



**INFORMATION AND
COMMUNICATION TECHNOLOGY
AND OTHER
TECHNOLOGY DEVELOPMENTS**



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STRATEGIES AND POLICIES

STRATEGIC THRUSTS

1.01 Ten strategic thrusts have been set to address the challenges and further promote the application of ICT and other potential technologies in industrial development:

- (1) enhancing the awareness of the trends on and potential benefits from the greater adoption of ICT and other technologies;
- (2) improving international linkages in ICT and other technology developments to facilitate the sourcing of global knowledge;
- (3) nurturing and fostering collaborations between domestic business entities and foreign technology providers to accelerate technological diffusion, adoption and adaptation;
- (4) integrating Malaysian-owned companies into the global supply chains;
- (5) promoting ICT and other potential technologies in the services sector;
- (6) intensifying private sector investments, including foreign direct investments (FDIs), to enhance technological capabilities and transfers;
- (7) establishing a data centre for developments and applications of ICT and other technologies;
- (8) building domestic technological capacities and capabilities;
- (9) developing programmes on human resource development (HRD) to support technological enhancements in the manufacturing and services sectors; and
- (10) enhancing the institutional support in facilitating technological developments and applications.

(1) ENHANCING THE AWARENESS OF TRENDS AND POTENTIAL BENEFITS FROM TECHNOLOGIES

1.02 Awareness on potential applications of other technologies is important for enhancing industrial development, especially advanced technologies, methods and processes. Strategies to raise the level of awareness include:

- creating opportunities for companies to experience and assess the benefits of ICT, for example, through formulating apprentice and internship programmes in ICT for newly operating companies;

- hosting regular activities, such as awareness seminars, workshops, dialogues, science camps and visits to institutions in science and technology and ICT, and providing rewards for best practices. The assistance of industry associations will be sought in raising the awareness;
- undertaking outreach programmes to stimulate interest in science and technology and ICT among various groups, such as students, workers, youth and women; and
- narrowing the digital divide through the establishment of tele-centres to promote computer education and empower rural communities to gain access to and utilise information using ICT.

(2) IMPROVING INTERNATIONAL LINKAGES TO FACILITATE THE SOURCING OF GLOBAL KNOWLEDGE ON TECHNOLOGIES

1.03 The growing interdependence of the global economy provides opportunities in international networking and collaborations in enhancing domestic capacities and capabilities in science and ICT. Measures to improve the international linkages in science and ICT include:

- creating international networks and alliances, as well as strategic partnerships, with internationally renowned technology-based institutions for information exchange, knowledge sharing and sabbatical placements in areas of excellence and competence; and
- leveraging upon existing bilateral, regional and multilateral cooperation programmes in promoting and strengthening development activities in ICT and science.

(3) NURTURING COLLABORATIONS

1.04 Collaborative initiatives will be undertaken to build smart partnerships to create value and sustain competitiveness among participating business entities. Measures to nurture and foster collaborations include:

- encouraging strategic alliances between local and foreign technology-intensive companies to hasten the acquisition of knowledge by local companies on product and process developments; and
- initiating collaboration programmes, at bilateral, regional and multilateral levels, which promote technological diffusion, adoption and adaptation by industries.

(4) INTEGRATING MALAYSIAN-OWNED COMPANIES INTO THE GLOBAL SUPPLY CHAINS

1.05 There is a need to strengthen the capabilities of Malaysian-owned companies in moving along and up the value chain to enhance their global competitiveness. Strategies to achieve this include:

- encouraging the effective utilisation of applications in ICT in management and production processes to enhance their technological capabilities and productivity;
- improving support programmes to accelerate the adoption of ICT and other technological applications in strategic areas to meet industry requirements;
- facilitating the acquisition and enhancement of skills and competencies of local companies in emerging technologies;
- encouraging the adoption and application of leading technologies;
- nurturing local companies as R&D partners to tap opportunities in outsourcing of R&D by MNCs; and
- nurturing and promoting capable domestic technology-intensive companies to participate in the global e-supply chains of MNCs.

(5) PROMOTING TECHNOLOGIES IN THE SERVICES SECTOR

1.06 The services sector is expected to generate new sources of growth and export earnings. ICT, as a driver in the knowledge-based economy, will add value and further contribute towards the expansion of the sector. The development and application of ICT and other potential technologies will become increasingly important in the creation of new types of services, resulting in the emergence of innovative business and services companies. Efforts will be intensified to promote the application and integration of ICT and other technologies in the services sector.

1.07 Strategies to promote ICT and other technologies in the services sector include:

- rolling out the initiatives on tele-health and e-commerce;
- implementing e-commerce initiatives under MSC Malaysia in the manufacturing, retail, construction, tourism, logistics and agriculture sectors;
- promoting and nurturing local content industries;
- encouraging local companies to undertake high-end shared services outsourcing-related services;

- encouraging strategic alliances and joint ventures among leading MSC-status companies with relevant Government-linked companies (GLCs) to create new growth generating activities; and
- accelerating the implementation of the MyICMS 886 Strategy. The development of the eight targeted service areas under the strategy will be hastened, to equip Malaysia in the delivery of advanced information, communication and multimedia services.

