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Informatics For Development In Malaysia

By

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INFORMATICS FOR DEVELOPMENT IN MALAYSIA.

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1. Definition

I have taken the liberty to interpret informatics for development to mean the science of generating values out of information for achieving programmed objectives. This paper examines the role and contribution of informatics with regards to Malaysian Development in the public sector.

Malaysia Development Plan

Like most developing countries, Malaysia development programme has been based on a series of five year plans. Malaysia is in fact in the fourth of the series, known as the Fourth Malaysia Plan. The period 1971 to 1980 represents the first decade of Outlined Perspective Plan (OPP) 1971-90, within which the objectives of the New Economic Policy (NEP) are to be realised.

The objectives of the New Economic Policy were:

1. To eradicate poverty irrespective of race.
2. To restructure society and eliminate the identification of race with economic functions.

To achieve the above objectives, projects relating to the economic development of the rural areas has been given top priority. In planning for economic growth, special emphasis has been given to reduce the unequitable distribution of income between classes and races, expansion of education and training facilities, social services and physical infrastructure of the country.

The Fourth Malaysia Plan (FMP), 1981-85, inaugurates the second decade of Outlined Perspective Plan (OPP). It further elaborates and refine policy measures and programmes embodied in the Third Malaysia Plan to ensure the objectives of the New Economic Policies.

The rest of this paper is to examine how informatics can help to achieve the above objectives and also how it can help top managers in strategic evaluation of policy alternatives, project evaluation and control.
3. Growth in Informatics

There are 3 important factors that physically reflect the growth of informatics in any country. They are growth in computing power, availability of data communication network and the growth in computer science education.

3.1 Growth in Computing power.

The first computer made its appearance in Malaysia just over 18 years ago. The National Electricity Board was the first to take the bold step in the computerization process. Although the public sector pioneered the use of computer technology, growth in the private sector far outstripped the public sector. It is estimated that there are over 500 small to large size computers in Malaysia early this year. About two-third of them are in the private sector. The average annual growth rate in the public sector for the last eight years is in the region of 25%.

The microcomputer, after a slow start during the late seventies and early eighties, has gain its share of the market when the giants IBM and Sime Darby, decided to join the show. It was estimated there were more than 4,000 microcomputers in Malaysian homes and offices. The signs indicated that with the introduction of a more user friendly systems, the micros have come to stay. At least three institutions of higher learning have committed themselves to use the micros as the main teaching tool for introductory courses in computing science.

3.2 Data Communication

In the past, Department of Telecommunication Malaysia has given low priority in the development of Data Communication Network. It was only providing point-to-point voice-grade circuits on a lease basis for transmission of computer data at speed from 1200 to 9600 bits per second, depending on area of transmission. The leasees of these circuits are required to supply, install and maintain the necessary modems which must be type-approved by the department.

Hence it was decided in the early 1980's that the Telecommunication Department to establish a Public Data Network (PDN) using packet-switching technology and based on the International Telegraph and Telephone Consultative Committee (CCITT) X.25 protocol. It was also decided that 'Data Transmission on the Switched Telephone Network' (DATEL) be introduced on a limited basis before PDN comes into operation. This is a stop-gap measure due to long period required to implement PDN which is scheduled to be operational in 1985. Facilities offered by DATEL are for data transmission up to 2400 bits per second.
3.3 Computer Science Education

Five years ago, only two universities in Malaysia were involved with the teaching of Computer Science. Their total output were around 30 undergraduate level students each year. Of the five universities in Malaysia today, four are offering Computer Science at undergraduate and postgraduate levels. It is expected by 1985, the output from the four universities will be around 300 students per year. Beside the universities, two colleges are also offering Computing Science at intermediate level. Conversion courses are being conducted by at least 2 institutions to enable graduates of other streams to take courses in computer science enabling them to become computer personnel.

It is worthy to note that all universities and colleges in Malaysia have been equipped with medium size computers to enable them to provide computing facilities to their students and the administrative staff.

Steps are also being taken to introduce computing education to high school students in Malaysia. It is likely that by 1985 computing science courses will be offered at selected high schools.

