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MENTERI TENAGA, AIR DAN KOMUNIKASI, MALAYSIA

FOREWORD



Since the implementation of the regulatory framework under the Communications and Multimedia Act 1998, the industry has made significant progress. In the last five years the gross turnover of the communications and multimedia (ICT) industry has doubled from RM12 billion in 1999 to RM24 billion in 2004.

The ICT industry is important for the development of the country, not only because of the revenue and investments it generates, but also because it constitutes an important component in the production process of other good and services and can define the competitiveness of the country.

Highspeed broadband, which a few years ago was considered a luxury is today a necessary part of the industrial, commercial and lifestyle landscapes. Other emerging services such as 3G, mobile TV, digital multimedia broadcasting and RFID applications need to be promoted due to the synergies they generate both within as well as outside of the ICT sectors. The potential of these services must also be leveraged to promote the local design and manufacture of related appliances and equipment.

The MyICMS is a strategy that draws upon the linkages and synergies of existing plans and programs to promote and further develop the ICT industry in Malaysia. It is a private sector driven initiative that would be provided with the necessary policy, regulatory and institutional support in its implementation.

There is no magical formula to achieve success except to attempt what we plan in a strategic and focused manner. The success of MyICMS 886 and growth of the industry depends on the support and participation of everyone involved.

YB Dato' Sri Dr. Lim Keng Yaik

MINISTER OF ENERGY, WATER AND COMMUNICATIONS, MALAYSIA

MYICMS 886 STRATEGY

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Malaysia's drive forward in the delivery of advanced information, communications and multimedia services from 2006 through 2010

SERVICES	INFRASTRUCTURE	GROWTH AREAS
<ol style="list-style-type: none"> 1. High Speed Broadband 2. 3G & Beyond 3. Mobile TV 4. Digital Multimedia Broadcasting 5. Digital Homes 6. Short Range Communications (e.g. RFID-based) 7. VoIP/Internet Telephony 8. USP – Universal Service Provision 	<p>Hard</p> <ol style="list-style-type: none"> 1. Multiservice Convergence Networks 2. 3G Cellular Networks 3. Satellite Networks <p>Soft</p> <ol style="list-style-type: none"> 4. Next Generation Internet Protocol (IPv6) 5. Home Internet Adoption 6. Information & Network Security 	<ol style="list-style-type: none"> 1. Content Development (e.g. education, entertainment, games) 2. ICT Education Hub 3. Digital Multimedia Receivers (set top box) 4. Communication Devices (e.g. VoIP phones) 5. Embedded Components & Devices (e.g. RFID) 6. Foreign Ventures
	<ol style="list-style-type: none"> 7. Competence Development 8. Product Design & Manufacturing 	

NOTE:

The items boxed represent areas under other government agencies and sectors which can be developed through leveraging on the services and infrastructure identified in MyICMS 886

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■ Background ■

The *MYICMS 886* (Malaysian Information, Communications and Multimedia Services 886) *STRATEGY* identifies eight (8) service areas which have been targeted to propel Malaysia in the delivery of advanced information, communications and multimedia services towards improving the quality of life of Malaysians and at boosting Malaysia's global competitiveness.

The MyICMS 886 aims to create a catalytic cycle by enhancing the existing investments in ICMS infrastructure that will support future growth of ICMS services.

The introduction of the eight (8) new services catalyses and promotes the development of eight (8) essential infrastructures - both *hard and soft*. These new services and infrastructures are aimed at generating growth in six (6) areas that have been identified as key for the consumers and businesses in Malaysia.

■ 8 Services, 8 Infrastructures, 6 Growth Areas ■

The *HIGH SPEED BROADBAND* infrastructures will provide high speed Internet connectivity anytime and anywhere regardless of whether the user is on the move or stationary. The *HIGH SPEED BROADBAND* service encompasses both fixed and wireless broadband and will complement the demand for high speed mobile Internet access, which will be continuously enhanced under the service category of *3G & BEYOND*. The complementing scenario will demand a stable and robust *3G CELLULAR NETWORKS* infrastructure in Malaysia.

The need for consumers to receive information anytime and anywhere creates also a new dimension in the broadcasting arena where high quality contents such as music, text and pictures are delivered through *MOBILE TV* and other mobile devices. *DIGITAL MULTIMEDIA BROADCASTING* technology will enable the broadcasting (video and sound) services to be delivered to the consumers via several medium such as satellite, Internet and mobile networks. With the requirements to deliver the various services nationwide

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over different medium of transmission, the *SATELLITE* and *3G CELLULAR* networks are essential infrastructures to be developed and enhanced in Malaysia.

The introduction of the digital broadcasting services will drive the demand for lower cost of ownership for *DIGITAL MULTIMEDIA RECEIVERS* (both for radio and TV) for Direct-to-Home and hand-held consumer terminals. Apart from the possibility and opportunity of promoting local manufacturing of customer equipment, the *DIGITAL MULTIMEDIA BROADCASTING* services will create and enhance the base for local *CONTENT DEVELOPMENT* in meeting the demands and expectations of the Malaysian listeners and viewers.

DIGITAL HOMES bring about by the requirements of the increasingly futuristic home environment, which provides various services by connecting home appliances to networks that would enable the consumers to control the appliances electronically as well as remotely.

The *SHORT RANGE COMMUNICATIONS* services will support the creation of short-range wireless connections type of applications which use very low power. *SHORT RANGE COMMUNICATIONS* (e.g. RFID-based services) have very large market potential in sensors-surveillance systems and will encourage the local manufacturing of radio frequency identification (RFID) chips that would be used in short range communications such as in the supply chain management of the different industries, allowing for computer-peripheral connections and also between consumer electronics equipment.

