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**Search For A More Meaningful And Effective Use
Of Computers In Philippine Society**

By

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SEARCH FOR A MORE MEANINGFUL AND EFFECTIVE
USE OF COMPUTERS IN PHILIPPINE SOCIETY

WILLIAM T. TORRES²

The computer has tremendous potential to enhance the capabilities of knowledge-information (KI) workers. So why is it that up to now, after more than twenty years of experience in its use, this modern tool is not being harnessed enough by the Filipino KI work force? In order to answer this very complex question satisfactorily, we need to carefully study various factors that impede the diffusion of computer technology and its acceptance among various types of users in Philippine Society. To be sure, such a study will not be easy and will certainly take a lot of resources and time to undertake.

The main purpose of this paper is to indicate a number of problem areas for investigation hoping that the results of such investigation will provide leads to more effective utilization of computer technology. Mr. Lagman and I agreed to divide the work, he will emphasize the issues that relate to the private sectors and I will tackle those that pertain to the public and educational sectors.

THE PRESENT SITUATION

Excluding microcomputers, the number of computers in the government as of 1980 is 66, of which 19 are found in government corporations. This comprises 21% of the total number of mainframes and minicomputers in the Philippines as of 1980. (From the 1981 EDP survey, a publication of the National Computer Center, it may be useful to note that in 1965 there was only one computer in the

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²Dr. Torres is a Fellow and Senior Vice-President of the Development Academy of the Philippines.

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government; in 1970, 5; and in 1975, 25.) The first microcomputer in the government was acquired only in 1979. Today, there may be about 5,000 micros in the country with perhaps only less than 10% found in government. These data on number of computers tell us that the experience in computing in the government is short and has not yet reached a desirable level of "maturity."

For many reasons, some of which we will discuss shortly, computer utilization in the government has been limited to ordinary data processing. (In my opinion, the situation in the private sector is not much different.) Most computer applications are involved with the automation of systems that cater to "clerical sales and kindred workers." Reports on operational information systems that serve the needs of "professional, technical, administrative, and managerial" types of KI workers are hard to come by in the literature. Occasionally, they are talked about in conferences but these would usually be in terms of design and development plans.

In what follows we report briefly what information we have attempted to ferret out as much as possible within the short time available from a national staff office and a line agency of the government hoping to discover a fully developed and operational information system but it looks like it will be a few more years before we can find such a system.

The National Economic and Development Authority (NEDA) functions as the Philippine government's central body for planning, policy formulation, program and project development, and statistical coordination. In terms of computing resources, only the National Census and Statistics Office (NCSO), an agency supervised by the NEDA, operates a large mainframe for the processing of national and regional censuses and surveys. This facility is hardly availed of by other NEDA offices; the only exception is that a NEDA staff office, the MIS and Data Bank Project Technical Committee, recently hooked up three terminals to the NCSO mainframe in order to initiate work on a computerized integrated economic and social data base in support of NEDA's functions.

Thus, NEDA is considering the acquisition of another mainframe in the very near future. Already it has a number of microcomputers in its various central offices and by now the newly acquired microcomputers for the 13 regions should be operational. Computing in NEDA, other than in the NCSO, is still in its infancy.

The Ministry of Agriculture is an agency with around 24,000 personnel distributed among the ministry's head office and central bureaus and its 13 regional offices. The Ministry also supervises 14 other agencies that are attached to it. In 1973, it started its computerization program with the acquisition of a medium-sized mainframe. Towards the end of the 1970's it built up its data-entry capability to a 15-key station facility. During the last few years, the head office and some of its bureaus and attached agencies acquired microcomputers for special projects and for office automation. Lately, it has decided to upgrade its mainframe substantially, provide a multi-user microcomputer to each of its regional offices and increase the number of personal computers in the central offices.

The main computer applications at different stages of development in the ministry revolve around the following systems:

1. In each of the regions there will be the following four systems:
 - (a) The Regional Agricultural Data Base System ✓
collects geographic, demographic and economic features of the region; also gathered are farm inputs, production statistics and market data, including prices. This system supports regional agricultural development planning.
 - (b) Regional Agricultural Program Monitoring System
monitors progress of agricultural programs. This system collects data on the operation and performance of farmers/cooperators in agricultural program areas

and principally serves the information requirements of agricultural program implementation and evaluation

- (c) Regional Cooperatives Information System monitors the establishment, operation and performance of farmer's cooperatives and provides for the information requirements for regional cooperative development planning and assessment.
 - (d) Regional Administrative Information System serves the management of the region's manpower, physical and financial resources.
2. Each of the above regional information systems are consolidated at the national level.
 3. The ministry's Planning and Policy System integrates the four national consolidated systems corresponding to the four regional systems with other inputs from secondary sources such as from other government agencies.

