



# CONNECTED MALAYSIA

How it was done.

**G**rowing adoption of broadband services across the Asia-Pacific region is fundamentally transforming the communications landscape of the world's most populous continent.

Thanks to proactive investments and concerted pro-broadband policies, countries once known for their relatively immature telecommunications infrastructures are now jumping ahead of the global pack. Their common goal—to bring the benefits of broadband and robust Internet connectivity to all citizens—promises to transform Asian societies in dramatic and enduring ways.

Investments in both fixed and wireless telecommunications is driven in large part by widely accepted arguments that the spread of broadband is linked to broader economic and social development measures.

Malaysia's leadership brings an integrated and holistic approach to the challenge of low broadband penetration. Strategic policies and accelerated enablement of a competitive wireless broadband market are central to the very real progress being made in Malaysia.

Malaysian citizens are now experiencing new innovative and highly competitive broadband offerings, opening up a whole world of economic opportunities for providers and consumers across the country.

## Asia-Pacific Broadband Situation

Access to many basic services, such as online banking, e-commerce and e-government, is simply impossible without adequate broadband. So, too, is access to a new generation of content services such as live television and streaming media; interactive online applications; wireless gaming;

videoconferencing and other forms of communication. Even basic usage can make a dramatic difference in quality of life and economic prosperity, as was observed when Korea's Information Village (INV)<sup>1</sup> program brought Internet services to rural Korean villages for the first time.

Internet takeup figures suggest there is no question that consumers want these services and will embrace them when they're available. An analysis by firm Frost & Sullivan predicted 13 key regional countries will grow from 129.7 million Internet subscribers in 2007 to reach 321.8 million subscribers by the end of 2013. Separate figures suggest that China alone recently passed 300 million Internet users. Frost & Sullivan predicts the market's total value is expected to jump from USD 28.1 billion in 2007 to more than USD 42 billion by the end of 2013.

As a result of this growth, household penetration rates will rise from 15.2 percent in 2007 to 33.7 percent in 2013, Frost & Sullivan figures suggest. Yet many of Asia's leading economies have already surpassed these figures: South Korea (90.8 percent), Hong Kong (83.8 percent), Taiwan (76.8 percent), Singapore (73.1 percent), Australia (63.2 percent) and Japan (57.8 percent) have broadband services of one kind or another.

With such high penetration rates, in these countries when the regional average is much lower, confirms that other Asia-Pacific countries have extremely low broadband penetration. It is also worth noting that the leading countries all have an extensive landline infrastructure that is not typically found in less-developed Asian countries.

This relatively mature infrastructure has helped several Asian countries rank well in the International Telecommunications Union's 2009 ITU ICT Development Index (IDI),

included in its publication *Measuring the Information Society*<sup>2</sup> IDI rankings for 2007 which placed South Korea (No. 2), Hong Kong (No. 11), Japan (No. 12), Australia (No. 14), Singapore (No. 15), New Zealand (No. 16), Macao (No. 21) and Taiwan (No. 25) in the top 25 countries or territories out of 154 surveyed.

Although it is only evaluated every five years, the IDI provides a widely-accepted index of countries' relative information and communications technology maturity. The eleven IDI assessment criteria include mobile cellular subscriptions, international Internet bandwidth, households with computers, households with Internet access, main telephone lines, Internet users, fixed broadband subscribers, mobile cellular broadband subscriptions, secondary enrolment, tertiary enrolment, and overall literacy.

The IDI ranking is thus an indicator not only of telecommunications investment, but overall educational policies, penetration of technology into everyday life, and the country's connectedness with the rest of the world. A low ranking indicates there is still much work to be done to meet world standards of connectivity, as many less-developed Asian countries found out. Brunei Darussalam (No. 41), Malaysia (No. 52), Thailand (No. 63) and China (No. 73) all ranked in the second quartile of the IDI; Philippines (No. 91), Vietnam (No. 92) and Indonesia (No. 108) were in the third quartile; and Laos (No. 117), India (No. 118), Myanmar (No. 119), Cambodia (No. 121), Bangladesh (No. 138) and Nepal (No. 139) all ranked in the fourth quartile globally.