Technologies that enable converged services exist. The Internet Protocol (IP) and the Internet paradigm are being introduced in all areas of communications. *VOIP*, and in general *INTERNET TELEPHONY*, will provide real opportunity drivers for consumers, enterprises and businesses because of its low cost and favourable investment outlays. The convenient communications environment provided by VoIP through the combining of multimedia services on single devices will create opportunities for local manufacturing of low cost *COMMUNICATION DEVICES*.

The upgrading of the existing infrastructure to create a *MULTISERVICE CONVERGENCE NETWORK (MSCN)* will support the demand for multiple accesses to communication services. The facilitative communications environment provided by the rapid development of radio technology leading to increased bit rates and support for mobility, will enable true converged services through the combining of multimedia services on a single device. This will lead to the creation of opportunities for local manufacturing of low cost *COMMUNICATION DEVICES* (especially *VOIP PHONES*).

The advancements in the fields of ICT and Multimedia in Malaysia will facilitate the nation in bridging the digital divide through the enhancement of the current implementation of *USP- UNIVERSAL SERVICE PROVISION* toward realizing a society with equitable digital opportunities. In this regard, one of the initiatives by the Government is looking into expanding the existing cellular infrastructure which can be enhanced further to provide national cellular coverage and also at capitalizing on the use of viable fixed wireless access services, satellite services as well as leveraging on new emerging technologies for USP.

By harnessing the possibilities that come with ICT through formulating ICT education policies, Malaysia is poised to become an *ICT EDUCATION HUB*. This will prepare Malaysia with highly competent workforce that will further enhance and elevate Malaysia's competitiveness in approaching the spectrum of *GROWTH AREAS* identified, including undertaking of *FOREIGN VENTURES* in the arena of information, communications and multimedia.

The rapid growth and popularity of Internet services and the demand to connect more devices to the Internet will drive the demand for more IP addresses. The new services such as *DIGITAL HOMES* will create local production of IP-enabled home appliances that will require the deployment of the Next Generation Internet Protocol, or the *IPV6* infrastructure, which is critical to meet the demand for more IP-addresses.

To build a digital society, programmes for ICT awareness will be introduced. Such awareness and education programmes will gear the society into

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easier acceptance of the new knowledge economy (K-economy) and this should in turn drive the *HOME INTERNET ADOPTION* within the society. With this established, Malaysian society can be assured of online access to knowledge and information that they require and desire and at favorably affordable costs.

In order to support the push of K-economy, and in particular the new ICT and Multimedia services environment, the focus is to provide globally-competitive ICT skills and manpower that can meet and support the demands of the ICT and Multimedia industries. *COMPETENCE DEVELOPMENT*, with appropriate focus on research and development, will be the main focus toward ensuring a balanced growth of competent human resource to lead the new growth areas in ICT. Competent human resource will lead to the capability in *PRODUCT DESIGN AND MANUFACTURING* of the communications and multimedia devices. *PRODUCT DESIGN AND MANUFACTURING* will encompass manufacturing of terminal devices including those of passive components such as smart antennas that, together with the lower cost terminal devices, will increase the take up rate of the new services.

There are huge potentials for Malaysia to capitalize on in the arena of OEM (Original Equipment Manufacturing) for *EMBEDDED COMPONENTS AND DEVICES* for machine-to-machine (M2M) communications. With the advancement of core technologies such as 3G and RFID, additional non-voice services can be developed by having terminal devices with embedded applications specific integrated chip for M2M applications, thus ensuring that growth is not limited to merely population size.

The rapid development of services and infrastructures has however brought about other side effects and challenges, such as cyber attacks, computer virus, spam etc. These will demand sound and comprehensive *INFORMATION AND NETWORK SECURITY* policies and implementations to be in place so as to ensure a secured, safe and clean cyber space environment. These policies and their implementations will help to remove those threats against a secured digital society.

MyICMS 886 Goals 2006 through 2010

Areas	2006	Medium Term (2008)	Expected Results 2010
Services			
High Speed Broadband	1.3 million broadband subscriber lines 25% penetration of household	2.8 million subscribers in 2008; 50% penetration of household	Total broadband penetration 75% of household
3G and Beyond	300,000 subscribers	1.5 million subscribers	At least 5 million subscribers
Mobile TV	Further pilot service; Adoption of standards	75% mobile users adopt mobile TV	Multimedia service anywhere, anytime, 90% of total mobile users
Digital Multimedia Broadcasting	Standards adopted. DTTB trials. Initial commercial deployment	60% household coverage for DTTB	95% household coverage
Digital Homes	Home Gateway/SOHO introduced in 60,000 homes	500,000 homes Interwork with external networks	1 million connected homes
Short Range Communications	Standards/ Spectrum allocated Awareness & promotion on the usage in logistics, transportation	Extensive usage in the supply chain management Local manufacturing of RFID chipset	Widespread usage in various applications 2% global market share of chipset & services
VoIP/Internet Telephony	Establish QoS; VoIP to PSTN access Residential & business service revenue constitute RM800 million	Residential & business service revenue constitute RM 1 billion	High quality & cheaper voice services, RM1.5 billion service revenue
USP – Universal Service Provision	New USP projects. Broadband Internet community project	Increased broadband Internet individual access	60% coverage for underserved rural households

