



Taiwan: WiMAX

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Summary

The Taiwan authorities have proposed the ambitious Worldwide Interoperability for Microwave Access (WiMAX) plan to advance Taiwan's information technology development, develop Taiwan's competitiveness, and provide seamless mobile and wireless Internet access to the public. A total of USD 220 million (NTD 7 billion) has been allocated for WiMAX projects between 2006 and 2008. In addition to financing projects, Taiwan authorities awarded six WiMAX licenses in July 2007, which is expected to result in an investment of USD150 million (NTD4.8 billion) in network construction. This funding and licensing should boost demand for WiMAX-related equipment, solutions, and applications in the Taiwan market through 2010.

Market Demand

M-Taiwan Plan

The M-Taiwan Plan, effective between 2006-2008, is an extensive mobile Internet and mobile services infrastructure development project with a scheduled budget of USD 1 billion (NTD 31 billion). The project aims to enhance the island's wireline and wireless broadband infrastructure by resolving the "last mile problem" through implementing fiber to the home in both fixed-line and cable television networks, as well as enhancing wireless infrastructure and applications. This plan is being implemented in both the public and private sector. The public sector mainly focuses on government services (M-service), and education services (M-learning), while the private sector's concentration is on creative applications of the plan, such as entertainment, Voice over Internet Protocol (VoIP), mobile web portal, mobile positioning system, and mobile e-business. Taiwan officials have recently supported the M-service initiative by actively participating in demonstrations of WiMAX applications such as traffic services, medial services, and wireless security surveillance. M-learning initiatives include distance learning and campus safety. In addition to the M-Taiwan Plan initiative, Taiwan authorities are considering innovative WiMAX deployment approaches to create Wireless Cities and Wireless Railway.

WiMAX Blueprint

The WiMAX Blueprint plan is a collaborative effort between several government ministries, aimed at developing Taiwan's communications technologies and creative application services. The WiMAX Blueprint is implemented through the M-Taiwan Plan. Under the M-Taiwan Plan, a total budget of USD 220 million (NTD 7 billion) has been allocated to finance WiMAX projects between the years 2006 to 2008. M-Taiwan network deployment will require a huge volume of WiMAX products. It is expected that by the end of 2008, more than 30,000 base stations and 3 million customer premises equipment units will be deployed, and by 2012 Taiwan will have approximately 8 million WiMAX users.

Technology Development Strategy

The WiMAX technology development strategy is as follows:

- Develop a complete WiMAX ecosystem covering chipsets, base stations, customer premises equipment, network elements, system integration, applications, and commercial operations;
- Develop differentiated applications covering Internet Protocol Television (IPTV) broadcasting over WiMAX;
- Develop a coupled WiMAX / Wi-Fi network to leverage the strength of Taiwan's Wi-Fi industry;
- Leverage public-sponsored basic R&D projects for core technologies covering 802.16e chipsets, customer premises equipment (CPE), base transceiver stations, and system integration capabilities;
- Collaborate with international players to speed up product development, manufacturing, and market development;
- Provide financing to encourage private sector investment in R&D and cooperation between private and public sectors;

- Encourage strategic alliances between international and local firms to apply for M-Taiwan projects; and
- Provide trial spectrum to international and local WiMAX players.

Licensing

Taiwan authorities have taken a technologically neutral stance allowing WiMAX operators to choose from the available technologies, mainly time division duplex (TDD) and frequency division duplex (FDD), at their discretion. The allocated broadband spectrum available for WiMAX is 2.5-2.69 GHz. In July 2007, Taiwan authorities awarded WiMAX licenses to the following companies: Far Eastone Telecom, Vastar Cable TV Systems, Tatung Telecom, Vmax Telecom, First International Telecom, and Global Mobile. These license agreements are projected to result in a network construction investment of over USD150 million (NTD4.8 billion). The six companies are expected to complete preparations and receive their operating licenses within two and a half years.

