Scope of Business

Business overview

Consumer Business Group

1.   Products and services

The Consumer Business Group (CBG) is mainly engaged in providing mobile communication services to individual users. The Company offers a wide range of products, including SIM cards for postpaid subscribers, as well as SIM and reloadable cards for prepaid subscribers that can be used for making/receiving calls and other services, such as voice, data, short messaging service (SMS), multimedia and video messaging.

Target customers	Service category	Description	Highlights
Individual consumers	Mobile	Voice	Basic telecommunication voice services, including calling and receiving calls from fixed-line and mobile phones
		Data	Value-added services, including voice mail, call forwarding, call waiting, conferencing, SMS, roaming, call barring, video calls, multimedia and content services (e.g., ringtones, games, screensavers, MP3, video clips, video streaming), and internet access using GPRS/3G/HSDPA transmission
	IDD		International direct dialing services

2.   Revenue breakdown by service

Unit: NT$mn

Item Year	2011	
	Amount	%
Telecom service	52,191	90%
Handset sales and others	5,918	10%
Total	58,109	100%

3.   New products and services

(1) Voice services: Continue to roll out innovative rate plans to better meet customers' different calling patterns, personal demands.

(2) Value-added services: Focus on mainstream smart devices, develop a diverse range of services and content to enrich the app store and provide customers with a more pleasant user experience.

4. Operating status

(1) Postpaid products and services

To offset the impact of the NCC's mandatory tariff cut on revenues, the Company focused on improving the percentage of mid-to-high rate plan subscribers and sales of smart devices to raise its average revenue per user (ARPU). By the end of 2010, mid-to-high rate plan users as a percentage of total subscribers had increased by 6 ppts.

The Company also has excellent loyalty programs in place to secure its customer base and minimize churn rates. With the aid of business intelligence tools and its direct marketing network, the Company used market segmentation to target and provide customers with services that better match their needs. For instance, for high ARPU customers, the Company has an exclusive program called "my VIP." It also offers a credit card program that allows customers to earn rebates based on their phone bills.

(2) Prepaid products and services

In addition to the continuous promotion of discounts for on-net calls, outgoing calls to fixed-line and on-net video calls from 2010, the Company launched a campaign offering free text messages to target the youth market, providing more choices for pre-paid card customers. This helped boost the Company's number of prepaid subscribers by nearly 20% in 2011.

The Company also aggressively promoted value-added services (VAS) usage to raise its penetration rate. Selected VAS services were offered for free as a promotion for recharge cards and prepaid cards. Non-SMS VAS revenue for prepaid business rose over 40% in 2011.

(3) Value-added services

The Company saw a significant increase in VAS revenue in 2011, surging 47% from a year ago. In particular, revenue from mobile internet access rose 93%, thanks to high-quality mobile internet services and flexible data rate plans, as well as the popularity of smartphones, tablets, 3.5G data cards and netbooks. These helped attract a large number of mobile internet users and also encouraged existing subscribers to use value-added services.

In 2011, the Company introduced a large number of innovative and popular VAS products. These include: One, "match Market," an app store for major smartphone platforms such as Android, iPhone, Windows Mobile, Blackberry and Symbian. Two, "MoFun," an application designed to enrich users' lifestyle by allowing them to use their smartphones to access the latest information on MoFun's channels, including leisure, entertainment and shopping. Three, "myBook store," a 24-hour online bookstore where users can easily purchase e-books in two easy clicks. In 2011, myBook was ahead of its peers in offering sales of hard-copies of books, providing an integrated platform where users can easily switch between traditional and digital environment to enhance their reading experience. And four, "TV GO HD" & "Formosan TV Show," a platform offering more than 40 mobile channels, including news, finance, drama and variety shows, as well as a user friendly interface and 3G and WiFi support, to meet smartphone and tablet users' demand for TV on the go.