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MyICMS 886 Goals 2006 through 2010

Areas	2006	MediumTerm (2008)	Expected Results 2010
Infrastructure			
Multiservice Convergence Network	Migration of platform-based services	Complete migration of legacy service; Fixed-Mobile Convergence platform ready	Multiple services, fully IP based
3G Cellular Networks	Introduction of high speed data	High speed mobile data services; Interworking of BWA with 3GPP	Nation wide 3G services coverage
Satellite Networks	National policy on satellite-based communications	Satellite as a complementing transmission medium	Critical services reachable using satellite
Next Generation Internet Protocol (IPv6)	Pilot of IPv6 services; All ISP are IPv6 enabled	Government agencies adopt IPv6	IPv6 full device and network compliance
Home Internet Adoption	"One Home, One Internet Access" campaign	70% household with Internet access	90 % household with Internet access
Information & Network Security	Information and network security portal Installation of network security measures Compliance to international security standards		
Competence Development	Initiate programmes for competence development Upgrading and enhancing competencies Develop R&D capabilities		
Product Design & Manufacturing	Capacity building Original Equipment Manufacturing High-tech communication industries		

MyICMS 886 Goals 2006 through 2010

Areas	2006	MediumTerm (2008)	Expected Results 2010
Growth Areas			
Content Development (education, entertainment, games)	Promote creativity and awareness Strategic alliance with regional partners Sizeable content export that will contribute to communications & multimedia industry revenue		
ICT Education Hub	Promote e-learning Ensure high quality education and training systems Regional center for ICT education excellence		
Digital Multimedia Receivers (set top box)	Adopt open standards configuration for manufacturing Local production available in retail market Recognized producer of digital radio receivers and set top box		
Communication Devices (e.g. VoIP phones)	Prototype communication devices Malaysian made communication devices Proliferation of communication devices for domestic market		
Embedded Components & Devices (e.g. RFID)	Promote R&D and commercialization Widespread use of locally made integrated chip (IC) products in applications Export revenue contribute to the growth of GDP		
Foreign Ventures	Marketing & branding to create more visibility International sub-contracting and outsourcing Contribution to industry revenue		



MYICMS 886 IMPLEMENTATION PLAN

8 SERVICES

- High Speed Broadband ●
- 3G & Beyond ●
- Mobile TV ●
- Digital Multimedia Broadcasting ●
- Digital Homes ●
- Short Range Communications
(e.g. RFID-based) ●
- VoIP/Internet Telephony ●
- USP – Universal Service Provision ●

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1. High Speed Broadband

Background

- 1.1 The High Speed Broadband Service encompasses both last mile wireline and wireless access services. The service provides high speed and high capacity portable Internet service while on the move or stationary.
- 1.2 The driving force of the High Speed Broadband service will be the abundant availability of multimedia contents and applications which are delivered on the Internet.

Goal and Strategy

- 1.3 The appropriate xDSL technology implemented earlier will make significant in-roads for fixed broadband access. Optical fibre access will be introduced in 2007 and Fibre-To-The-Home (FTTH) will be increasingly available for last mile connections.
- 1.4 In 2006 there will be commercial services for Metropolitan Broadband Fixed Wireless Access. Nomadic Wireless Broadband is expected within the 2008 timeframe. Thereon, proliferation of regional mobile wireless broadband services is expected.
- 1.5 There will be seamlessly combined services on mobile broadband GSM/GPRS/3G that will provide high-speed mobile access at affordable prices, enhancing consumer convenience and introducing various application services.

Expected Results

- 1.6 By end 2006 the total number of subscribers is expected to be 1.3 million and this is targeted to reach 2.8 million by 2008.
- 1.7 Optical fibre access will contribute a 10% penetration rate for broadband from 2008 to 2010.
- 1.8 By the end of 2010, it is expected that the total broadband connection will reach 75% penetration rate for household.

2. 3G & Beyond

Background

- 2.1 For 3G & Beyond, the services will encompass voice, video and high-speed data services.
- 2.2 The 3G services will continue to be expanded for extensive nationwide coverage and enhanced to cater for higher data speeds.

Goal and Strategy

- 2.3 The short-term target is to achieve a subscriber base of 300,000 by end 2006 and 1.5 million subscribers by end 2008.
- 2.4 The operators are expected to work together in expediting coverage expansions and aggressive service promotions to accelerate the take up of 3G services.

Expected Result

- 2.5 A multitude of video-rich information capabilities will be available to cater for all aspects of the daily communications, business and entertainment needs.
- 2.6 It is expected that the subscriber base of this new service will breach the 5 million mark before the end of 2010.

3. Mobile TV

Background

- 3.1 Arising from the hype surrounding the possibilities with the Internet over the last ten years, there is increasing interest in offering extensive multimedia services to mobiles.
- 3.2 With great strides in the arena of broadcasting and cellular technologies, Mobile TV brings the broadcast services to hand-held

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devices. The services can be a direct transmission from the broadcasting network to the handheld receivers or that of delivery via cellular networks to the mobile phones.

Goal and Strategy

- 3.3 Pilot service for DVB-H (digital video broadcasting over handheld terminals) is expected in 2006 and the services in commercial roll out by 2008.
- 3.4 For the cellular operators the introduction of Multimedia Broadcasting and Multicast Services (MBMS) over mobile network is expected to be available in 2008.
- 3.5 By end 2008, 75% of all mobile users will have embraced Mobile TV.

