COMPUTING POWER AND INFORMATION POVERTY
THE DILEMMA OF TRINIDAD AND TOBAGO

Keith Byrne
(Manager, Information Systems, Caroni (1975) Limited, Trinidad)

Mr. Chairman, Distinguished Guests, Ladies and Gentlemen; it is with great pleasure that I address you here today at this session on Computer Technology and Effective Agribusiness Management because Caroni (1975) Ltd., the original agribusiness in Trinidad and Tobago is also one of the principal users of computers in tne country. At first in developing this topic, quite naturally we planned to talk about the computer techniques which we are likely to employ in the future as we expand the scope of our applications. But on further reflection it was felt that since there is great interest in the Company's development into a diversified agribusiness, the discussion should focus not simply on techniques but on the extent to which computer technology can be made to support the long term plans of the industry.

The transformation of Caroni as a whole is a subject which others are better equipped to discuss, but in so far as the development of long term planning for the industry is concerned, the strategic plan for information systems has become an essential ingredient and this subject will now receive our attention. We at Caroni believe that the success of the Company will, among other things, depend on the extent to which the installed computing capacity is used to improve our planning and operations control. This plenary session on computer technology and effective agribusiness management is therefore an appropriate forum for discussing some of the central issues facing the company as it tries to harness its computer, which is one of the nation's largest installations, but which is yet to live up to the expectations of management. We also suspected that the session would be too dreary if the subject of discussion only dealt with Caroni Ltd. so we have broadened the subject and livened the delivery as well.

The subject of discussion is one of importance to general management and it applies to businesses of all types. It deals with the very complex problem of managing the computer resource. In Trinidad and Tobago where there have been acquisitions of hardware on a large scale, over the last six years, the problem has a special twist. It is one of getting the required return on investment. The issue becomes very pressing indeed, as firms now have to deal with the realities of exchange control and uncompetitive prices. It is in these situations when efficiency becomes a central issue that managers begin to demand more from their computer resource. This problem can be further aggravated if the computer manufacturers, themselves subject ot exchange control, elected not to market their most desired products. However, Trinidad and Tobago has not suffered this misfortune. For this reason, the topic of this address looks at the dilemma of many companies which have already acquired some of the best hardware available anywhere in the world, but are still starved of the information required by management to successfully direct and control the business. The paper is called *Computer Power and Information*

Poverty: A Dilemma in Trinidad and Tobago.

The presentation will be in two stages. First, there will be a video presentation of the issue as it faces Caroni, which has been one of the early users of computers, starting from the unit record machines, through the 360, the 370 and finally, the 4341 machine. The video tape features a short discussion of the issue by our Chief Executive, Mr. Teckle Skinner, and includes several statements by employees both from within the Systems Department, and from user areas. After the video presentation I will deliver the remainder of my paper; so with your permission I invite you to look at a presentation prepared by our Public Relations Department called *The Power and the Kingdom, Caroni (1975) Ltd.*

(Pause for Video Display)

The documentary that you have seen related the concern that exists at the highest level of management at Caroni and the approach that is being taken to solve the problem. It also showed how the kingdom of the mainframe would be democratised as we distribute our resources. At least four points emerged:

1. Systems development must be done in service of the Company's goals.
2. Management commitment is an essential requirement for success.
3. Centralisation has limited user participation, and
4. The computer is more than an accounting machine.

But let us return to the main discussion which began with the assertion that managers are now trying to see how to make their computer do the things that the salesman said it would. Trinidad and Tobago has a very good skills base for computing, and significant efforts are being made to expand it from the secondary school level through to the university. In addition, the financial circumstances of the country have resulted in the availability of a wide range of computer hardward, many of which would not be found in other Caribbean countries. Let us therefore begin with a look at the range of hardward and supplies which are marketed in Trinidad and Tobago. The types of equipment which are available follows: mainframes, mini-computers, personal computers, peripherals and telecommunication equipment. Software is available from the equipment manufacturers but, in addition, specialist firms of both local and foreign origin are aiso in the market place. An index is not yet available but we have tried to construct one so that a reasonable understanding of the situation may be obtained.