Home Business Group

1. Products and services

TFN Media (TFNM), a subsidiary of the Company, holds a cable television system operator's license and a Type II telecommunications license. TFNM runs its business under the brand name TWM Broadband. Its main products and services cover analog cable TV services, digital cable TV services and cable broadband services. Its subsidiary, Win TV Broadcasting, a TV production company, operates a family channel – momo. It also holds the Taiwan distribution rights for a large number of outstanding domestic and international TV channels, enabling it to provide subscribers with a comprehensive range of digital audiovisual entertainment services.

Service category	Products / Services	Description
Pay TV	Analog cable TV	Uses high bandwidth coaxial cable to transmit a wide range of TV channels and programs to home TVs.
	Digital cable TV	1. TWM Broadband's CATV networks transmit domestic and international digital TV channels to subscribers' homes; subscribers can use the set-top box and smart card provided by TWM Broadband to view high-definition digital video content. 2. Broadband Internet access allows subscribers to make use of TWM Broadband's internet TV service. Subscribers can access the internet using their TV and remote control to view a wide range of multimedia entertainment content and enjoy "4 screens and a cloud" digital convergence services.
Broadband internet access	Cable fiber-optic broadband internet access	Provides high-speed internet access service via a hybrid fiber/coaxial (HFC) network deployed by the CATV system operator in combination with new-generation DOCSIS 3.0 broadband internet access technology.
Content distribution	Analog and digital TV channels	Provides both analog TV and "new TV" digital CATV services, distributes high-quality domestic and international TV channels by licensing the broadcast rights of these channels to other CATV system operators and video service platforms.

2. Revenue breakdown by service

Unit: NT$mn

Item \ Year	2011	
	Amount	**%**
Pay TV service	4,181	71%
Cable internet service	924	15%
TV content distribution and others	809	14%
Total	5,914	100%

3. New products and services

(1) Digital TV recorder:

Subscribers can use the set-top box provided by TWM Broadband to record any program broadcast on TV onto an external hard driver, as well as pause, fast forward and rewind. This device should enhance customer stickiness and boost digital TV service penetration rate.

(2) High-speed fiber-optic internet access service:

TWM Broadband will continue to enhance network quality to provide stable, reasonably priced high-speed fiber-optic broadband internet access to meet customers' demand for high-speed bandwidth to view or use various multimedia services via TV or computer. This is expected to attract a large number of new subscribers and increase customer satisfaction.

(3) Digital TV value-added services:

TWM Broadband will develop and offer more innovative value-added services, such as viewing popular video content (e.g., local dramas and movies) online, playing online games, accessing the latest information on fashion and trends, and e-learning via TV, to increase its digital TV service subscriber numbers and penetration rate.

(4) Innovative digital convergence services:

TWM Broadband is making use of the Company's extensive mobile communications, fixed-line network and cable TV service resources, while continuously monitoring new trends and developments in the global digital convergence services industry, and cooperating with upstream to downstream players – from digital content to terminal device and internet platform providers – to form the "Cloud and Connect TV forum" to explore new business opportunities and enable subscribers to enjoy the benefits of digital convergence services anytime, anywhere.

Enterprise Business Group

1. Products and services

The Enterprise Business Group (EBG) offers enterprise customers integrated information and communications technology (ICT) solutions and mobile/fixed network services under the name "TWM Solution."

Service category	Description
Fixed-line voice	Integrated voice solutions, including Enterprise E phone, PBX E phone (VoIP service), local calls, long-distance calls, international calls, Centrex, 080 domestic toll-free service, audio conference, intelligent network services (e.g., 0209 services) and ISR, enabling users to save on calling costs. TWM Solution continues to develop advanced technologies to enhance reliability and provide instant response to ensure customer satisfaction.
Fixed-line data	Different types of circuits for information transmission, including leased line, Metro Ethernet, IP virtual private network (VPN), IPLC and ADSL VPN. These circuits and bandwidth for data transmission among terminals enable users to build a communications network and expand their business opportunities.
Internet	Internet access via leased line, Metro Ethernet, ADSL, FTTx and dial-up. The Company also provides internet data center (IDC) services, including co-location, web hosting, super mail and domain name registration. EBG's IDC services not only cover carrier-level facilities, but also management/maintenance services for customers.
Mobile	Regular voice services, mobile VPN, intelligent transportation system (ITS), BlackBerry enterprise solution, mobile audio conference and MVPN data services.
Systems integration	Video conference services, information security services (Security Operation Center), network manager and sales, implementation and maintenance services for PBX, VoIP customer premises equipment (CPE), wide area network (WAN) and local area network (LAN) CPE.

