TRANSFORMATION INTO A KNOWLEDGE-BASED ECONOMY: THE MALAYSIAN EXPERIENCE

by

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Going Global: The Challenges for Knowledge-Based Economies

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Distinguished Participants,

Ladies and Gentlemen,

First and foremost, I wish to express my deepest appreciation to the VTT and the Ministry of Trade and Industry of Finland for the invitation to participate at this important Conference. The topic of this Conference is central to the Ministry's responsibility, namely to implement policies and programmes for Malaysia's transformation into the knowledge-based economy.

The theme for today's Conference is indeed timely in the face of the issues and challenges associated with the new economy or knowledge-based economy, in particular the potential of the increasing gap between the developed and the developing countries. The transmission of knowledge, know-how and technology across national borders is growing and is facilitated by advances in information and communication technology (ICT). This in turn is manifested in the growing trend of the internationalisation of scientific

and technological activities. However, countries differ in their capacities to capitalize on the opportunities derived from scientific and technological advancements. Those that do not have the capability and capacity to access global knowledge and new technologies and utilize them for their productive activities will remain marginalized. Today, I will share with you Malaysia's vision and strategies for the development of the knowledge-based economy as well as the challenges that we face in the development path.

Distinguished Participants,

Ladies and Gentlemen,

Malaysia has come a long way starting with an economy dependent on agriculture and natural resources. In the early years the export of raw materials namely rubber and tin was the main source of national income. For these sectors, land and low skilled labour were the main factors of production. Tertiary education was almost non-existent and only a small group of the population with the financial capacity was able to acquire tertiary education abroad.

Malaysia's transformation into an industrial or production-based economy in the 1960s led to major changes in physical infrastructure, financial system and education system. The Government invested in transportation infrastructure to move goods and services, financial and fiscal incentives to attract foreign investments, and education and training systems to supply the industries with skilled labour and technical workforce. Malaysia's investments in providing world-class infrastructure, attractive incentives and sound education system have

paid well in terms of export earnings from manufactured goods, in particular electrical and electronic products as well as foreign direct investments (FDIs). During the period from 1991 to 2005, Malaysia's exports grew at an average annual rate of 13.5 per cent and today Malaysia is the eighteenth largest trading nation. The FDI inward flows have been substantial.

Malaysia's efforts so far may be adequate if it can continue to leverage on low-cost skilled and technical workforce as a major comparative advantage. Unfortunately, this is not the case as it faces growing competition from countries with abundant workforce such as China and India. At the same time, the role of knowledge is becoming increasingly critical in the new economy as technology becomes more complex and economic growth is driven by knowledge-intensive industries.

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Ladies and Gentlemen,

Malaysia is fortunate in that it has a leadership that is fully committed to develop a nation that is progressive, resilient and competitive. Malaysia's national vision, namely Vision 2020, was introduced in 1990 with the goal of attaining a developed nation status by the year 2020. One of the key challenges of Vision 2020 is to develop a strong foundation for science and technology such that Malaysia will not only be a user of but also a contributor to scientific and technological advancements.

Malaysia has just fifteen years to go to achieve its national vision. It is gearing itself for the transformation into a knowledge-based economy or K Economy, that is, an economy driven by knowledge and innovation. Strategies and approaches for a K Economy would have to be different from those adopted to develop an industrial or production-based economy. Physical infrastructure that is critical for an industrial economy is no longer a major determinant for success in the K Economy. Instead, the K Economy requires investments in the ***Knowledge Infrastructure***.

As knowledge is the most critical factor for competitive advantage in the K Economy, the infrastructure must enable knowledge generation, acquisition, and the utilization of knowledge to produce goods and services that are competitive in the global market. Thus, Malaysia would need to invest in the ***Knowledge Infrastructure*** that consists of:

(i) an **education system** designed to produce a large pool of qualified and skilled workforce in science, technology and engineering and other innovative, creative and enterprising professionals;

(ii) a **research and development (R&D) system** able to generate knowledge at the frontiers as well as new technologies demanded by the production and services sectors;

(iii) a strong **intellectual property (IP) regime** that provides effective protection and appropriation of intellectual property rights;

(iv) a **technology transfer system** that ensures efficient transfer of knowledge and technology from the R&D system to the industry and business sectors;

(v) a critical mass of **innovative firms and entrepreneurs** to exploit knowledge to produce goods and services for the local and global market;

(vi) a **financial system** that promotes investment in high risk ventures; and

(vii) an **eco-system** that facilitates knowledge flows and promote interaction between and among the systems mentioned above.

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Ladies and Gentlemen,

Malaysia has just recently launched its Ninth Malaysia Plan which sets out the development plan and strategies for the period from 2006 to 2010. This is the first step in the next fifteen years journey towards a developed nation status. Let me share with you the strategies and measures that have been identified to implement the national development plan.

Firstly, Malaysia will focus its attention on strengthening the National Innovation System (NIS). The National Innovation Council (NIC) with

the Honourable Prime Minister as Chairman will provide the leadership to set the direction and the implementation framework for the National Innovation Agenda.

A strong NIS will facilitate Malaysia's integration into the global technology and knowledge creating network. As technologies become increasingly complex and the cost of creating new knowledge and technology rises, firms adopt strategies to reduce cost through outsourcing of some of their innovative activities. Developing countries with relatively low cost but highly qualified human resource can take advantage of this opportunity to undertake the outsourced activities. In this respect, Malaysia is developing the infrastructure and capability to take advantage of these outsourcing activities.

