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**OPENING SPEECH BY MR MAH BOW TAN
MINISTER FOR COMMUNICATIONS AT
TECHMONTH 91 CONFERENCE ON "SCIENCE AND TECHNOLOGY -
THE NEXT PHASE: EFFECTIVE TECHNOLOGY ACQUISITION,
MARKETING AND RESOURCE MANAGEMENT"
ON TUESDAY, 10 SEPTEMBER 1991 AT 9.00 AM
AT HYATT REGENCY HOTEL**

Singapore's economic success through our industrialisation programme was heavily dependent on technology transfer. This transfer of technology was achieved through a policy of openness, attracting foreign investment and expertise to Singapore. It enabled us to build up the hardware needed for our manufacturing and service industries to be productive, and the skills needed to use this hardware.

After 30 years of industrialisation, the technology transfer process is just as relevant today, albeit for a different purpose. We are moving into the next stage of economic development. This requires more than efficient production capabilities. Economic competitiveness will now depend on innovation and ideas, and the ability to translate these ideas into fruitful use.

Success in this new stage of economic growth depends on how effective we are in acquiring technology to build up our research, development and design capabilities; in bringing the results of these capabilities to the marketplace; and in developing the infrastructure and mechanisms to support such efforts are. Hence, the theme of this 2-day conference - "Effective Technology Acquisition, Marketing and Resource Management" - is most appropriate.

A significant milestone as we move into our new phase of technology development was yesterday evening's launch of the National Science and Technology Board and announcement of the National Technology Plan by the Deputy Prime Minister BG Lee Hsien Loong. The Plan spells out Singapore's strategy for the nineties to develop scientific and technological capabilities that will improve our national economic competitiveness. Its implementation will help us catch up with the more advanced economies in terms of our industrial development and standard of living.

There are two key goals in the Plan; firstly, to double our total national expenditure on R&D from 1% of GDP to 2% by 1995; and secondly, to increase the number of research scientists and engineers per 10,000 labour force from 28 last year to 40 by 1995.

These goals are ambitious indeed. But they underline the government's commitment to strengthening Singapore's technological base and enhancing our R&D capabilities. The NSTB will be the implementation agency for the National Technology Plan. It has been entrusted with the mission of developing Singapore into a centre of excellence in selected fields of science and technology so as to enhance our national competitiveness in the industrial and service sectors.

Through the NSTB, the government will seek to enhance Singapore's technological capabilities by proactive promotion of R&D efforts as well as the development of R&D manpower and infrastructure.

For R&D manpower development, indigenous technical capability will be developed through the public sector research institutes funded by the NSTB, namely the Institutes for Systems Science, Information Technology, Molecular and Cell Biology and more recently, the Institutes of Microelectronics and Manufacturing Technology.

The NSTB will also plan and develop physical infrastructure to support R&D activities and facilitate technology acquisition and transfer. The Singapore Science Park was one such infrastructure for R&D that was set up in 1984. It has become well-established as a focal point for industrial R&D and "brain services" in Singapore. There are now more than 80 companies in the Park carrying out R&D in fields such as biotechnology, microelectronics, robotics and information technology. This concentration of research talent close to the university serves to provide opportunities for interaction and the exchange of ideas. Such communication is vital to fostering a culture of creativity.

Aside from physical proximity, this can also be achieved through electronic communication networks. In advanced industrialised countries, such networks linking universities and both private and public sector research organisations have become significant support infrastructure for researchers.

Electronic interaction has even gone global, with national networks all over the world becoming interconnected. One of the most popular of such global research networks is INTERNET. Set up in 1969, INTERNET is now connected to more than 2,000 networks in Europe, Japan, Canada, Australia and many other countries. This means that any INTERNET user in these countries would be able to communicate with anybody else on INTERNET or any other major network anywhere in the world.

Countries which have effectively exploited the use of these research networks have truly adopted a global technology perspective. The linkage of the international scientific community opens up a wealth of information to the individual researcher and enables him to keep up with the most state-of-the-art in technological developments worldwide. It encourages intellectual debate and exchange of ideas and perspectives with researchers from

different corners of the world. Electronic networking facilitates technology transfer, sourcing of expertise and collaboration in research.

If Singapore aspires to become a centre of excellence for technology, we too need to keep up with technological advancements worldwide and participate in the flow of ideas. Our past openness to technology and expertise from abroad has brought tremendous pay-offs. We cannot afford to miss the opportunity of interaction with the international scientific community through advanced electronic communications.

I am therefore pleased to announce that Singapore will be establishing its own national R&D network for our scientific community. This Technology Network or TechNet is a computer network which links the local R&D community electronically and also plugs them into the worldwide INTERNET network. This means that our researchers will be able to communicate with their counterparts in other parts of the world.

TechNet will offer many benefits. Besides electronic mail and file transfer services, Technet will also give access to electronic discussion groups, international scientific databases, bulletin boards, archives of computer program code, library catalogues, supercomputer time and news articles. Indeed, such services have been so helpful that many scientists abroad have testified that "their work would be impossible without the network".

TechNet will provide a wide range of practical possibilities to users. For instance, researchers will be able to use TechNet to submit journal articles for review, organise regional conferences and even exchange pictures and diagrams with one another. Clearly, TechNet will be a boon to our scientists in industry and academia. On a broader front, it will put Singapore on the international R&D map and improve our standing in the world

scientific community. The establishment of TechNet is part of the government's commitment to developing the infrastructure necessary for R&D in Singapore.

TechNet will be implemented shortly by the National Science and Technology Board with assistance from the NUS Computer Centre and support from Singapore Telecom. A Steering Committee with representation from government, industry and the universities has been formed to oversee its implementation and ensure the provision of quality service to users.

TechNet is one aspect of implementation of the strategies set out in the National Technology Plan for our next phase of science and technology development. We must see through our statements of good intent and commitment through such tangible initiatives that will support your efforts as researchers and technology managers and entrepreneurs, the driving force behind technology-based economic growth. I hope that as part of this conference and other events in TechMonth, yourselves as members of the scientific and technological community will be provided a fuller picture of government's plans for the future of science and technology in Singapore, so that we can work together to translate this vision into reality.

I wish you all a fruitful and enjoyable conference.

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