The Malaysian Government has also announced the establishment of the Institute of Computer Science. At the initial stage, the institute is situated at the National Institute of Public Administration. The Institute of Computer Science will be the coordinator of all computer training in Malaysia.

4. Informatics Role in Malaysian Development

The first computer was introduced in Malaysia at the accounting section of the National Electricity Board to overcome the problem in managing and monitoring their accounting activities. Recent acquisitions of computing equipments by government departments still indicate accounting as one of their reasons for going on computerization. Nonetheless, accounting is not the only reason for doing so. Computing activities in many public agencies has grown into all areas of planning, monitoring and management. It is in fact growing steadily from Operational Level into Advance Level of computer development.
4.1 Planning and Monitoring Economic Growth.

Planning at the National Level is undertaken by central agencies, namely the Economic Planning Unit (EPU), the Socio-Economic Research Unit (SERU), the Implementation Coordination Unit (ICU), the Public Services Department (PSD), and the Malaysian Administrative Modernization and Manpower Planning Unit (MAMPU) in the Prime Minister's Department, the Treasury and the National Bank (Bank Negara) as well as the planning cells of the various ministries.

The Economic Planning Unit serves as the Secretariat to the National Development Planning Committee, which comprises heads of all major economic development ministries, and to the National Planning Council, a committee of senior cabinet Ministers under the chairmanship of the Prime Minister. Thus, it is not a coincidence that the largest computer system in the public sector is in the Prime Minister's Department itself. It has been the major source of computing power for all the Units in the Department.

The process of computerisation at the PM's department started in the late 1975. The economic planners at the Economic Planning Unit with the computing facilities of the University of Technology embarked on a series of pilot projects involving econometric modelling and projects monitoring. The projects were successful. By late 1976, it was found feasible for PM's Department to set up its own computing unit. The primary functions of the computer were to help control and manage development projects. Now, the computer system has been widely used for planning, data analysis beside managing the development activities. Econometric modeling for short term economic policy, planning models for long term growth and structural changes have been developed using the computer system. Databases of villages, government projects being implemented and financial performance of the public corporation in the country are also maintained by the system. On the last count, 26 government agencies/departments are using the system as part of their management activities.

The National Bank (Bank Negara) has been using its computer system for monetary and foreign exchange activities. Together with the Treasury, they are responsible for setting priority for short term development projects.

Malaysia is made up of 13 states. At state level, the State Economic Planning Units and State Development Offices are responsible for formulating state development strategies and coordinating the preparation of state development projects and programmes. By early 1980, 3 of the states are well on their way to computerise their management activities.
4.2 Data for development

In order to achieve the programmed objectives of Malaysia's development plan, data of key activities have to be obtained. The Statistics Department was given the task of collecting the data. The department is not new in using computer in their daily activities. Their first computer was installed in 1967. Indeed, the 1970 and 1980 National Census were made possible through the use of its computers. The department also maintains statistical data on manufacturing, construction, birth and death, labour force and external trade beside processing the population, housing and agriculture census.

4.3 Agriculture and Rural Development

In line with the New Economic Policy, the government is concentrating on a large part of its resources to develop the rural area. $770 million out of $4.3 billion allocation for development in 1979 was meant for this area. The agencies involved such as Ministry of Agriculture, Fisheries Development Authority, Federal Land Development Authority, Malaysian Agriculture Research and Development Institute, National Padi and Rice Authority, Palm Oil Research Institute, Rubber Research Institute and Federal Agriculture Marketing Authority have computerised most of their management activities. These include their accounting, marketing, distribution of subsidies and planning. Computer has also been used in scientific, technical, economic and sociological research on production, utilisation and processing of all crops, livestock and fisheries.

4.4 Revenues Collection

To finance the economic growth, Malaysia still rely largely on direct taxes and duties. Based on 1979 figures, $3.9 billion was expected to be collected through direct taxes and $3.3 billion from duties. Two departments were responsible to collect them. They were the Departments of Inland Revenue and the Royal Customs & Excise.

The Department of Inland Revenue started its computerisation in 1976. Their own computer was installed in 1979. The Income Tax System is being put into operation. The system covers:
i. Accounting and collection function,
ii. The issue of income tax return forms,
iii. Assessment,
iv. the compilation of tax statistics and management reports.