## Malaysia: Telecommunications Environment

Malaysia has a long history of promoting high-tech development, manufacturing and investment within its boundaries, having extensively focused on the ICT industry as a key pillar of growth under the successful economic policies of Prime Ministers Mahathir and Abdullah. However, the country still faces a yawning digital divide not unlike that facing its contemporaries across Asia, Africa, and the Middle East, which has contributed to its 52<sup>nd</sup> place IDI ranking.

Malaysia's 26 million people and 328,550 square kilometers of land are split both physically and economically, with a highly urbanised population in which 70 percent of its people—and the majority of its economic activity—re concentrated in urban areas including Klang Valley (home



to approximately 6 million people in Kuala Lumpur and surrounds), Penang, Melaka, and Johor.

Telecommunications infrastructure has naturally favored these areas, with government-linked fixed-line incumbent Telekom Malaysia (TM) providing ADSL broadband known as Streamyx, a brand of its ISP arm TM Net, in heavily populated areas. In a September 2007 demerger, TM split its fixed-line and mobile businesses into two separate companies, with TM retaining the fixed-line business while TM

## International takes up the mobile business.

TM International includes TM's domestic mobile operator, Celcom, as well as international mobile subsidiaries in Sri Lanka, Bangladesh, Indonesia, Singapore,

Cambodia, Iran, India and Pakistan; FixedCo is responsible for the fixed-line business, ISP and other related businesses. TM International rebranded itself in May 2009 as Axiata Group.

Some 2.7 million fixed residential phone lines are in use, equivalent to 45 percent of the country's 6 million households. However, overall broadband penetration over this infrastructure is still low—just 23.0 (Q1 2009) percent of households, according to government figures. And for the 30 percent of the population that lives outside key urban areas, broadband—and fixed lines—is all but limited or nonexistent.

Mobile penetration in Malaysia is high, with the largest operators being Maxis Communications (8.5 million subscribers), Celcom (7.8 million customers) and Digi.

All three offer 3G services, although they have so far focused on the most densely populated parts of Malaysia.

GPRS services are available via widely used 2.5G mobile networks, but they are inherently unsuited to delivering broadband services. Even 3G broadband services often struggle with slow throughput, congestion and highly variable signal strength that makes them unsuitable for providing landline-equivalent services at a large scale. However 3G upgrades to HSDPA have improved the delivery and demand has been strong and in a recent study (MCMC Mobile Broadband Study 2008) 39.4% of subscribers are

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Chief Operating Officer,  
Malaysian Communications and Multimedia Commission

found to be using it as the only broadband connection to their home.

Given the limitations of existing mobile services and incumbent status of TM, which has maintained its competitiveness in the fixed infrastructure, competitors have turned to HSDPA and WiMAX for the delivery of much-needed broadband service alternatives. HSDPA and WiMAX not only frees these new operators from reliance on TM's fixed network, but allows them to rapidly bring entire cities online and extend coverage from one side of the country to the other.

For city dwellers whose choice in broadband has been limited to whatever ADSL services they can get from TM, HSDPA and WiMAX promises not only a new alternative but provides mobility that simply cannot be had with ADSL.

Private-sector efforts to expand broadband coverage using wireless technologies are supported by a concerted government focus on utilizing the proceeds of the statutory Universal Service Provision (USP) fund, an escrow scheme to which telecommunications providers contribute 6 percent of their gross revenues as well as tax incentives on investment in broadband infrastructure.

The fund was created by the government during the 2001-2002 financial year, and has steadily grown to be worth more than MYR 2 billion (USD 573 million). As the Malaysian government continues executing its Ninth Malaysia Plan<sup>3</sup> —a five-year strategic direction for the country's development through 2010—the USP fund has been diverted to a range of telecommunications providers in an effort to bring viable broadband services to the entire population for the first time.

## Ninth Malaysia Plan: Broadband is Key

Government support of wireless telecommunications is a significant enabler to the

Malaysia Plans, an overall doctrine that defines Malaysia's strategic growth strategy through 2020 and has significant bearing on the country's telecommunications market.