Expected Result

- 3.6 The Mobile TV service will provide information to the majority of people who are on the move. Ultimately the aim is to enable multimedia services anytime, anywhere to reach 90% of the total mobile subscribers.
- 3.7 The environment will be facilitated to promote growth in the subscriptions of direct-to-user services for terrestrial, satellite and MBMS-over-cellular, over the period 2006 through 2010.

4. Digital Multimedia Broadcasting

Background

- 4.1 Digital multimedia broadcasting will cover both Terrestrial and Satellite TV and Audio services. Digital multimedia broadcasting will provide quality audio and video services over TV sets as well as handheld devices or mobile phones and other radio receivers.

- 4.2 The digital TV broadcasting in Malaysia will see the introduction of Standard Definition TV (SDTV) and High Definition TV (HDTV).
- 4.3 In line with the digital TV broadcasting strategy, the introduction of Digital Video Broadcasting Handheld (DVB-H) devices, covered under the Mobile TV services, will be facilitated.

Goal and Strategy

- 4.4 Commercial launches of Digital Television Terrestrial Broadcasting (DTTB) in selected areas and pilot trials for Digital Sound Broadcasting will take off in 2006.
- 4.5 From 2007 onwards the regional rollouts of digital TV broadcasting will take place. A pilot on High Definition TV (HDTV) will commence before the end of 2008. This will set the stage for further commercial digital TV broadcasting take-off.

Expected Result

- 4.6 The household coverage for Digital Terrestrial Television Broadcasting is expected to reach 60% by 2008. Digital Sound Broadcasting is to provide nationwide coverage within 2008.
- 4.7 The introduction of digital multimedia broadcasting will set the initiatives for the growth of local content industry and local production of Set Top Boxes (STB) and digital multimedia receivers (for both Radio and TV).
- 4.8 Ultimately, the digital multimedia broadcasting will provide coverage to 95% of households.

5. Digital Homes

Background

- 5.1 Digital homes use networking technologies to integrate appliances, devices, and services within the home to control and monitor the entire living space from within the home as well as from remote locations.

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5.2 Digital Homes depend on High Speed Broadband services to serve the various applications. The connectivity between terminals/appliances can be provided by various solutions such as Broadband over Power Line (BPL), WiFi, Bluetooth, etc.

Goal and Strategy

- 5.3 There is a need to drive consumer awareness on the technologies and products for Digital Homes. Collaborations should be carried out amongst service providers, device manufacturers, housing developers and municipal councils to deploy the infrastructure for Digital Homes.
- 5.4 Service providers will be required to interwork with external networks by adopting Standards for appliances and internetworking.

Expected Result

- 5.5 The market will see the evolution of consumer terminals that can run multi tasking middleware and applications. It is expected that within 2006, the Home Gateway will be introduced in 60,000 homes to support small-office, home-office (SOHO) type of applications.
- 5.6 Digital Homes will produce ripple effects through the economy since it is related to telecommunications, broadcasting, home appliances networking and solutions. This should drive the development in the relevant infrastructures.
- 5.7 By end 2008 it is projected that a total of 500,000 homes will have interworking with external networks and by the end of 2010, the number of connected homes will reach 1 million.

6. Short Range Communications (e.g. RFID-based)

Background

- 6.1 The Short Range Communications services will support the creation of short-range wireless connections type of applications which use

very low power. Among the technologies categorized under this service are RFID (radiofrequency identification), UWB (ultra wideband), Bluetooth and Zigbee.

- 6.2 Examples of applications would include use in inventory management, the supply chain management, transportation and logistics, live stock management and security and access control.
- 6.3 With the development of the global IT infrastructure, RFID applications will be integrated with the advanced information networks like NGN (Next Generation Networks) types, including networks of 3G and beyond, thus creating a truly ubiquitous environment. This will bring about profound changes to the relationship between humans and the material world around them and will certainly uplift productivity and enhance economic growth.

Goal and Strategy

- 6.4 In order to be at par with global RFID developments, there is a need to create awareness and promotion of RFID amongst the business community, particularly those with extensive supply chain management.
- 6.5 The 919 – 923 MHz UHF band and technology standards such as EPC Global and ISO/IEC being the largest two will be adopted to conform to cross border requirements and be part of the worldwide tagging system.

Expected Result

- 6.6 Local manufacturing of the RFID chips is expected to gain ground within 2006. The RFID commercial usage is expected to generate substantial revenue contribution to RFID chip production. The projection is to achieve 2% of global market share in chipset production and related services.
- 6.7 RFID is expected to be widely used in personal identification cards (e.g. MyKad, office access) and such systems for electronic payment, logistics, tracking and baggage handling.

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6.8 By 2010, it is expected to be widely used in various applications on a large scale including smart grocery stores, smart kitchens, and smart refrigerators in complementing the smart homes.

7. VoIP/Internet Telephony

Background

- 7.1 VoIP (Voice over Internet Protocol) and Internet Telephony in general, offers cheaper phone services over the Internet. VoIP simplifies some applications that are cumbersome or impossible with traditional phone networks.
- 7.2 VoIP phones can integrate with other services available over the Internet, including sending and receiving messages or data files in parallel with the voice conversation, audio conferencing, managing address books and passing of information on whether other users (e.g. friends or other associates) are available online to interested parties.
- 7.3 IP Multimedia Subsystem (IPMS) will merge Internet technologies with the mobile world, using a pure VoIP infrastructure. It will enable telecommunication companies to upgrade their existing systems while embracing Internet technologies such as the Web, email, instant messaging and video conferencing. It will also allow existing VoIP systems to interface with the conventional fixed (PSTN) and mobile phones.