In the ICT sector, cost competitiveness, highly educated and skilled workforce, pro-ICT government and world class infrastructure make Malaysia an obvious choice for activities such as shared services and outsourcing (SSO). A.T. Kearney ranked the SSO cluster in the Multimedia Super Corridor (MSC) at number three in the world after China and India. The MSC initiative launched in 1996 was aimed at attracting leading ICT companies to locate in the MSC and undertake research, development of new products and technologies and export from this base. A set of innovative incentive package comprising fiscal and non-fiscal incentives are provided to MSC status companies.

As an ‘open economy’, Malaysia has attracted large inflows of FDIs and transnational corporations (TNCs) especially in the electrical and electronic sectors. The infrastructure and incentives to attract FDI in the knowledge based industries are different from that required for the production economy. It is vital that Malaysia strengthens its NIS to compete with countries such as China and India for FDIs. Recent trends that point to increasing internationalization of R&D activities of the TNCs will benefit those countries that have the enabling environment, in particular the availability of human capital and R&D infrastructure as well as to incentivise TNCs to conduct their R&D in the host countries. In this regard, human capital development is central to Malaysia’s development plan, in particular human capital to enable effective harnessing of science and technology for wealth creation and societal well-being.

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At present Malaysia lacks the critical mass of qualified scientists, engineers and related professionals that are much needed to drive the K Economy. In 2004, Malaysia had only 21 research scientists and engineers (RSEs) for every 10,000 workforce. The target set in the Ninth Malaysia is to achieve 50 RSEs per 10,000 workforce by the year 2010. The shortage of RSEs will be somewhat mitigated, in the short term, with the implementation of the National Brain Gain Programme. The objective of this Programme is to attract scientists and engineers worldwide to conduct R&D in Malaysia.

Malaysia views international strategic partnerships as an effective means to assess frontier knowledge and accelerate scientific and technological advancements. In this regard, Malaysian universities and research institutions have been actively engaged in collaborative research and technology development with centres of excellence in both the developed and developing countries. We look forward to enhance our cooperation with EU countries.

While the acquisition of knowledge through collaborative R&D projects as well as attachments of Malaysian scientists and researchers in reknown research centres are further expanded, at the same time, significant allocations are devoted to developing Malaysia's own centres of excellence in areas of strategic importance. For example, three new centres of excellence in genomics, agriculture biotechnology, and pharmaceuticals and nutraceuticals have been established recently to catalyse the development of a strong scientific base in biotechnology. Just a few days ago, the Government of Malaysia launched the National Nanotechnology Initiative.

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The Government of Malaysia realizes that building a strong scientific base and increased investments in R&D are not sufficient to drive the transformation of the K Economy. An equally if not more crucial requirement is to promote the creation of a large pool of innovative

firms and entrepreneurs. It is the private enterprises that have the capacity and business aptitude to exploit knowledge and new technologies for economic gains. It is therefore crucial that private enterprises are incentivised to exploit knowledge and technology generated from research laboratories to generate new products and services for the local and global market.

The Government of Malaysia provides various types of fiscal and non-fiscal incentives to private enterprises to promote their involvement in R&D and innovative activities. The R&D and commercialization funding mechanism was recently restructured to plug the financing gaps, in particular financing for development and pre-commercialization activities. Three new funds have been created namely Science, Techno and InnoFund. These funds are open to both the public institutions and private sector enterprises. Firms that undertake R&D are also eligible for double tax deduction.

The lack of entrepreneurs has been identified as one of the weaknesses of the Malaysian innovation system. The Government of Malaysia has introduced various programmes to address this weak link in the NIS. For example in the ICT sector, a technopreneur development programme has been implemented in the MSC. With respect to the technology-based sectors, technology incubator facilities have been provided by the Government to create the critical mass of entrepreneurs as well as to catalyse the creation of new technology based firms.

While attention is turned to developing new technology based enterprises, the Government gives equal attention to the small and medium enterprises (SMEs) that make up more than 90 per cent of enterprises in Malaysia. With respect to SMEs, the emphasis is on upgrading their technological capabilities to enable their integration into the global production network. One of the measures taken is through support programmes that enable SMEs to use new and advanced technologies including ICT in their production and business processes. A new element in the SME blueprint is the development of SMEs in the knowledge-based industries.

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In transforming Malaysia's economy to one driven by knowledge and innovation, the Government of Malaysia is fully aware of the possibility of creating economic and social divide among regions as well as its population.

It has been recognised that ICT have an important role to play in overcoming socio-economic inequalities, provided appropriate mechanisms are implemented to ensure that ICT are used for this purpose. Developing countries should not only invest in connectivity and access to ICT but give equal emphasis on socio-economic inclusion programmes. Accordingly, Malaysia has developed a Framework that focuses on the ***value*** that ICT are capable of delivering to underserved sections of the Malaysian society. This

Framework will address the digital ***value*** divide seen as **"that which prevents certain sections of Malaysian Society from being able to benefit from a more equitable share in the socio-economic value that ICT are capable of generating."**

Malaysia's policies for ICT sector based growth have been in place for some time and are at the core of the country's ICT strategy in realizing Vision 2020. The focus so far has been more on infrastructure development than on the issues of e-inclusion. A revised approach targeting e-inclusion implies the adoption of key socio-economic development objectives by ICT programmes in areas such as health, education, agriculture and rural enterprise development and local content development. The Framework for digital ***value*** divide when fully implemented will be a key vehicle to attain e-inclusion in Malaysia, which in turn will have the effect of accelerating Malaysia's progress towards attaining the developed nation status by the year 2020.

I will conclude my address on this positive note. Thank you for your attention.