Applications

WiMAX applications will create greater commercial opportunities for companies because of the advanced technology used to install base stations and related equipment. Once a WiMAX infrastructure is established, new mobile application services can be developed and consequently increase demand for new equipment and new parts.

Best Prospects

The product categories below have solid sales potential for the next three years:

- WiMAX chipsets;
- WiMAX system base stations, Wi-Fi/WiMAX gateways, WiMAX CPE fixed relay stations, WiMAX home/business terminals;
- WiMAX application platforms covering VoIP, IPTV broadcasts, on-line gaming, and e-health.

Key Suppliers

International WiMAX equipment and solution vendors such as Alvarion (Israel), Aperto Networks (USA), Proxim Wireless (USA), Motorola, Nokia-Siemens, and Nortel Networks (Canada) are zealously working with leading local firms involved in the M-Taiwan Plan to promote WiMAX projects. According to local press reports, as part of the M-Taiwan initiative, Nortel Networks signed a contract with Chunghwa Telecom, Taiwan's premier carrier of WiMAX, to deploy its base station system in Yilan county. Through this partnership, Nortel Networks and Chunghwa Telecom have supplied wireless mesh broadband gear to Taiwan's two largest cities, constructed experimental test labs and conducted WiMAX product trials at National Taiwan University. In October 2006, Proxim Wireless also announced that they were working with the Asia Pacific Telecom Group, a fixed-line, mobile, and Internet service provider, to provide a core communications platform for M-Taichung, a city broadband project designed to cover the majority of the population of Taichung. In January 2007, through extensive manufacturing collaboration, Alvarion and Accton Technology, a local networking products manufacturer, formed an alliance with Accton Wireless Broadband (AWB) to develop WiMAX consumer electronic devices with 802.16e-2005 specifications. Another equipment and solution vendor, Aperto Network, has also announced their union with D-Link, a local networking products manufacturer, to sell Aperto Network's WiMAX solutions in the Taiwan market. Domestic manufacturers mainly produce 802.16e terminal chipsets, 802.16e base stations, and total solutions, including WiMAX systems and network infrastructure.

A list of Taiwan's Industrial major WiMAX players is as follows:

Key Components	Equipment Development and Manufacture				Applications and Content	
	Consumer Premise Equipment	Pico*/ Micro Base Stations	Core Network System and Software	Test & Certification	System Integration/ Content Providers	Operator/ Service Providers
MediaTek	Gemtek	ZyXEL	MTI	Advance Data	China TV	Far Eastone

Mobile Device	Z-Com Cameo Delta Networks Accton AWB Tecom JStream AboCom Acer Alpha Networks Asustek CyberTAN D-Link Dmedia GIL Technology Inventec MTI Quanta Computer QMI USI Wistron NeWeb Loop Telecom Foxconn Compal	Foxconn Alpha Networks USI GIL Technology Loop Telecom Tecom Accton MTI	Tecom	Technology Compliance Certification Svc SGS Taiwan Intertek Taiwan Telecom Technology Center	TTV ERA Rock Mobile Acer HP SECOM	First Telecom Vmax Telecom Tatung Vastar CATV Global Mobile
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Note: *Pico is a prefix of units denoting a factor of 10⁻¹².

Source: Mobile Taiwan Applications Promotion Program Office, Industry Development Bureau, Ministry of Economic Affairs

Prospective Buyers

In December 2006 nine firms, listed below, were funded for twelve WiMAX projects including nine infrastructure and three applications projects. In addition to these projects Taiwan authorities also awarded six WiMAX licenses in July 2007. Those firms financed for WiMAX projects and WiMAX licenses will be the main prospective buyers for WiMAX-related equipment and solutions in the Taiwan market.