The Ninth Plan explicitly names ICT as a field of importance, including further ICT-related industrial growth and efforts to support the local digital content

industry and cutting-edge areas such as bioinformatics. The Ninth Plan also includes measures to "increase access to and utilisation of ICT services and facilities, including enhancing e-Government and encouraging the usage of e-commerce among businesses and consumers", and to promote small and medium enterprises' "entrepreneurial and technical capability...through the application of ICT and e-commerce".

Availability of suitable broadband infrastructure is critical to delivering on these goals. To improve availability and minimize rural-regional infrastructure disparities, the Ninth Plan includes support for broader public-private sector partnerships to stimulate investment in the development of Malaysia's overall infrastructure and utilities. "Emphasis will be given to Government-initiated projects based on national priority," the plan states.

In an effort to bridge the 'digital divide', the Ninth Plan has also mandated the development of an infrastructure plan for universal access to the Internet, and increased availability of more-affordable ICT products and services.

These efforts are incorporated into the National Strategic Framework for Bridging the

Digital Divide (BDD), including the establishment of 'telecenters' providing banks of public-use computers in underserved areas, tariff reduction for telephone and Internet subscriptions, and promotion of PC ownership.

Also identified as a government priority is the need for locally developed content. Government representatives identified early on that it was important to not only develop the supply of broadband, but to build new applications and content to increase demand for broadband services. The BDD thus also includes a broad range of initiatives, including promotion of telehealth services for rural areas, creation of compelling e-government services, and promotion of locally-relevant content and online applications in Bahasa Malaysia and other local languages.

These initiatives, and others, have been formally supported by the Malaysian

Communications and Multimedia Commission (MCMC) through the Networked Content Development Grant (NCDG)<sup>4</sup> program. Created to fulfil the content-development aspirations of the Ninth Plan, the NCDG provides grants "to facilitate and encourage Malaysians' involvement in the creation, production and distribution of highly creative, original and marketable networked content for domestic and international markets."

## Executing the Malaysian Ninth Plan

While the Ninth Plan includes explicit support for infrastructure and ICT development, the task of delivering on these goals rests on the industry led by the MCMC, a statutory body created in 1998 to promote the government's communications- and multimedia-related policy objectives, as espoused in the Communications and Multimedia Act 1998.

To guide the industry towards achieving these goals, the MCMC has developed a Framework for Industry Development (FID) which is in its revised and soon to be released

third edition, will continue to further encourage the development of ICT infrastructure and services across Malaysia through 2012. The FID targets include development and roll out of infrastructure, services, growth and bridging the digital divide, effective management of resources and enhancing capacity and capability as key focuses for the industry.

Reflecting the confluence of purpose between the FID and the Ninth Plan's ICT development goals, in May 2008 the Malaysian government announced<sup>6</sup> a public-private partnership to deliver minimum levels of broadband service across the country.

The partnership, targets areas with high impact or major economic areas with high-speed broadband services of speeds of at least 10Mbps and 2Mbps to areas outside. This has seen the Government working in partnership with TM to deliver the basic 2Mbps and high speed 10 Mbps to 1 Gbps services to 1.3 million premises by 2012. This initiative, which includes a MYR 2.4 billion (USD 688 million) government investment and MYR 8.9 billion (USD 2.55 billion) investment by TM, is focused on bringing broadband connectivity to a greater part of the nation with the infrastructure to support ADSL and faster technologies.

In parallel with the above, wireless broadband providers are given tax incentives on investment in broadband infrastructure to encourage them to come on board to participate in providing choice and alternative broadband services throughout the country. Wireless being the key focus here as it provides the first mover advantage and a quicker roll out at a lower cost. This approach is taken as the government recognizes that implementing similar fixed-line infrastructure in those areas would be too high as the cost is estimated at MYR 56 billion (USD 16 billion). However in underserved areas, encompassing the remote rural communities, the USP funding

is used to supply cellular and broadband services thus closing the remaining gap in broadband delivery to reach all.

