

UNIVERSITI SAINS MALAYSIA

First Semester Examinations  
Academic Session 1999/2000

September 1999

**AGW 616 - MANAGEMENT INFORMATION SYSTEM**

Time: [3 hours]

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**INSTRUCTIONS:**

Please ensure that this examination paper contains **SEVEN (7)** printed pages before you begin. Answer **Question 1** and any **THREE (3)** others.

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**Question 1**

Appended is an article that appeared in the NST *15 July 1999*. Please read the article and proceed to read the excerpts below.

You have been recently appointed as the Chief Information Officer of TNB Distribution Sdn. Bhd. As you are reading the NST article, the CEO's secretary informs you that he wishes to see you immediately to discuss some important matters. The following transpires during the meeting.

CEO: We have a very challenging time ahead of us to prove ourselves. My vision for TNB Distribution is to be the leading benchmark for Malaysian organizations to measure how customer service organizations operate. Remember, we are no more just a utility company but really one that is in the customer care business.

To achieve this, it is pertinent that we have a superior IT infrastructure. One of the most important systems required will be a good integrated information system. You will need to develop a Customer Relationship Management (CRM) system immediately. We need to understand every aspect of our customers; the demography, earning patterns, usage patterns, payment mechanisms, satisfaction levels, our response levels etc. We also need to be able to know our profitability levels on a real-time basis. You need to immediately get your IS team to come up with a system like this. We don't have much time; in fact we need this yesterday.

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You: Datuk, I agree with you that we need such a system as soon as possible but there is more to it than just a CRM package. We also need an ERP system that is fully integrated to the CRM system. Ultimately we may also need to benchmark ourselves using Business Intelligence Systems. However, this is not something that we can do ourselves. Definitely not in a realistic timeframe.....

CEO: I don't care how you do it but you need to come up with a plan as soon as possible and it must be implemented very quickly. I want you to come back with a detailed plan by end of next week. I need to rush off for a meeting with the TNB Board right now.

You: Yes, Datuk. I will have a detailed plan for you by next Friday.

Based on the newspaper article and the conversation above, answer the following questions.

a) Explain the following terms

- i) Customer Relationship Management System.
- ii) ERP Systems in context with the above conversation.
- iii) Real-time Systems.
- iv) Business Intelligence Systems

[8 Marks]

b) What will be your proposal for an appropriate application system for TNB Distribution?

- i) Will you recommend an in-house application or a standard applications package? Give reasons for your selection.

[5 Marks]

- ii) Highlight the major applications incorporated in the TNB Distribution system and how these systems will integrate to provide your organization with strategic business advantage? Provide a detailed plan to put these systems into place. In this plan, you need to take all types of resources required and how it can be achieved in a realistic time frame.

[15 Marks]

- iii) List some of the main causes of a systems implementation failure and indicate how you would avoid this in the TNB Distribution implementation.

[8 Marks]

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- c) As a responsible CIO, you realize that you will need to design a comprehensive plan for your organization to meet business challenges, both for the short term and long term. This means that you need to take into account not only the applications but also a comprehensive telecommunication plan due to the geographic spread of the business. What are the factors that need to be taken into account when designing an appropriate telecommunications plan? Suggest an appropriate telecommunications plan for TNB Distribution. As part of your plan you may want to draw out an appropriate design structure for the network layout. Describe why you think this is the optimal architecture for TNB Distribution.

[10 Marks]

### Question 2

- a) What are some of the business drivers for the increased adoption of enterprise networking by organizations? What is the most commonly used method of providing computing power in enterprise networking and why is this the preferred way?

[7 Marks]

- b) What are some of the problems posed by enterprise networking and how can these problems be overcome?

[5 Marks]

- c) What is Electronic Commerce? How has enterprise networking and the Internet enhanced the use of e-commerce in organizations. Provide examples of these business benefits.

[6 Marks]

### Question 3

- a) Why should managers study information systems? Describe why information systems cannot be the sole responsibility of IT managers.

[3 Marks]

- b) Describe how information systems and technology surrounding it has changed the management process. Describe three economic theories that help explain how information systems affect organizations.

[8 Marks]

- c) What is intellectual property? Explain the three regimes (methods) that protect intellectual property and how information technology advancements are posing serious challenges to intellectual property rights?