2. Revenue breakdown by service

Unit: NT$mn

Item \ Year	2011	
	Amount	**%**
Mobile service	4,046	41%
Fixed-line service	3,675	37%
ISR and others	2,140	22%
Total	9,861	100%

3. New products and services

(1) Information security manager: New functions include scanning for potential flaws in webpage application codex to avoid information leaks and guard against social network engineering attacks.

(2) Cloud content-delivery service: A cost-efficient digital content platform that enables IDC customers to download large volumes of digital content quickly and deliver them to end users in a fast and stable manner.

(3) Cloud information-security service: Provides physical and virtual system protection against many types of attacks.

(4) Cloud learning service：An online platform that can make quick and easy audio-visual presentations of new business ideas and products.
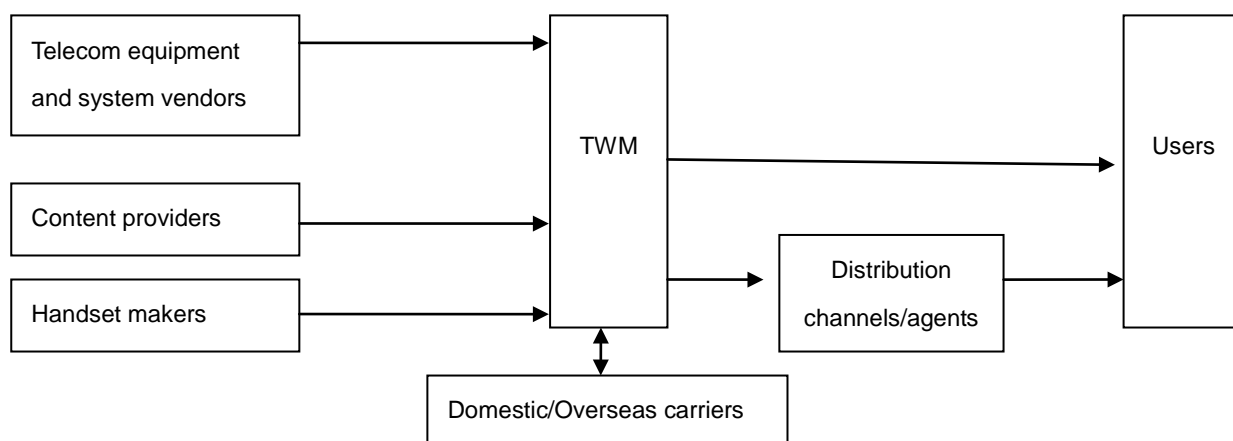
Industry overview

Consumer Business Group

1. Industry status and development

The three leading players continue to dominate Taiwan's mobile telecommunications market. However, the smaller operators offering free on-net calls and other promotions increase competitions. The National Communications Commission (NCC) has been introducing mandatory mobile tariff cuts on certain 3G tariffs since 2010, which weighed on the revenue of mobile operators.