### **Enabling the Malaysian Wireless Broadband Market**

Upgrades to existing infrastructure were deemed viable in high impact and major economic areas, which would deliver better ADSL services to existing fixed-service customers. However, market dynamics made it clear early on that wireless broadband was the only way to provide large numbers of people with access to higher-speed services in urban areas. It was also clear that the service objectives for areas outside the high impact or major economic areas could only be met using wireless broadband.

"We are aiming to increase broadband penetration from 23.0 (Q1 2009) percent today, to 30 percent of households by the end of 2009 and 50 percent of households by the end of 2010," explained Mohamed Sharil Tarmizi, Chief Operating Officer, MCMC. "We felt the wireless approach would be able to cover the country faster than a wired rollout."

MCMC thus embarked on a process to issue new spectrum licenses to four companies - each separate from existing mobile players - to roll out new wireless broadband services. That allotment saw each of three companies licensed to offer wireless broadband services in the 2.300 GHz to 2.400 GHz radiofrequency band, with each company receiving 30MHz of spectrum to start with. Whereas such selections have previously been made by competitive auction in other countries, the MCMC took a different approach, known as a 'beauty contest'. This approach focuses not on financial offers, but rather makes decisions based on issues such as an evaluation of each applicant's experience, financial capability and implementation plan. The criteria may also require that the applicants demonstrate their commitment to specific service

### **Enter WiMAX**

For a growing number of carriers and startup companies, WiMAX (Worldwide Interoperability for Microwave Access) is the most effective way of providing mobile broadband without the costs and data-performance limitations of 3G mobile networks.

WiMAX provides a fully packet-based infrastructure that enables true DSL/ cable performance, but, it's mobile-wireless. WiMAX is also well-suited as landline replacement, with full support for landline-equivalent services and performance characteristics that are better suited to high-data usage than, voice-designed technologies (GSM, 3G, etc.)

Recognizing the advantages of WiMAX technology, many governments around the world are promoting WiMAX deployments that promise to bring large swathes of their countries online for the first time. Early pilot programs sponsored by Intel and local development authorities, under the auspices of the Intel World Ahead Program<sup>9</sup>, have confirmed the suitability of WiMAX for providing land-line equivalent services in both urban and rural Asian areas, in both highly- and sparsely-populated areas spread over a range of flat and mountainous geographies.

For example, a partnership with the United States Agency for International Development (USAID) and Vietnam Data Communication Company (VDC) used

WiMAX to deliver data and Voice over IP services to a number of villages in the mountains around Lào Cai province<sup>10</sup> in northern Vietnam. A companion project used broadband satellite links and WiMAX to bring broadband to the remote village of Ta Van<sup>11</sup>.



objectives and national priorities. Applications are assessed and scored before being offered a fixed price set by MCMC.

The 'beauty contest' approach allowed MCMC to de-emphasize commercial factors - which would likely lead to a focus on infrastructure in high-density, high-profit capital cities - and instead to secure an ongoing role in development of the licensed services.

And while the government policies are technology-neutral, WiMAX was identified early on by the industry as being an ideal wireless broadband for spectrum recipients due to its wide coverage area, high bandwidth, low cost of customer premises equipment (CPE), and history of robust deployments.

### Acceleration Strategies and Policy

Retaining control over the rollout, rather than simply throwing the new spectrum to the highest bidder, meant the government could set specific objectives for spectrum recipients - which included Packet One Networks, Asiaspace, REDtone-CNX Broadband and Y-Max Networks.

The first milestone set by the government mandated that providers commercially launch their service by the end of August 2008, cover 25 percent of Malaysia's population by the end of March 2009 and 40 percent of the population by March 2011. Companies that do not meet the targets could be fined, have their licenses revoked, or lose their performance bond of up to MYR 7.7 million (USD 2.2 million).

Tight monitoring of progress against objectives also allowed the government to ensure the providers extend their wireless broadband services into regional areas in their committed business plans. Operators would be held to rollout milestones, as well as commitments made with the intention of fast-tracking the wireless rollout. In exchange, the government gave operators tax incentives on the purchase of wireless base stations and related equipment.

