innovative use of word processing (text editing/processing), data processing, and telecommunications networks is bringing about the awarness of "OFFICE INFORMATION SYSTEMS" concepts. Following is a discussion of how I perceive this OIS concept.

The purpose of OIS is threefold: to increase productivity, to provide job enrichment for secretarial, clerical, and technical staffs, and to provide professional staffs with improved information tools and processes (decision support systems).

With the introduction of OIS an organization can:

1. Increase office output with the same staff
2. Maintain previous level of service with reduced staffs
3. Improve control of voluminous data entry, correspondence, and miscellaneous typing and
4. Provide fast turnaround in generating large, complex manuscripts

* Vol. 22, No. 4, September 1979, published by Data Processing Division, IBM.

Our purpose would be realized if we would: (1) move machines as close to the authors (data and word originators) as possible, (2) merge word processing, data processing, and telecommunications into one activity called, "office information systems," and (3) integrate "office information systems" into the normal work process.

The ultimate, of course, is the integration of computer and communications technologies with "new" management ideas. This means not just automating present processes but using the full range of tools to meet the overall goals of the organization. How to do this is the management concern I am addressing here.

Before we get into this management concern let's talk about some tools. Just what kind of tools or systems could help us improve productivity? There are several vendors who market systems with the ability to do some of the chores mentioned above. Some of these systems are adequate for the learning process, but the greatest flexibility for meeting long term goals will come from maintaining vendor independence as much as possible and thinking broader in concept. Here is an example:

*A local cable bus network:** What is it?*

A local network for interconnecting diverse computers and terminals. The cable bus uses standard CATV coaxial cable and components laid out in a tree-like structure within a building or campus. Equipment at the site would be connected to the network. This equipment could include terminals, plotters, data collection equipment, word processors, the office telephone system, an inter-office video system, and a link to several computers across the United States. Software needed to interface the terminals and other devices will be housed in small, specially designed microcomputers.

What do you do with a cable bus network?

Production typing
Electronic mail
Data entry
Data editing and reformating
Sorting
Mathematical computing
Programming (applications development)
Data storage and retrieval
Text editing
Data terminal (low and/or high speed)
Telephone communications
Video conferencing, both within a physical structure and to other parts of the organization.

Let us dream for a minute. If we (any organization) install a Cable Bus Network, what might we do with it? We could use it and associated gadgets to arrange travel right at our desk without involving a clerk. We might even eliminate the need for the trip by activating our video conferencing device. We could get information from the same video device on the current activities of any part of the organization. We could check on the most current activities in process in the Senate or House. We could prepare an electronic message for corporate headquarters and have it routed to the appropriate manager for action on the same day. We could prepare a contract for advertisement by modifying a like contract retrieved from our stored library, having it reviewed via electronic mail by all the parties involved, and at the same time have the approvals appended. We could check the status of our budget either by account or in total. I could dream on and on, but with these tools installed and with practice using them, the dream could become a reality.

What about the management concern regarding these devices? With all of these new tools costing less and doing more, it appears that there should be fewer problems. Isn't this going to solve our problems rather than create them?

Pretend for a bit that you are the manager. With the above tools in mind, sit back and think out loud a minute. "We will give the staff some nice gadgets to increase production. We can expect our typing to be perfect and on time, we can have our airline tickets printed at our own office, we can get the AP news at the touch of a button, and we can visit with the branch managers on the video conference system without traveling. Well, there are just all sorts of things we can do!"

Wait a darn minute! What about all of the turnover we have had the last few years? Are we going to be able to find enough people to run these nice, fancy machines? It seems like I hear that swan song every time I visit with a manager. What is the answer? We need to look at the use of this new technology with the intent of creating meaningful work, and we will have to change our way of doing business. That is the "new management" I am referring to. How do I do this you say? We need to implement Carlisle's Office Automation of the fifth kind:†

> Here we have the integration of computer and communications technologies with "new management" policy. This is where the payoff is—not in merely "pushing information around faster" but in using the full range of tools to meet the overall goals of the organization.

The situation, as I see it today, is that we are saturated with new tools and really have a problem knowing how and what to do with all the devices available to us. We just haven't learned how to manage them. Here is a quote (by Bill Lippold) that helps explain.

** Wood, David. 1978. Cable Bus Networks for Information Handling. Mitre Corporation, McLean Va. (a working paper.)

† Dunn, Nina, The Office of the Future. Part I., reprinted from *Computer Decisions*, pp. 16-20,26, July, 1979.

> Collecting numbers, running them through a computer, and coming out with the fact that so many machines and so many operators are needed is a mistake. It works in the factory but not in the office culture, which has its own traditions and rules of right and wrong. In the factory people are automated. In the office, it is the principal who needs to be automated. It has to be understood how many dollars in savings are not being realized when the executive does not want to give up a secretary. These subtle attitudes and relationships are not quantified in a computer. Furthermore, studies do not always give an accurate picture of equipment needs. Applications are always different than they are perceived to be, once the equipment is installed, the needs change in accordance with new expectations. Applications come out of the woodwork.††

As we encouuunter a new chore, we add it to our list and attempt to complete it as we have chores in the past. An example: We have a need for more typing, so we get another word processor or typewriter much the same way we did before. We do not sit down and take a broad look at our entire chore list and ask ourselves, "What can we do with our chores that may help our total workload?" "How can we *share* or redistribute them?" We just seem to look at the new job and analyze it out of context. If we take a look at the *whole* list of administrative chores in an organization with a new set of values and at the same time toss out the mind-set we are currently using to evaluate this list, then maybe we could see how to proceed with this new task, using new tools and methods to accomplish it.