Goal and Strategy

- 7.4 Internet Telephony will develop into a key voice service as the trend moves toward upgrading to the all-IP networks. The quality of the service will be enhanced by the establishing of specific Quality of Service (QoS) benchmarkings.

Expected Result

- 7.5 The VoIP service is expected to play a leading role in the new access environment of wireless broadband, BPL (broadband powerline) etc.

- By end 2006, both residential and business segments VoIP is expected to contribute a total revenue of RM800 million.
- 7.6 The proliferation of the services will create demand for low cost IP telephones, higher quality and cheaper voice services. These factors will lead to increase in revenue to RM 1.5 billion for both residential and business segments by end 2008.
- 7.7 By end 2010, revenue from VoIP services is expected to touch RM 1.5 billion.

8. USP – Universal Service Provision

Background

- 8.1 USP is a concerted effort to ensure that the underserved, and especially the outlying and rural areas, of the Malaysian population are provided with access to information, communications and multimedia services, which amongst the urban population is commonplace.

Goal and Strategy

- 8.2 To achieve basic telephony and advanced services for all underserved areas with a teledensity 20% below the national penetration rate.
- 8.3 In 2006 new USP projects such as Broadband Internet Community will be introduced.
- 8.4 The regulatory framework, technology options and implementation strategy will be continuously reviewed to ensure cost effective implementations and roll-out mechanisms for USP.

Expected Result

- 8.5 By 2006 it is expected there will be an increase in the broadband Internet individual access among the underserved communities.
- 8.6 By end 2010 it is expected 60% of rural household will be covered by the specified communication services.



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8 INFRASTRUCTURES

- Multiservice Convergence Networks ●
- 3G Cellular Networks ●
- Satellite Networks ●
- Next Generation Internet Protocol (IPv6) ●
- Home Internet Adoption ●
- Information & Network Security ●
- Competence Development ●
- Product Design & Manufacturing ●

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8 INFRASTRUCTURES

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1. Multiservice Convergence Networks

Background

- 1.1 The Multiservice Convergence Network (MSCN) is a next generation network through which multimedia services that integrate telecommunications, broadcasting and the Internet are delivered. The MSCN will accommodate both wired and wireless access to communications and multimedia services.
- 1.2 The MSCN implies consolidation of the networks to provide different user services, with telecom-grade quality of service, to several access types with an emphasis on operator cost efficiency.

Goal and Strategy

- 1.3 The MSCN will be deployed in phases from 2006, with the full migration to MSCN expected to be completed by 2010.
- 1.4 The regulatory framework for services provision and network operation will be developed to create favourable environment for the deployment of MSCN. The framework also ensures wide range of applications will be developed and distributed.
- 1.5 The aim is to provide the capability to access multiple services on a fully IP-based network.

Expected Result

- 1.6 The MSCN will provide high-tech services such as e-Learning, e-Health, e-Commerce, Home Networks via “convergence” terminals.
- 1.7 The MSCN should be “access-agnostic” and hence it will support a wide range of services, including UMTS, GPRS, WLAN and fixed line services.

2. 3G Cellular Networks

Background

- 2.1 The high demand and growth for mobile high speed Internet access will lead to the upgrading of the existing 3G mobile cellular networks to provide higher data capacity to support feature-rich applications.
- 2.2 The multimedia capabilities such as Interactive Multimedia Subsystem (IMS) will be added to mobile networks to leverage across the variety of access technologies.

Goal and Strategy

- 2.3 High capacity data features such as High Speed Downlink Packet Access (HSDPA) and Multimedia Broadcasting Multicast System (MBMS) will be introduced in 2006.
- 2.4 The interworking with other emerging mobile broadband technology with the 3G networks is expected in the timeframe 2008 – 2010.
- 2.5 The 3G network operators are expected to strategize at addressing the various market opportunities that will drive their 3G businesses.

Expected Result

- 2.6 End users will benefit from a technology that will provide performance at improved end-user experience for web access, file downloads and streaming services.
- 2.7 The expected results for the coverage/capacity expansion to cater for high-speed mobile services will be related to the number of sites and percentage coverage as determined in the 3G business plans.

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3. Satellite Networks

Background

- 3.1 The unique feature of communications satellites is their ability to simultaneously link all users on the earth's surface under their footprint. With satellites, capacity can be dynamically allocated to users' needs.
- 3.2 The Multiservice Convergence Network will include both terrestrial and satellite access. Satellite will provide complementary transmission medium to reach the critical and normally difficult inaccessible services.

Goal & Strategy

- 3.3 Remote and rural areas inaccessible via normal communications links will be served by satellite. The satellite broadcasting service that is currently available will be further promoted toward providing a means to reach rural communities.
- 3.4 Open standard satellite-IP enabled networks will include Digital Video Broadcasting Return Channel via satellite for interactive services.
- 3.5 Satellite services will also be promoted for research and education purposes and will co-exist and be coordinated with other communication services.

Expected Result

- 3.6 Satellite networks will provide coverage to areas that are inaccessible by, or would be costly to be implemented with, normal terrestrial wired or wireless solutions.
- 3.7 Satellite audio and video broadcast will enable communications across vast distances and for speedy deployment and restoration of services.

4. Next Generation Internet Protocol (IPv6)

Background

- 4.1 The IPv6 is expected to play a key role in the introduction of advance Internet services and Digital Home.
- 4.2 The ability for the consumers to electronically control each device in their homes will drive the demand of more IP addresses.