Government involvement also ensured assistance for providers in the often-difficult process of negotiating access to land for installation of base stations. Since 2004, this process has been hastened through the government's Time One and Time Two projects, which involved the installation of more than 2,000 towers and 5,000 base station transmitters to build out Malaysia's cellular infrastructure. More recently, the

Time Three project added another 1,150 towers that will help extend 2.5G mobile coverage to 97 percent of Malaysians by 2011.

The towers - of which there are now a total of more than 13,000 across both Malaysia's cities and rural areas - were initially put up to support mobile networks, but are equally suitable for HSDPA and WiMAX. With government support, they have been made available for equal access by all wireless telecommunications providers. Generally, towers are shared by two to three operators.

This approach has ensured telecommunications providers can install their equipment without being caught up in the complexity of local planning laws and policies. "The issue of base station site acquisition remains a major issue," said Sharil. "There are many areas where land belongs to native populations and it can be difficult for private operators to gain access. We help the state government get involved in land acquisition through state-backed licensees so that they can get the right to install their towers and operators their antennas."

### Driving Connectivity Beyond The City

Although facilitating the physical installation of HSDPA and WiMAX equipment has helped the MCMC realize the goals of the Framework for Industry Development, it is only one part of the government's overall strategy to promote broadband access in rural areas.

Because PC ownership rates are still quite low in those areas, even offering wireless broadband isn't enough on its own. In an effort to improve access to PCs, the MCMC has allocated USP funding to facilitate the development of Community Broadband Centres (CBCs) - centralized locations where a dozen or more PCs are set up and share a single broadband connection. A related initiative, called Community Broadband for Libraries (CBL), has worked to install shared PCs and broadband services at suitable public libraries across the country.

Addressing access to PCs as well as access to broadband has helped the government lay the foundation for much wider use of broadband services. With several wireless broadband players now progressively rolling out their services, the government is maintaining its close partnership with the industry and working to ensure its policies facilitate the rapid spread of wireless broadband out of Malaysia's major cities to every corner of the country.

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“The response from customers has been very encouraging,” he said. “They recognize that broadband is no longer a luxury item; it’s today’s must-have, and it’s a necessity not only from a lifestyle perspective but also from the point of view of business, education, and getting connected to the world.”

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Yet, even as it moves through rural areas stimulating broadband development, the Malaysian government is also working to build up related infrastructure in a range of ancillary areas.

For example, it is making a concerted effort to address the ever-increasing need for international backhaul capacity. With such a rapid growth in end-user access speeds, backhaul is particularly important to ensure that international links don’t become a congestion point that slows down broadband nationwide. To this end, the government is exploring a range of incentives to encourage operators of undersea cables to land their fibre-optic links in Malaysia.

In line with the ambitions of the NCDG program, the government is also working to educate different population groups—from university students to rural farmers—about the myriad benefits they can gain by becoming actively engaged with the possibilities broadband presents.

“It’s a steady process of educating people and making them aware that their market is not just there around them, but can be the whole of Malaysia and the world,” said Sharil. “The government is committed to promoting the unity of the Malaysian people by connecting our many societies and enabling the flow of ideas, knowledge, history, and innovation.”

## Malaysia’s First WiMAX Operator: Packet One Networks

Just 18 months after it was issued one of Malaysia’s four WiMAX licenses, operator

Packet One Networks (Packet One)<sup>7</sup> is working in top gear to maintain its momentum as it races to blanket the country in WiMAX service.

After receiving its spectrum license in early 2008, Packet One kicked off a whirlwind network rollout with WiMAX base stations and CPE from companies such as Alcatel-Lucent\*, Huawei\*, Motorola\*, and Navini Networks\*. Packet

One has also worked closely with the MCMC and enjoyed the support of investors including Intel Capital.

Packet One initially launched its services across Kuala Lumpur and the Klang Valley, targeting metropolitan areas that helped it quickly reach large numbers of customers.

By promoting the benefits of wireless broadband compared with the very limited existing options, Packet One was able to build awareness in the general population and signed up over 45,000 subscribers in its first eleven months.

CEO Michael Lai said the company is right on track to meet its target of 200,000 subscribers by the end of 2009 - at which point the company will break even on an EBITDA basis. “The response from customers has been very encouraging,” he said.