Leading Firms for WiMAX Financing Projects

Company	Project Category	Projects
Tatung	Infrastructure (3 projects)	M-Kaohsiung County, Hualien Wireless Land, and Pingtung Travel & Tourism
Chunghwa	Infrastructure (2 projects)	M-Kaohsiung City and M-Taoyuan
Vibo	Infrastructure	Mobile Taipei Hi-Tech Corridor
China TV	Infrastructure	E-SNG and Mobile TV
First Telecom	Infrastructure	Mobile Life in Northern Taiwan
Far Eastone	Infrastructure	Mobile Lifestyle
HP	Application	HP Mobile Taiwan
TTV	Application	HDTV/WiMAX
Rock Mobile	Application	Interactive music/video create community

Source: Mobile Taiwan Applications Promotion Program Office, Industry Development Bureau, Ministry of Economic Affairs

WiMAX Services Licensees

Company	Prospective Infrastructure Provider	Website
Vastar Cable TV Systems	Motorola	www.vastartv.com.tw
Far EasTone	NEC	www.fareastone.com.tw
First International Telecom	Alvarion	www.fitel.net.tw
Tatung Telecom Corporation	Nortel	www.tatung.com.tw
Global Mobile Corporation	Alcatel-Lucent	www.globalmobile.com.tw
Vmax Telecom	NSN	www.vmax.net.tw

Source: Mobile Taiwan Applications Promotion Program Office, Industry Development Bureau, Ministry of Economic Affairs

Market Entry

Most new-to-market exporters entering Taiwan begin by finding a local partner to serve as their agent, distributor, and/or representative. Many Taiwan firms prefer the partnering aspect of an agent relationship. Although some companies are willing to act only as distributors, there is a concern that foreign firms that are merely seeking distributors may not be serious about the market and will not support their distributors.

Bank-to-bank Letters of Credit (L/C) is Taiwan's most widely used import-payment method. Company-to-company payments are also made through open account (O/A) and documentary collections, such as documents against payment (D/P) and documents against acceptance (D/A). To minimize financial risk, it is recommended that U.S. exporters require their Taiwan trading partners to finance their imports through L/Cs. A large majority of Taiwan's importers utilize L/Cs with validity of up to 180 days. On the whole, U.S. companies find Taiwan's trade finance system to be efficient and do not report a widespread pattern of deferred payment.

Market Issues & Obstacles

The current Taiwan tariff system is based on the Harmonized System. The duty on imported products is defined on an ad valorem basis. Under the Information Technology Agreement (ITA), Taiwan phased out tariffs on information technology products on January 1, 2002. However, a five percent sales tax (value added tax, VAT) is levied on all products sold in the domestic market.

When an imported commodity is introduced for sale on the domestic market, labeling, instructions and sales literature written in Chinese shall be added to the commodity by the importer. The label contents provided in Chinese should not be simpler or more condensed than the contents in the original language. The name/title and address of the foreign manufacturer of an imported commodity may not be labeled in Chinese. When labeling commodities, the writing should be in Chinese but may be supplemented by English or any other foreign language.

Taiwan's integrated telecommunications and broadcasting regulatory body, the National Communications Commission (NCC), is the telecommunications standards authority. In general, the NCC adopts the technological standards and endorsements of international organizations, such as the International Telecommunications Union (ITU).

Telecommunications terminal equipment, mobile communications base station RF equipment, and low-power RF devices should meet local technical criteria and follow relevant regulations and specifications. However, consistent with the Asia-Pacific Economic Cooperation (APEC) Mutual Recognition Agreement (MRA), United States companies do not need local approval if a mutually recognized laboratory tests their equipment. More information on this topic can be obtained through the NCC's website: <http://www.ncc.gov.tw>.

Trade Events

Taipei International Information Technology Show (Computex Taipei)
June 2-6, 2009

Taipei World Trade Center, Taipei, Taiwan
Website: www.computextaipei.com.tw

Resources & Contacts

National Communications Commission:
General Planning Department
Contact: Mr. Der-Wei Wang, Senior Engineer
Website: www.ncc.gov.tw

Mobile Taiwan Applications Promotion Program Office
Ministry of Economic Affairs
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For More Information

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