The Royal Customs & Excise has started with their computerization program. The strategy of the department is to computerize their duty collection activities first starting from the point where duties collection is highest. This is at Tabor Bahru, the entry point from Singapore. The system is expected to be up and running by early next year.

4.5 Public Accounts.

Some government departments, such as the Ministries of Health, Education, Home Affairs and Defence maintain their own accounts. These departments are known as Self-Accounting departments. Others have their accounts handled by the Account General (AG) office. They are known as Non-Self-Accounting departments. The AG office is responsible for the preparation of payroll for 140,000 government employees in the Non-Self-Accounting departments. This monthly operation is being handled by its Headquarters and 22 branches in the 13 states. The AG office is also responsible for over 120,000 monthly financial transaction created by Non-Self-Accounting departments beside producing the annual Financial Statement for the government. All these activities are done by a network of computers.

The computerisation of the AG accounting system at all of its 22 branches and its Headquarters is geared to provide accounting and financial information useful for the preparation of financial statement as well as for management, in line with the concept of Programmed Performance Budgeting System.

The treasury on the other hand is using the computing facility at the PM's department. The department is using computer extensively for its computer based reporting system to monitor development projects throughout the country. Well over 20,000 development projects are covered by the system at the end of the 3rd Malaysia Plan. The Treasury also keeps track the accounts of the 70,000 people that had taken government's housing loan. When this paper was written, the department is in the process of setting up the Integrated Budgeting and Accounting Information System, a system that brings together all the accounting and budgeting systems that are in the hands of other government agencies for effective control and planning of government expenditures.
5. Conclusion

Most developing countries like Malaysia have managed to a limited extent, in adapting the technology offered by informatics, to be used effectively in national development. It is no secret that in many instances, the process of turning data into useful information that were required by planners of various levels, have been long and frustrating. The computer personnel that were available were mostly fresh graduates but were given the task of implementing ideas that had been formulated by people that believed computer was the solution to all their problems. During data processing, despite the high volume of data accumulated by the various public agencies, additional data still had to be collected to fulfill the planners requirement. Another common problem, top managers had the feeling that any computing personnel recruited would have all the knowledge required to make computer system productive to the level of their expectation.

The use of informatics effectively for planning is further hampered by the fact that certain type of data are only good for certain level of planning. A single data base will not be able to satisfy all level of managers and planners. Studies have to be carried out to determine the exact needs of the various level of managers and perhaps a more practical database can be generated, maybe one for each level of managers. It is a sad thing to note that often there were total break down in communication between computer users and computing personnel that designed the system. There were numerous cases that we found even data required by the users were being defined and determined by the computing personnel; leading to a situation where informatics could only help the planners in a very limited way.

The database concept has been well taken by computer users in Malaysia. It is a tradition now to include database capabilities on any new system required by the public agencies. As it stands, database has yet to reach the level of 'user-friendly' in the Malaysian context. By this we mean, taking any organization as a whole, we still have majority of the staff hardly had their education beyond high school and almost all with no knowledge of data processing at all. To some, even the key board of type writers are something new, leave alone having the experience of using them. To aggravate the situation, the concept of maintenance, by this we mean any maintenance work that has to be carried out on equipments or systems, is still strange to most of us. It is common knowledge that it is easier to obtain a budget of $1,000,000 for capital expenditure than to get $10,000 for maintenance work. The question is, how can databases or MIS be implemented effectively if the organisation does not believe in maintenance (in this case updating the data in the databases)?
Three reasons were given by John Rockart and Michael Treacy for the increase in the number of senior executives of large corporations in the United States to use computers personally in the planning and control processes of their organisation. They were:

1. Availability of user-oriented terminal facilities at acceptable price,
2. Executives were better informed of the availability and capabilities of computers,
3. Increase needs of more timely information and analysis.

With the exception of the last reasons mentioned above, the others do not reflect the situation found in Malaysia. We can generally conclude that the days when our top executives in the public sector have the capacity to interact directly with computers are still far away.

The key point to be driven home here is the fact, informatics can contribute much more in the national development if a better working relationship can be established between users, top managers and the computer personnel within the respective agencies. That is the best stop-gap measure before the top managers reach the level of being able to use computer terminals to access and process data for decision making.

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