“They recognize that broadband is no longer a luxury item; it’s today’s must-have, and it’s a necessity not only from a lifestyle perspective but also from the point of view of business, education, and getting connected to the world.”

### Competitive Innovative Choice for Consumers

Operating under the brand P1, Packet One initially offered a broadband modem service that provides a fixed-line replacement to homes within its coverage area.

The P1 WiMAX modem—which costs MYR 199 (USD 57) upfront, MYR 20 (USD 6) per month on a 12-month contract or comes free on a 24-month contract—connects to the company’s WiMAX network and provides connections for local computers via a built-in Wi-Fi hotspot. Plans range from MYR 49 (USD 14) per month for a 400 Kbps/150 Kbps service with 5 GB downloads up to MYR 339 (USD 97) for an Office

Premium service with 2.4 Mbps/500 Kbps speeds and unlimited downloads.

Packet One’s services have appealed to both new broadband users and existing ADSL customers, who find the WiMAX, service a compelling alternative because they

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no longer have to pay TM for a conventional fixed service. Combined with faster speeds and more consistent overall performance regardless of the quality of in-ground copper, customers continue to see great value in Packet One's services.

In April 2009, the company complemented its fixed-line replacement service with WIGGY, a mobile broadband service that is accessible from notebook PCs using a MYR 299 (USD 86) USB dongle. WIGGY, which provides up to 10 GB of downloads per month at speeds of up to 10 Mbps, costs MYR 149 (USD 42) per month and is bundled with an Acer Aspire One netbook\* as a customer incentive.

Although WiMAX provides large coverage cells at high speeds, the launch of WIGGY was delayed to ensure Packet One had broad enough WiMAX network coverage that it could meet customers' expectations of seamless coverage, Lai explained.

The company now has over 300 base stations, and expects to reach 700 sites by the end of the year. This will include steady expansion into suburban and rural areas as its network continues to grow. Once it has achieved broad coverage across peninsular

Malaysia, the company will extend its network across Sabah and Sarawak Malaysia as well.

“Especially in developing economies like Southeast Asia, WiMAX is a great way to bridge the digital divide; our experience has been that ‘if you build it, they will come’,” Lai explained. “Our challenge is basically that we can't build fast enough. So we just need to keep moving as quickly as possible. We have a very aggressive growth plan, and we are pushing ourselves very hard.”

#### Key Lessons for Packet One

Packet One's aggressive growth plan has been conceived to keep up with the government's targets for network

coverage, which included reaching 25 percent of Malaysia's population by early 2009 and 40 percent of the population by 2011.

While growing from nothing to become a nationwide wireless carrier hasn't been easy, Lai said it has been helped by the company's focus on training employees in IP networking and project management skills.

“It has been a learning journey throughout,” he said. “The quality of the network has to be there and, even today, we're still continuing to learn as we expand its capabilities.” Strong support from vendors and partners has been essential, with the WiMAX rollout treated as a shared learning experience from which all parties have learned lessons and to which all parties have contributed.

For example, ongoing improvements to the Alcatel-Lucent base stations allowed the partners to boost the capacity of Packet One's network from around 30 concurrent users per base station to 120 concurrent sessions; in the future, this is expected to jump to 360 concurrent sessions, greatly enhancing the network's overall service capacity without requiring major new infrastructure investment.

Lai singled out Intel, which has provided both financial support for Packet One through its Intel Capital arm, and technical advisory support in helping Packet One keep abreast of developments in WiMAX standards and compliance programs.

Tapping into partners' resources has also been invaluable in engaging citizen groups throughout the rollout, dispelling fears about the introduction of new sources of radiofrequency radiation and explaining about the potential economic and social benefits the services will provide.

Lai credited the government's hands-on policy framework for easing the rollout - both in terms of facilitating access to suitable transmission towers, and in terms of

supporting efforts to build a broader market for the wireless broadband by stimulating demand for relevant content.