[7 Marks]

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**Question 4**

- a) What are the generic requirements of knowledge work systems. Please explain why these requirements are necessary. [4 Marks]
- b) What is artificial intelligence and how does it differ from natural intelligence? [4 Marks]
- c) Describe two initiatives in the field of artificial intelligence and how these systems can be of help to the business community? [4 Marks]
- d) Describe the difference between expert systems and neural networks. What are some of the problems in expert systems and how are some of these problems resolved by neural networks. [6 Marks]

**Question 5**

- a) What is the operating system of a computer. Explain your answer by giving major functions of an operating system. Name three types of operating systems that are currently used commercially worldwide. [5 Marks]
- b) Write short notes on the following:-  
i) Virtual Storage  
ii) Multitasking  
iii) Multiprocessing] [6 Marks]
- c) Describe briefly the three different types of database management systems. Describe the key management requirements in ensuring a successful database implementation effort? Highlight also some possible pitfalls if the above requirements are not adhered to. [7 Marks]

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**Question 6**

- a) What are controls with regards to computing systems and why are they necessary?  
In your answer, please distinguish and describe the two main types of controls.

[6 Marks]

- b) Why is an MIS Audit necessary? Describe the role of MIS audits in the control process.

[6 Marks]

- c) What is a fault-tolerant computer system? Would you recommend this architecture for your organization? Explain your answer and provide alternatives to protect system vulnerabilities if the former was not a practical solution.

[6 Marks]

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**New Strait Times 15 July 1999**

**Utility giant sets up subsidiary to ensure fast solutions to consumer problems TNB pledges greater efficiency.**

KUALA LUMPUR, Wed. - Tenaga Nasional Berhad's 4.6 million customers can expect greater efficiency and a faster solution to their problems from the utility giant following the creation of a "swift action team" to be officially set up on Sept 1.

To be known as TNB Distribution Sdn. Bhd, the wholly-owned subsidiary of Tenaga Nasional will have "four franchise areas" or regions in the Peninsular, northern, southern, eastern and metropolis.

Tenaga Nasional vice-president (customer services) Datuk Md Sidek Ahmad, who has been appointed TNB Distribution managing director said, "We will insist on fast solutions to problems. Gone will be the days when people will ask why 10 Tenaga Nasional workers are needed just to replace an electricity pole."

He said the four regional offices would be headed by chief operating officers and would be allowed "to operate in an autonomous maner."

The northern region will comprise Penang, Kedah, Perak, Perlis; southern (Johor, Negeri Sembilan, Malacca); eastern (Pahang, Terengganu, Kelantan) and metropolis (Kuala Lumpur, Selangor including Cyberjaya and Putrajaya).

"We will have a mechanism whereby a TNB Distribution team from a State in any of the regions can be immediately deployed to another State in the same region immediately to attend to breakdowns or carry out other work."

Md Sidek said, adding that at present, the process was bureaucratic.

The National Economic Action Council had, in its 10th report on the status of implementation of the National Economic Recovery Plan, urged the Energy, Communications and Multimedia Ministry to expedite the setting up of such a company to distribute electricity.

TNB Distribution, which was previously Tenaga Nasional's Customer Services Division, will comprise three main areas - network services, customer service and support services.

Under the new arrangement, the network services personnel will specifically look after the system planning, construction and operations in the wire business while those in the customer services section will look after customer management and the business aspect of the retail business.

Support services staff will provide the necessary back-up to ensure the effective functioning of both the network and customer services.

Md Sidek said a service level agreement - a contract between the customer services and network services - would also be in place to ensure all work was carried out promptly. "The network services people can have their salaries or bonuses deducted if they fail to complete a particular work in a given time," he said.

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About 15,000 employees from the Customer Services Division will be moved to the subsidiary. Tenaga Nasional has 25,000 employees.

Md Sidek said to achieve an excellent level of customer service, the posts of general manager at the State-level, business district manager at district level and branch manager at smaller areas, were created for TNB Distribution.

"This move towards decentralisation will allow managers at the business district offices as well as State level to make appropriate decisions with minimal hierarchy obstacles.

"In the final analysis, the customer services people will have a fixed business territory as their market is there while network services people will be more functionally driven and go wherever the job takes them," he said.

With this, employees will not have any excuses if inefficiencies exist. He said there was a need to restructure "as the market is changing and almost everything we used to know before is no longer applicable now."

"We will be facing plenty of challenges and competition in the near future. We have to prepare from now. There is a saying : if you do not look after the customer, someone else will," he said in an interview.

Md Sidek said under the new arrangement, the respective services would be focused.

"Previously, there were multi-functional roles, making managers unfocused. This has delayed the completion of work and at times, frustrated our clients," he said.

He said the restructuring would also satisfy the needs of stakeholders, comprising those with an interest in the company including the Government, staff, the public or the investor.

He said under the new agreement, TNB Distribution would undertake most of its projects.

Citing an example, he said previously Tenaga Nasional had to tender many of its projects in Langkawi because it did not have sufficient workers to carry them out.

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