(6) INTENSIFYING PRIVATE SECTOR INVESTMENTS TO ENHANCE TECHNOLOGICAL CAPABILITIES AND TRANSFERS

1.08 The participation and contribution of private sector investments, including FDIs, in technology development and transfers, are important towards enhancing domestic capacities and capabilities in R&D and applications of ICT. Measures to encourage such private sector investments include:

- continuing to undertake progressive liberalisation autonomously, regionally (through ASEAN) or multilaterally (through the World Trade Organisation) in ICT products and ICT-related services, such as telecommunications, audiovisual services, computer and related services and ICT support or data centres;
- enhancing access to public research activities;
- reviewing the present incentives for R&D to promote greater investments by industry in R&D, as well as attract significant foreign R&D projects to Malaysia;
- enhancing collaborative technology ventures among MNCs, GLCs and technologically capable SMEs; and
- improving mechanisms for effective technology transfers and commercialisation, through strengthening the existing systems for IP and technology licensing.

(7) ESTABLISHING A DATA CENTRE ON TECHNOLOGIES

1.09 Relevant and up-to-date data on ICT and its applications are important for planning, monitoring and evaluating initiatives on technology development. There is a need to improve the present statistical system, to enable it to provide comprehensive data on ICT.

1.10 Measures to enhance the information system include:

- reviewing and realigning the present statistical system, including on trade, industry and employment, to incorporate data requirements on ICT;

- undertaking surveys to fill data gaps on ICT;
- upgrading the data collection and collation mechanism, through using new technological means, to be able to produce cost effective and timely data;
- establishing a central database system for coordinating and disseminating data and information on ICT;
- developing relevant data and indicators at sectoral level on ICT, as well as composite measures, for strategic planning and policy formulation and implementation; and
- enhancing partnerships and collaborations with international development agencies and statistical institutions towards producing consistent, comparable and harmonised statistics on ICT, which are essential for benchmarking purposes.

(8) BUILDING DOMESTIC TECHNOLOGICAL CAPACITIES AND CAPABILITIES

1.11 Measures will be undertaken to promote indigenous technologies through innovation, technology transfers and commercialisation. The measures include:

- improving the present IP system, through:
 - simplifying search and registration procedures;
 - making costs involved affordable; and
 - providing a dedicated fast track registration facility for IP for products and services in ICT, as they involve short life cycles;
- facilitating the growth of R&D activities, through:
 - increasing the spending on R&D;
 - promoting the commercialisation of research findings;
 - realigning financing and resource utilisation towards more demand-driven R&D; and
 - encouraging alternative sources of financing, including venture capital and derivatives, or secondary stock market.

(9) DEVELOPING PROGRAMMES ON HUMAN RESOURCE DEVELOPMENT

1.12 The present education and training programmes and curricula for both students and the workforce are not adequately meeting the demands of the emerging knowledge-based and technology-intensive industries. Measures to address such inadequacies include:

- aligning present curricula and developing new curricula of training institutes and institutions of higher learning to match the needs of industries in R&D, creativity and innovation;

- improving and strengthening the Brain Gain Programme, by encouraging Malaysian citizens residing abroad, with the required skills, knowledge, experience and expertise, to return. A central database on the programme will be developed. The database will contain information of Malaysians residing abroad who possess skills and expertise in niche areas, such as ICT, microelectronics, biotechnology and life sciences, and advanced manufacturing technologies in pharmaceuticals, machinery, automotive engineering, aerospace and medicine;
- encouraging foreign experts and professionals to serve in Malaysia, to facilitate technology transfers and exchange of knowledge and experience among researchers and industry practitioners, as well as policy formulators; and
- developing training programmes for the academia to acquire and update knowledge on industrial technological developments, through attachments with industries, study visits and conducting periodic training programmes, as well as promoting smart partnerships and collaborations.

(10) ENHANCING THE INSTITUTIONAL SUPPORT IN FACILITATING TECHNOLOGICAL DEVELOPMENTS AND APPLICATIONS

1.13 An integrated institutional support will be provided to nurture and promote research and technological developments, as well as new applications. Measures to be undertaken include:

- promoting research-based cluster development, through fostering collaborations among Government research institutes, institutions of higher learning, technology parks and industries, including GLCs;
- providing assistance for promoting collaborations among the industry, the Government and academia. Areas of assistance include:
 - attracting foreign test laboratories to locate in Malaysia;
 - providing facilities for companies to be engaged in applied research; and
 - allowing learning and teaching institutions to leverage upon private sector facilities;
- improving the present policies, programmes and mechanisms to enhance the scope and access to capital and financing for technology applications;
- creating a more conducive environment for the venture capital industry to develop and increasing allocations for venture capital;

- adopting a more comprehensive and effective approach and mechanism in disseminating information, particularly various financial assistance programmes supporting technology applications;
- instituting a more efficient and effective public delivery system, aimed at facilitating the application and approval processes, especially for obtaining employment visas and permanent residence status for foreign experts and knowledge workers;
- establishing a system of technology benchmarking to evaluate the level of application of technologies by industries;
- extending broadband coverage progressively to major industrial areas, in line with the demand for online applications and services;
- developing web-based shared facilities to provide technology-related information and services; and
- investing in upgrading the infrastructure for science and technology development, including establishing new institutions and facilities in research and technology development.