Mainframe Suppliers

1. IBM - Major accounts are held at the following: Texaco, Tesoro, Caroni, NEC, Telco, T&TEC, Royal Bank, Clico, BWIA, Guardian Life, Amoco, Central Bank, American Life, Bank of Nova Scotia and IBM
2. ICL - Major accounts are held at the following: UWI, Central Statistical Office, Inland Revenue, Licencing Authority, and Crown Life
3. NCR - Major accounts are held at the following: Neal & Massy, National Commercial Bank, and Republic Bank
4. PC Suppliers - Computerland, IBM, Radio Shack, AML, Timex, Texas Instruments, Apple, Commodore, Hewlett Packard, ICL, and others
5. Peripheral Equipment Suppliers - IBM, Burroughs, Data General, ICL, NCR, and Bunker Ramo
6. Software Suppliers (Local) - IBM, ICL, Management & Computer Services, Computerland, NCR, Price-Waterhouse, Infotech,

Alpha Associates, Burroughs, Pannel Fitzpatrick, and Command Systems

7. Software Supplies (Foreign) - Pansophic, The Continuum Company, Palm 80, MSA, Software Ag, Software Computer Associates and Others.

The presence of reputable firms such as ICL and NCR which market proven and capable equipment has led to some amount of competition in the country. However, some people say that the word *computer* is spelt IBM. Certainly, in understanding the development of the local computing business one must start with IBM; for the growth of the industry in the 1980's was not only dependent on oil revenues but the fact that from the late seventies, IBM's installed base in Trinidad and Tobago began to take off with its mini-computers; and from the turn of the eighties the 4300 series arrived. These machines are some of IBM's best, both in terms of price and performance. Around the world they have led to feverish competition by suppliers fighting to survive in markets that are threatened. Buyers have as a result been deluged with equipment offers by a wide range of suppliers. Each announcement offers the businessman a greater potential for profit. In Trinidad, IBM has been very successful as the market, flushed with oil revenue, warmed to its products. Since 1981 IBM has installed some 19 of its 4300 series machines and 101 of its S/34 and S/36 mini-computers. As far as agribusiness is concerned, Caroni is included in the category of 4300 customers along with Fertrin; users of the minis include the following: Trinidad Food Products, Charles Candy, Holiday Foods, and Lever Bros. All these users have on-line applications. This means that the equipment is being used in all cases to give direct access to users. However, that is not the end of the story because as you heard from my Chief Executive Officer during the video tape, managers at Caroni are still impoverished as far as decision support information is concerned. Clearly the fact that these machines have been used primarily for accounting systems is a part of the problem. However, it is also clear that management has been unsure of how to manage the computer. To get around this, companies have begun to appoint managers of information systems.

Managers of information systems are a recent breed who usually occupy senior positions in organisations which are not necessarily sure just what the holders of these positions should do. Sure enough, they are expected to save executives the embarassment of having to deal with the jargon of programmers and analysts and they are also expected to manage the Company's computer resource. But further than that, it is not clear to many just what they should do. Information systems management has as its fundamental task the development of strategic plans for the Company's information systems. This is accomplished by answering these three questions:

1. What are the data that the Company requires to plan, operate, and control the business?
2. How should that data best be managed?
3. What are the priorities that the Company should have for its systems development?

Now let us look at these three questions in more detail. The first question forces us to consider the business itself. What are all of the things that are done inside the business, and what are the processes that lead to the production of goods that the Company sells? For example, the activity of manufacturing will include the following processes: product planning, production planning, purchasing, raw materials, inventory,

production, quality control, finished goods inventory, distribution, marketing, and order processing. The activity of Personnel Management would of course, have an entirely different set of processes such as recruitment, career development, safety and so on. Each one of these processes utilises and creates data, for example, product planning would require data about demand, pricing, competitors products and so forth, and would itself product data about the product such as its description, technical specification, availability and so on. In the case of Caroni, we have been taking a detailed look at these processes and have found a number less than 60. This includes processes such as selecting varieties of plant or breeds of cattle, controlling pests, diseases and weeds, disposal of land the others that would be unique to our Company.

When we complete this analysis we would be in a position to see just what are the information requirements of each process and it puts us in a position to answer the remaining questions. We believe that the conduct of this analysis is crucial to our development and it involves two essential ingredients:

1. A commitment by management to the conduct of the analysis
2. Participation of users in the analysis.

Management needs to be committed to the implementation of recommendations at all stages because computers cannot yet run by themselves. Tasks have to be assigned to people, job descriptions have to be changed, facilities are needed at times and so on. The absence of commitment usually manifests itself in the form of poor equipment utilisation, rapid staff turnover and other avoidable facts of life. User participation obviously contributes to an improved understanding of the role of the computer but it helps employees to realize that data is a corporate resource that should be shared by all. This is a crucial factor that benefits analysts subsequently in system design and reduces costs introduced by duplication of data. The comparative analysis of existing systems and total information requirements leads to the definition of the company's information gap. You might recall that during the video tape the Chief Executive Officer repeatedly referred to the absence of management information. Well, that is the information gap.