Goal and Strategy

- 4.3 The 3G services will be using IPv6 and the pilot IPv6 will commence in 2006. The setting up of National IPv6 Council will define the IPv6 direction and market demand.
- 4.4 A public awareness campaign is crucial to educate users on the efficient usage of IP addresses as well as to create demand for more IPv6 services and applications.
- 4.5 Sector migration will start with ISPs by the end of 2006 and government agencies will commence migration by 2008; IPv6 is expected to be proliferated nationwide by 2010 and with national network support.

Expected Result

- 4.6 By 2008 it is expected that 70% of the core routers would have been migrated to full IPv6 and it is expected by 2010, all core routers will support IPv6 addresses.
- 4.7 The availability of more IP addresses will drive the production of IP-enabled home appliances that would support the Digital Home.

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8 INFRASTRUCTURES

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5. Home Internet Adoption

Background

- 5.1 The successful advancement to the K-economy (knowledge economy) requires the development of the right form of low-cost but high-quality info-structure. The increased use of Internet will in turn give rise to increased productivity.
- 5.2 All Malaysians must have access to information in an equitable manner and to achieve this, it is strategic to raise the level of PC penetration, access to Internet and connectivity.

Goal & Strategy

- 5.3 A campaign “One Home, One Internet Access” will be initiated in 2006 to encourage every home to have Internet connection, in turn encouraging the procurement and use of PCs (personal computers) by Malaysians.
- 5.4 Special training programmes in the area of computer education and Internet access will be formulated alongside the creation of integrated online learning platforms to cater for the learning needs.
- 5.5 “One Home, One Internet Access” campaign should also include devices with similar functions as PC, such as the handheld devices.

Expected Result

- 5.6 Increasing and unencumbered communications for person-to-person, person-to-object and object-to-object.
- 5.7 It is expected that with the increasing initiatives at content development and the availability of the high speed broadband services, Internet access will reach 70% penetration for household by end 2008.
- 5.8 By end 2010, it is targeted that 90% of the household will have Internet access.

6. Information & Network Security

Background

- 6.1 The provision for network security is provided for under the Communications and Multimedia Act 1998.
- 6.2 To ensure information security and integrity and the reliability of networks, a more comprehensive security framework will be introduced to address security in the communications network.

Goal & Strategy

- 6.3 Industry players will work together with the relevant agencies to formulate the mechanism and a security framework for total ICT security management. This will include deployment of the information and network security portal by 2006 and also the establishment of a Joint Response Network with foreign security agencies.
- 6.4 There will be efforts to develop relevant software and to educate users on the need to install security measures as well as to implement training programmes.

Expected Result

- 6.5 The installation of network security measures will ensure compliance to international security standard practices.

MYICMS 886 IMPLEMENTATION PLAN

8 INFRASTRUCTURES

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7. Competence Development

Background

- 7.1 Rapid changes in technology will affect work organizations and will increase the demand for multi-skilled manpower with strong academic foundations, knowledge capabilities and extra-functional skills.
- 7.2 Competence development in the identified and relevant MyICMS 886 service areas is a prerequisite in preparing the industry to meet the challenges. This demands competitiveness and sustainability of Malaysia's capability and capacity in the management of new technologies.

Goal and Strategy

- 7.3 There will be initiatives to create programmes for competence development to address the demand for competent workforce in the rolling out of the services and infrastructure areas.
- 7.4 The programmes will be based on the required competencies and aligned with other Master Plans that have been developed for a Knowledge-based Society for the nation.

Expected Result

- 7.5 It is expected that industry competencies, at the individual organizational level as well as concerted national level, will be developed to meet the requirements of the rapid changing technologies and services scenarios. The ability to share and utilize effectively high quality and extensive information will see the thrust ahead for Malaysia in developing further its own R&D and consultancy capabilities.

