Singapore Government
PRESS RELEASE
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88-TES-26

Release No: 04/May
06-2/88/05/05

ADDRESS BY DR TAY ENG SOON, MINISTER OF STATE FOR EDUCATION AT THE OFFICIAL OPENING OF THE KNOWLEDGE ENGINEERING RESOURCE CENTRE (KERC) AT CINTECH BUILDING, SCIENCE PARK DRIVE, ON THURSDAY, 5 MAY 1988 AT 3.00 PM

I am very pleased to be present at the opening of the Knowledge Engineering Resource Centre (KERC) this afternoon.

Artificial intelligence (AI), Knowledge Engineering, Knowledge Systems or Expert Systems are new terms which have one thing in common. They are all linked to the technology of the computer. They are also related to attempts to emulate human expertise and to recreate in the computer machine human-like intelligence.

In case this sounds too futuristic and too much like science fiction, the reality of artificial intelligence and knowledge engineering is already here amongst us. In 1987, expert systems were estimated to have a market size of about US$200 million. The experts estimate that this market, worldwide, will reach about US$10 billion in eight years' time in 1995. It is clear that AI technology is no longer confined to the research laboratory and is rapidly entering the business world.

Our own rapid computerisation since the early 1980s will have to take into account the future impact of artificial intelligence and expert systems. Up to now, computerisation efforts in Singapore have been aimed mainly at data-processing and the incorporation of computer-based Management Information Systems (MIS) in both the public and

private sectors. This has raised productivity and improved the quality of management in all fields. MIS will remain the main thrust of computer applications.

However, new specialised applications are emerging. Computer-Aided Design and Manufacturing (CAD/CAM) is one such field. I will not dwell on it except to say that a number of firms are applying CAD/CAM in their operations.

Expert systems is another new field. What are expert systems? I can best explain them with an example. Take the example of loading, unloading, storing and moving containers in our port. Containers contain valuable cargo of all types. They have to be moved about to different ships at different times as efficiently and as smoothly as possible with no mistakes. Time is of the essence. This can be done by a team of experienced container handlers. Through experience, their expertise will grow. Their expertise can be translated and stored in a computer. The final software system will not only contain all the expertise of the human operators. It will be able to assist human operators to do an even better job with few or no mistakes. The end result is that efficiency, productivity and PSA's competitiveness will go up.

Such an expert system is in fact being jointly developed by the Information Technology Institute (ITI) and the PSA. Other expert systems are also being developed, jointly between KERC and industry partners to meet the needs of the latter. In the advanced countries, expert systems exist now which can assist general practitioners improve their medical diagnosis, insurance companies improve risk assessment and premium calculations and construction companies improve their job scheduling. These systems are all relevant to us.

Acquiring expert systems technology is not a simple matter of buying fast computers or getting off-the-shelf software. To be useful as a powerful tool, it must be designed and tailored to the user's specific needs. All this means one thing. You need people, specialists who have mastered the technology, who can build expert systems. People with knowledge and expertise are the key to this new frontier, as with all other frontiers of technology that we want to transfer into Singapore.

Sometimes, mounting training courses is not sufficient for such technology transfer. The expertise has to be gained hands-on, on-the-job, and by direct involvement in a complex project. There are no short-cuts.

KERC was set up by the NCB within the Information Technology Institute for precisely this purpose - to develop expert systems specialists through developing expert systems. KERC does this by joint projects with the private sector. The latter must send a small team of their software engineers into KERC to work with KERC's knowledge engineers on a specific project. This is the "technology incubation concept". NCB has invested in KERC software personnel as well as in the hardware and software systems, some of which come from the IT industry itself. I would, therefore, urge private sector firms to approach KERC if they have expert system applications in mind. KERC at present has, I understand, six projects in progress.

We have several other advanced IT centres in Singapore - the Institute of Systems Science, the CAD/CAM Centre at NTI known as GINTIC, and the CAD/CAM centres at our two polys. KERC and the Information Technology Institute or ITI will add significantly to our ability to develop specialists in key IT areas of the future.

I have pleasure now in declaring KERC open.

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