The second question is how should the data be managed? This is a technical question that lies within the province of the Manager of Information Systems. He can now be called upon to identify the systems to fill the gap, to outline the design considerations of these systems, and the resources required to develop and implement them. This would include matters such as additional hardware, staffing, software acquisition, the management control tools he would employ and so on. Later as project development gets underway he should be attempting to incorporate proven techniques of management science such as queuing theory, linear programming and inventory theory in his system design as he develops systems in pursuit of the company's long term plans.

Modern system design centers around on-line systems which require the involvement of users in their daily operations. If those users are physically located in a different end of the same building in which the machine is housed then the on-line facility is not too difficult to establish. If however the users and the machines are located at different geographic locations, then the problem is of different proportions. Yet we are all aware that the technology for remote computer communications is available. Caroni is a company which has its assets and work centres spread across Trinidad and so it has to come to grips with this problem; because if we wish to reduce the scarcity of information

which managers experience, then we must seek to provide on-line access to our work centres. This is now feasible as a result of TELCO's public data communication network. This most modern service is designed to support the computing community and it is our view that it is a key ingredient for our growth. We also believe that others in the agribusiness community should examine its potential for communicating with computers both locally and overseas. In Caroni's case, our efforts to improve the quality of cultivation management at both the planning and control levels would be greatly enhanced if the section managers did not have to spend long periods of the travelling to and from the computer site to run a program which executes in a few minutes. On-line systems are with us now and we hope to master the skills in data communication so that we can better support our work centres.

The third and final question was, what are the development priorities? The identification of priorities is a task best completed collectively by a group of users. In this way the group decision tends to reflect the interplay of competing interests and it commits participants to the development schedule which has been derived. Should any one person decide whether a raw materials inventory system is more important than, say, a quality control system or a cash flow system? The priority question is really best handled as a group decision and it can be supported on and on-going basis by a steering committee which reviews progress on a periodic basis. We suspect that in the next two years of so the local agribusiness community with installed computers will probably try to emphasise systems such as inventory forecasting because of exchange control, production planning, as they try to utilise installed capacity more efficiently: and we would not at all be surprised to see interest emerging in the area of energy management. The development of this software is done by limited staff. So I urge you to establish priorities collectively so that the Management Commitment is not reduced in any way.

Before closing, I wish to say a few words about micro-computers because it is virtually impossible to enter any discussion on computing without talking about them. The personal computer is well entrenched in Trinidad and Tobago and for the business community there is simply no way of telling just how significant its impact will be. We are aware that it offers farmers the possibility of improved farm management techniques; it offers the economist an easier way to evaluate projects and to monitor project performance. Crop monitoring and basic accounting can be done very easily and in fact I understand that at least one supplier of such software is present. In larger businesses, the scope is very wide indeed because the personal domputer is a lot more than an expensive calculator or a fancy typewriter. A personal computer which can talk to a mainframe perhaps represents the final step in the effort to marry the user to the mainframe in an inextricable partnership based on equality, and the understanding that decision-making is participatory. As with so many other things IBM is now the acknowledged leader in this area. With a productive capacity reported to be 1000 units daily that is insufficient for the demand for this product, we can well imagine that the personal computer will become a principal end-user tool as the supplier develops software to satisfy end-user damand. I for one envisage seeing one installed in each section/estate in the Company thereby transforming the employees in those areas from passive transmitters/receivers of data to small dynamic decision-making centres. Further, if the larger cane farmers also become users of this kind, then production planning would include less uncertainty. Indeed, from a

paper prepared by Mr. Winston Rudder for this Conference, cane farmers, regardless of size, cannot be considered to be an agribusiness until they begin to take such steps. The existing dilemma which several industries face with their computer instaliations is being resolved systematically at Caroni (1975) Ltd., and we believe that within the next few years, the distribution of our computer resource to the work centres of the industry should be positively reflected in the bottom line of our accounts.

In closing, I wish to invite you to our small exhibition which includes both the personal computer and the mainframe. In participating in this conference we have tried to mount a total effort which would make you feel that Caroni will always have a positive presence in the future of agribusiness in Trinidad and Tobago. The exhibit includes some interesting programs especially prepared by us on the IBM personal computer for this Conference. It includes a simulation of a beef herd, a feed mix, and a cluster analysis. The mainframe is located at Brechin Castle and you can communicate with it through a terminal which is using the TELCO data network. Many of our available on-line software such as ADRS, graphics, document composition, project management, and computer based instruction can be attempted. Our exhibit would not have been possible without the assistance of employees of both IBM and TELCO and I wish to take this opportunity to thank them for their assistance, to thank the organisers for inviting us and to thank you for listening to me. o