8. Product Design & Manufacturing

Background

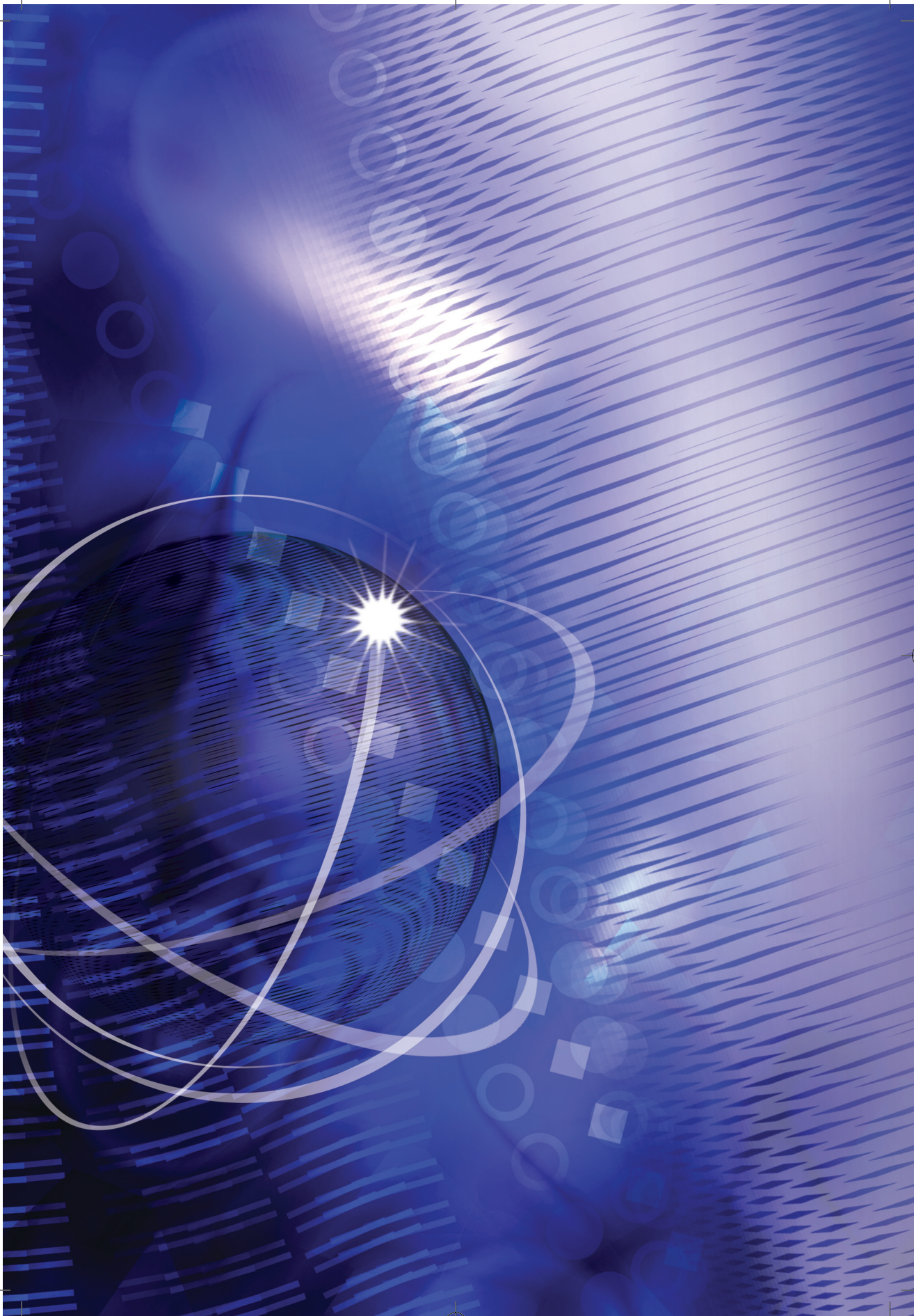
- 8.1 Product design and manufacturing will be one of the logical infrastructures to support the service areas where local original equipment manufacturing (OEMs) can contribute into the chain for speedy take-off of the relevant services earmarked in MyICMS 886.
- 8.2 Local product design and manufacturing will ensure the availability into the local market of information and communications systems and solutions at competitive prices for affordable consumer services.

Goal and Strategy

- 8.3 Leveraging from substantial and developed manufacturing base and track record of the country, efforts will be coordinated to further build capacity and ensure Malaysia is an attractive location for manufacturing of ICT equipment.
- 8.4 Initiatives to enhance current programmes will be facilitated toward ensuring continued sound business and investment climate, with the aim of attracting foreign investors for cooperation and partnership in technology transfer in the area of manufacturing of communication devices and systems.
- 8.5 Promotion of R&D in the identified focused areas and as well as initiatives at providing attractive funding mechanisms will be coordinated with relevant parties. The local manufacturing of communication devices and systems will be based on international standards for products.

Expected Result

- 8.6 Incursions into developing and manufacturing of local products' under the MyICMS 886 strategy will position Malaysia stronger in the high-tech ICT industries.
- 8.7 Local production of Communication Devices will allow consumers to have access to a variety of affordable applications and services.



MYICMS 886 IMPLEMENTATION PLAN

6 GROWTH AREAS

- Content Development ●
(e.g. education, entertainment, games)
- ICT Education Hub ●
- Digital Multimedia Receivers ●
(set top box)
- Communication Devices ●
(e.g. VoIP phones)
- Embedded Components & Devices ●
(e.g. RFID)
- Foreign Ventures ●

MYICMS 886 IMPLEMENTATION PLAN

6 GROWTH AREAS

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1. Content Development

Background

- 1.1 The implementation of digital broadcasting services and multiservice convergence networks will increase the importance of digital local content. It is necessary to develop competence in the content creation to ensure abundance of product offerings for education, entertainment, games, e-services and other areas of daily life and business.
- 1.2 The digital content for TV, radio, Internet and communications industry is a key strategic industry that will strengthen service offerings.

Goal and Strategy

- 1.3 Initiatives to encouraging creativity for local content development as well as promotions to create awareness of local content will be coordinated and facilitated.
- 1.4 Since the proliferation of new services will create demands for high quality contents, Institutes of Higher Learning (IoHL) will have opportunities to develop skills and competencies in multimedia content production.
- 1.5 Content producers will be encouraged to form strategic alliances with regional players to ensure realize the export potentials of the developed content.

Expected Result

- 1.6 Adequate local contents, reflecting the culture and values of the nation and relevant global context, are digitally available and accessible for the various application requirements.
- 1.7 Content will be a sizeable export revenue contribution for Malaysia.

2. ICT Education Hub

Background

- 2.1 The development of the Services and the Infrastructures areas will intensify the development of sophisticated learning products in areas of new technologies, which will then act as a springboard for innovation of indigenous technologies.
- 2.2 To take advantage of the progress in the information and communication services development in the nation, efforts will be made to develop Malaysia into a global ICT Education hub that will create demand for foreign and local students to research new technology areas.