This fits in with Packet One's own philosophy which, he said, is built around a '3C' strategy—connectivity, communications, and content. With the network rollout proceeding rapidly, the company has also signed interconnect agreements with mobile and fixed voice carriers, which will allow it to begin offering VoIP-based voice services to its customer base over the same WiMAX links. This will grow it into a full-service telco able to offer subscribers yet another reason to abandon their fixed lines.

In tasking MCMC to act as the single, central government agency to support Packet

One and other carriers' wireless rollouts, Lai said the Malaysian government had put into place a solid regulatory and policy framework that will ensure the country realizes the benefits of WiMAX as quickly and effectively as possible.

"Throughout the rollout, you not only have to deal with local permitting regulations and red tape, but with the community as well," he said. "By setting up a one-stop agency to deal with the telcos, the government has done a very good thing. If you have a commitment from the head of state, a task force set up with the state government, and the support of that one-stop agency, your rollout process will be much smoother."

## Conclusion

The Malaysian Government and telecom industry has taken a very active role in accelerating and enabling national access to broadband and the social-economic opportunity it brings.

New innovative and cost-effective broadband market choices, like HSDPA and WiMAX, have required the Government to rapidly establish new policies and strategies - in order to bring their vision to reality.

In summary these were:

- A clear recognition at the highest political level, to the role of broadband and the country's national interests, through its prioritisation in the national strategic plan, associated policies and budgets.
- Recognition that current technologies (fixed or wireless) would not bring the broadband penetration—to consumers in the time-frame set by Government broadband objectives.
- In energising the marketplace to invest, innovate and deploy new wireless broadband networks—new spectrum allocations were accelerated, by
  - rapidly bringing new spectrum to market,
  - including network 'build-out clauses', and penalties for not complying,
  - ensuring tendering 30 MHz assignments, to ensure robust business cases and to attract quality investments for network deployment.
- Co-investing in enabling infrastructures (towers, etc.) for the communications industry to rapidly deploy new wireless (voice and data) services,

- Evolving policies like USP, enabling strategies like the Framework for Industry Development (FID) and grant schemes like the Networked Content Development Grant (NCDG)<sup>8</sup> program to ensure development of new innovative services, universally - nationwide.

Malaysia is well on the way to realising its broadband goals. The country and its citizens now stand to realise true social-economic developments from e-education, e-government services, e-health and e-commerce, as these services transform their lifestyles. Not only will these services stimulate the economic prosperity of the people, but will usher in a whole wave of digital innovations and new economic opportunities for the country.

1 Reference: [http://worldahead.maplecroft.com/downloads/INTDIG06/11043\\_1901\\_CS\\_Kinvil\\_27\\_04.pdf](http://worldahead.maplecroft.com/downloads/INTDIG06/11043_1901_CS_Kinvil_27_04.pdf)

2 Reference: <http://www.itu.int/ITU-D/ict/publications/idi/2009/index.html>

3 Reference: <http://www.epu.gov.my/rm9/html/english.htm>

4 Reference: [http://www.skmm.gov.my/what\\_we\\_do/ncdg/ncdg.asp](http://www.skmm.gov.my/what_we_do/ncdg/ncdg.asp)

5 Reference: [http://www.skmm.gov.my/about\\_us/fid.asp](http://www.skmm.gov.my/about_us/fid.asp)

6 Reference: <http://www.skmm.gov.my/newsdesk/press/ViewPressRelease.asp?cc=9116794&prid=61968632>

7 Reference: <http://www.pl.com.my>

8 Reference: [http://www.skmm.gov.my/what\\_we\\_do/ncdg/ncdg.asp](http://www.skmm.gov.my/what_we_do/ncdg/ncdg.asp)

9 Reference: <http://www.intel.com/intel/worldahead/>

10 Reference: [http://worldahead.maplecroft.com/downloads/INTDIG06/lao\\_cai\\_case\\_study.pdf](http://worldahead.maplecroft.com/downloads/INTDIG06/lao_cai_case_study.pdf)

11 Reference: [http://worldahead.maplecroft.com/downloads/INTDIG06/ta\\_van\\_case\\_study.pdf](http://worldahead.maplecroft.com/downloads/INTDIG06/ta_van_case_study.pdf)