How do new values relate to new ways of working?

Here is an excerpt from an interview by Kristin Anundsen, Editor, Management Review with Michael Phillips, business manager, consultant, and author of *Seven Laws of Money*. This article is entitled, "Management in the Briarpatch: An Alternative to the 'SYSTEM'."*

What, exactly is the Briarpatch Society?

> It's a community of people who are trying to build a network of new business and work environments that relate to the values of our generation—values that are significantly different from our parents'. These values have to do with learning, sharing, and a belief in "right livelihood." The key is "right livelihood," the concept that there is something unique and special each person can contribute, and that the kind of work people do should relate to these special contributions. These are values that conventional business management hasn't had to deal with thus far but will soon have to face.

Why?

> What we used to call the "counterculture" has already made an impact on society. The spread of Eastern disciplines, from yoga to transcendental meditation, is one force that is making radical changes in many people's lives. These people are re-evaluating their personal goals and ways of living, and they will want new ways of working.

How do new values relate to new ways of working, and to the Briarpatch in particular?

> In the Briarpatch, we're experimenting with new management styles. So far, management in the Briarpatch is based on three principles: failing young, learning how the world works, and learning to share. Underlying all three of these is the value of openness. *The Seven Laws of Money* deals with how to be more open about money. Now we're evolving a kind of management that deals with how to be more honest and open with each other.

How is this openness expressed?

> Well, for example, the auto repair shops we run have their financial statements posted on the wall, right next to the cost of parts and supplies. Also, the wages of everyone in Briarpatch organizations are public information—in fact, all the information about our corporations is available to all the members and all the customers. We feel we have to be able to justify the wage structure and resource allocation of the companies, to anyone who asks.
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> Our assumption is that everyone can learn managerial skills if they have enough information and experience. So we freely give each other all the information we can. Since our accounting is posted and open to everyone, the person who makes out a sales receipt, and the customer also, can see how that receipt relates to the final balance sheet.

Let's discuss those three basic principles, beginning with "failing young."

> We start with the assumption that failure is desirable, since it's a learning experience. For every "success" in life there are 10 failures—and that means 10 times as many opportunities to learn. If failure is accepted, people are more willing to try. And if they try and fail, they evaluate the consequences of their own behavior more effectively and they understand responsibility better. Of course, when you have the attitude that failure is acceptable—even desirable—fewer things become "failure."

What about "learning how the world works"?

> People who are open and growing are looking at all parts of their lives, including work, as a chance to learn about the work around them. Day-to-day business decision making is a great chance to learn, because the consequences of decisions are often very tangible.
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> To us, the best decision makers are not the ones who come up with most brilliant, rational solutions, but the ones who are able to look at the alternatives and then make "nonrational" judgments, incorporating an understanding that isn't inherent in the situation or the information at hand. The realm of logic and rational thought comprises only 2 percent of "how the world works." If someone makes a successful decision, it's not because he got the 2 percent right, but because he was making some accurate judgment in the remaining 98 percent.

And how do you get to the stage of using that 98 percent effectively?

> By sharing—which is the third principle. To share, you have

†† Lippold, Bill, "Word Processing World," from *Word Processing Systems*, Geyer-McAllister Publications, Inc., 1979

* Excerpted from Anundsen, Kristin (ed.), "Management in the Briarpatch: An Alternative to 'The System,' " *Management Review*, February 1975.

> to accept what other people offer you, in a broad sense. When you have really been able to open yourself to other people's experiences and perceptions, you're sharing. It takes time to learn to trust other people's experiences, but when you can you make better decisions.

We have several reasons to take this new look at ourselves: staffing, money, job enrichment, EEO, civil rights, energy conservation, physical space problems, and others. If we integrate these concerns with new technology and new management ideas, we will begin to improve productivity. This seems to be the same as preparing a meal. We take some food and put it together in many different ways to come up with the finished product called a meal. We may use some old familiar items, add to them some new health food supplements, include the use of a microwave oven and have a nutritious meal in less time. All this with less energy and less time. Perhaps, more importantly, the preparation of this meal was a *shared* activity.

Why is it so difficult to look at the use of this new technology in a holistic way? Why is this such a concern? Why is it a problem? Well, change is painful! It is not easy and it takes time, a lot of time and interest. Who has the least amount of time to spend on it? The manager. Who has the most fear about learning how to operate new, complex tools? The manager. People who are eager to change are those hungry and in pain, not managers who have reached a level of comfort.

How do we get there from here? How do we so it? Maybe by using a combination of tools that are available today. Some folks are already using some of them, but I'm talking about *integrating* these new gadgets into the *whole* office. Many folks in a given office would use these devices—*not just clerks*. Very simply, chores would be divided differently and each person would have access to appropriate tools to accomplish these tasks. We just don't have time for repetitive typing, rough drafts, and running work through a string of people. This can be started in a rather nonthreatening way by first using people who are interested in new technology and by employee attrition with *astute* recruitment. Once this is established, technology can be introduced where most needed. The key to this concept is not pushing new technology or technological systems or processes. Rather it is encouraging, fostering, and rewarding, any changes in employee behavior that better utilize existing or imminent (potential) technologies, systems, or processes. The focus should be on managers and specialists.

It is important to look at the use of this new technology with the intent of creating meaningful work. We must be conscious of our old values and develop new ones as we learn to integrate these devices into our lives.