Goal and Strategy

- 2.3 Since ICT is the enabler for acquiring new knowledge, schools and academic institutions will be provided with facilities to allow them to teach more subjects using interactive multimedia technology and web-based teaching.
- 2.4 The ICT Education Hub will not only focus on requirements for ICT infrastructure but will also include the “soft issues” such as target groups, policy makers, teachers, incentives to training houses which promote ICT education.
- 2.5 Private sectors will be encouraged to work with the educational institutions to provide high quality learning products to address the emergence of new technologies in the Communications & Multimedia industry.

Expected Result

- 2.6 The implementation of training programmes and courses, in terms of types and levels, in educational institutions are in line with technological changes. Educational institutions will also

MYIGMS 886 IMPLEMENTATION PLAN

6 GROWTH AREAS

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strengthen their delivery systems by using ICT, including a web-based learning system.

- 2.7 With more collaboration between universities and industries to undertake research with commercial potential; Malaysia will be recognized as a regional center of ICT education excellence.

3. Digital Multimedia Receivers

Background

- 3.1 Consumer devices (e.g. set top box and digital TVs, digital radios) are critical to the reception of the digital transmission and interactive services that accompany the Digital Multimedia Broadcasting services.
- 3.2 Manufacturers and retailers of consumer electronic equipment play a critical role in ensuring that consumers can receive digital broadcasting services via the proper digital multimedia receivers.

Goal & Strategy

- 3.3 From 2006, regional cooperation will be encouraged to define a standard set-top box to provide minimum basic functionalities that can broadcast basic services to every home.
- 3.4 Industries are encouraged to adopt international standards configuration for the receivers, which can provide "Triple Play", services over a single box.
- 3.5 The plan is to focus on R&D and low cost production for digital receivers to cater for both foreign and domestic markets.

Expected Result

- 3.6 Standard digital multimedia receivers are expected in the retail market where consumers can have choices over the types of receivers they would require.

- 3.7 With the availability of low cost digital multimedia receivers, it is expected that the migration towards digital services will reach the desired penetration rate for digital broadcasting.

4. Communication Devices

Background

- 4.1 The communications market continues to evolve rapidly, creating a multitude of new services which will be available on both mobile and fixed accesses.
- 4.2 From a service perspective, the end users expect convenience, ease of use, reliability, security and support so as to be always best connected; thus they will demand sophisticated communications devices.

Goal & Strategy

- 4.3 Close focus and understanding on what drives the end users and the future, will provide valuable input to the types of communication devices favored by the end users.
- 4.4 The end users' expectations on the convenience and the ease of use, reliability and security are important aspects on the design of the communication devices.
- 4.5 With the introduction of new access technologies, cost will be an issue. Overall device requirements and network economy must therefore be considered when introducing new user-access devices.

Expected Result

- 4.6 With affordable prices and good quality communication devices, end users will be able to be easily connected anytime, anywhere and also when on the move through their devices of choice.

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6 GROWTH AREAS

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- 4.7 The convergence between media, data communications and telecommunications will require common devices supporting several access types – both fixed and wireless. Device convergence allows multiple applications to be run, reusing the same functions for identification and authentication.
- 4.8 It is expected by 2010 that Malaysian-made communication devices will proliferate in the domestic market.

5. Embedded Components and Devices

Background

- 5.1 Embedded Components and Devices bring about local production of digital devices with embedded chipsets which can include IP phones, chipsets for digital multimedia receivers, RFID devices, PDAs, PCs, satellite terminals, etc. This will also include terminal devices which support future technologies.
- 5.2 Embedded Component and Devices provide smart functions such as machine-to-machine communication, telemetry applications and hardware control.

Goal & Strategy

- 5.3 In order for Malaysia to achieve a leapfrog effect, collaboration with international players is necessary. Emphasis will be given to R&D, and focus areas will be identified to cater for international and domestic markets.
- 5.4 The technology and the product areas will be identified and promoted for research and development with the countries' research institutions, the universities and other institutions of higher learning and the design laboratories. Human resources development will be organized in collaboration with the relevant international key players, the institutions of higher learning etc.

Expected Result

- 5.5 The commercialization of home grown terminal devices will contribute to the country's ICT and multimedia services revenue.
- 5.6 It is expected that high quality design and cheaper prices will lead to widespread use of locally made Integrated Chips (ICs) products in applications.
- 5.7 The export revenue generated from the commercialization will give sizeable contribution to the growth of the GDP.

6. Foreign Ventures

Background

- 6.1 Foreign ventures bring about the opportunity for the industry players to compete on the global stage.
- 6.2 The foundation for this growth area will be through the liberalized market environment and collaboration with international key players in the industry. This will encourage the development of human capital and the export of local own know-how in the related areas.

Goal & Strategy

- 6.3 There will be initiatives to make Malaysian products and services more visible and attractive in the overseas market. Efforts will be coordinated and facilitated to create strong branding and marketing for Malaysian products and services.
- 6.4 The program includes identification of focus areas and establishment of joint-work programmes with other government agencies and trade associations. The programme will also include international sub-contracting and business process outsourcing.

MYICMS 886 IMPLEMENTATION PLAN

6 GROWTH AREAS

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6.5 Favourable incentives will be explored and facilitated for good partnership programme collaboration.

Expected Result

6.6 The liberalized market environment for information, communications and multimedia services will create the strong branding needed for local companies to be more visible in the foreign market.

6.7 The activities undertaken in the foreign ventures growth area are expected to expand the industry's base in various aspects at the same time contributing sizably to the revenue generation for the communications & multimedia industry.