With the installation of a more powerful mainframe in the main office combined with micro-computing power in the regional offices the ministry's information managers hope to surmount the many difficulties encountered in responding to the information/data needs of a dynamic organization.

RESEARCH AREAS ON KNOWLEDGE-INFORMATION DEVELOPMENT IN GOVERNMENT

While it is widely recognized that KI workers comprising the "professional, technical, administrative and managerial" types (we will refer to this group of KI workers as KIW-1 and the "clerical, sales and kindred workers" as KIW-2, for brevity) need training in order that they can make more effective use of the computer, the unanswered important question is: what kind of training?

Nowadays, the training opportunities available for these workers are not much different from those given to computer professionals and technicians. The reason why this is so may be due to a mistaken belief that a brief orientation on computers and their potential applications and training in such skills as computer programming and systems analysis and design are enough to let a person take off by himself, towards learning the appropriate mechanisms for using the computer in enhancing his capabilities as a KIW-1 type worker. In a society that is already advanced in the information age, this may be possible; in the Philippines this is not possible because of the absence of a reinforcing environment within or outside the organization to start and/or sustain him towards this goal. Until such time that such an environment is sufficiently developed, additional training of different type should be considered.

Perhaps, basic to the determination of the content of the required additional training of KIW-1 workers is knowing more precisely the ways by which computer-based systems enhance the capabilities of each type of KI worker. Towards this end, I submit that we need to examine computer applications more from the users' viewpoint than from that of the computer specialists'.

Thus, the first research area we are proposing is aimed at the development of a more appropriate training program for KIW-1 type workers. We also suggest that this research begin with a study of training needs of workers of the KIW-1 type from the specific perspective of what enhancements to their work the computer can provide.

In line with the above, we propose that a study be also made on the preparation of future KIW-1 workers. Starting last year, our colleges and universities have been considering the introduction of a general course on Computers and Society for everybody in addition to skills courses in computer programming. Some groups are now looking into the content of the general course in time for the coming school year. Furthermore, there are discussions on how

to incorporate computing into the professional courses in certain disciplines, e.g., engineering, mathematics and science, and business and management. A formal inquiry into the substance and methodology of these courses would be very helpful to all concerned

Incidentally, at this early stage of educational computing development in the Philippines, international cooperation and assistance, in terms of faculty development and educational computing facilities, are direly needed. Our educational institutions, both government-supported and private, cannot afford to acquire and sustain the maintenance of these resources without external help.

Knowledge information workers, whether of type KIW-1 or KIW-2, are constrained in the use of computers by the way computer systems are set up in organizations. For example, many installations, especially the ones of older vintage, only allow KI workers to interact with the system in a "closed shop" manner, that is, they submit data in coded form to and get printed out from the data processing center with hardly any meaningful interaction with the computer system and the center's staff. On the other hand, in installations with microcomputers, the user typically interacts with the computer without any intermediary. There are advantages and disadvantages in either configuration which include issues on control and coordination over organization-wide data, response time of the computer system to users and interaction among KI workers.

Perhaps a useful research question to address is: How do we configure the computer system together with the other information resources of the organization that would optimize the KI workers' use of the network in terms of enhancing his intellectual and cultural capabilities. In the Philippines, the relatively high cost of imported hardware and software system components and the lack of a good data communication infrastructure, among other factors, should be considered in the research.

Applications software that are appropriate for the Filipino KI workers are not easy to come by. Because the importation and adaptation of imported software is prohibitively expensive (not just in terms of foreign exchange), it is mandatory that we develop these domestically. Because we have little time and scarce resources, what we should have is a well-coordinated program to provide direction and support to software development for the good of many users. I propose the undertaking of this research.

There is a need to learn from the experience of the developed countries in terms of computer and communication networks for public use and what public data banks (accessible through these networks) ought to be set up. This knowledge should be disseminated to as large a group of KI workers and national leaders and decision-workers as possible for the purpose of openly discussing what forms of such infrastructures are most appropriate for the Philippines. The high investment cost and the long term impact of such infrastructures not only on KI workers but also on the general public require that we study this matter very carefully. ✓