2. Industry value chain

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┌──────────────────┐                      ┌─────────┐                              ┌─────────┐
│ Telecom equipment│ ──────────────────▶  │         │                              │         │
│ and system vendors│                     │         │                              │         │
└──────────────────┘                      │         │ ───────────────────────────▶│  Users  │
                                          │   TWM   │                              │         │
┌──────────────────┐                      │         │        ┌──────────────┐      │         │
│ Content providers│ ──────────────────▶  │         │        │ Distribution │      │         │
└──────────────────┘                      │         │ ─────▶ │channels/agents│────▶│         │
┌──────────────────┐                      │         │        └──────────────┘      └─────────┘
│ Handset makers   │ ──────────────────▶  │         │
└──────────────────┘                      └────▲────┘
                                               │
                                               ▼
                                    ┌─────────────────────────┐
                                    │Domestic/Overseas carriers│
                                    └─────────────────────────┘
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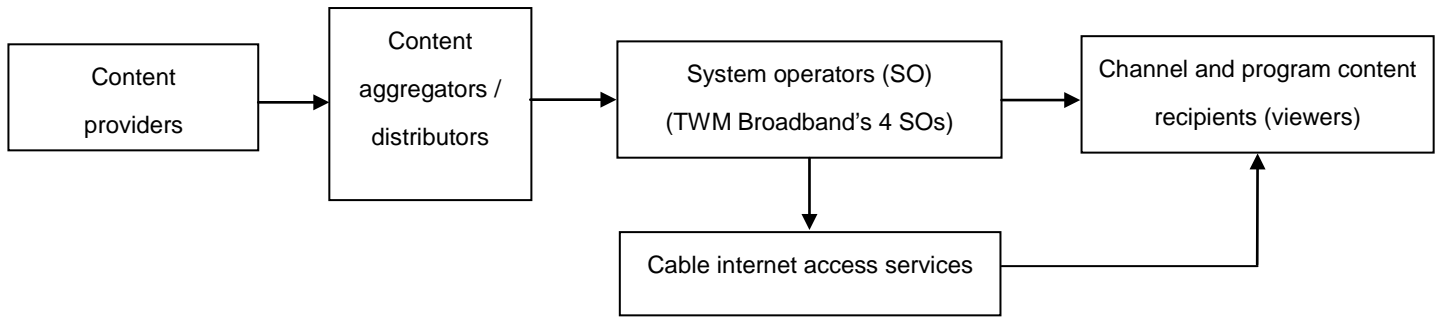### 3. Product development trends and competitive landscape

The operators are seeking to expand the mobile broadband market. A variety of new rate plans for data services, combined with new terminal devices and new VAS, have been introduced to stimulate subscriber take-up. This should be an important future revenue growth driver. As for the prepaid segment, competition is intensifying due to pricing competitions.

Home Business Group

1. Industry status and development

Cable TV has become a mainstream video platform, but it faces challenges from alternative services such as IPTV, internet TV and other emerging media that have successively entered the market. The cable TV industry must digitalize aggressively and continue to provide innovative digital TV value-added services to attract traditional cable TV subscribers to switch to digital TV; form strategic alliances or integrate with upstream, midstream and downstream providers to explore new business opportunities and stay on top of the value chain; and provide super high-speed and stable quality broadband service to secure its position in this highly competitive market.

2. Industry value chain

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┌──────────────┐     ┌──────────────┐     ┌──────────────────────┐     ┌──────────────────────┐
│   Content    │ ──▶ │   Content    │ ──▶ │  System operators(SO)│ ──▶ │ Channel and program  │
│  providers   │     │ aggregators /│     │ (TWM Broadband's 4 SOs)│   │   content recipients │
│              │     │ distributors │     │                      │     │      (viewers)       │
└──────────────┘     └──────────────┘     └──────────────────────┘     └──────────────────────┘
                                                    │                            ▲
                                                    ▼                            │
                                          ┌──────────────────────┐              │
                                          │ Cable internet access│ ─────────────┘
                                          │      services        │
                                          └──────────────────────┘
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TWM Broadband has the advantage of controlling "last mile" access to customers and has mobile communications, fixed-line network services and cable TV service group resources. TWM Broadband also takes the lead in vertical integration in order to build up its core competitiveness and explore new business opportunities in the age of digitalization.

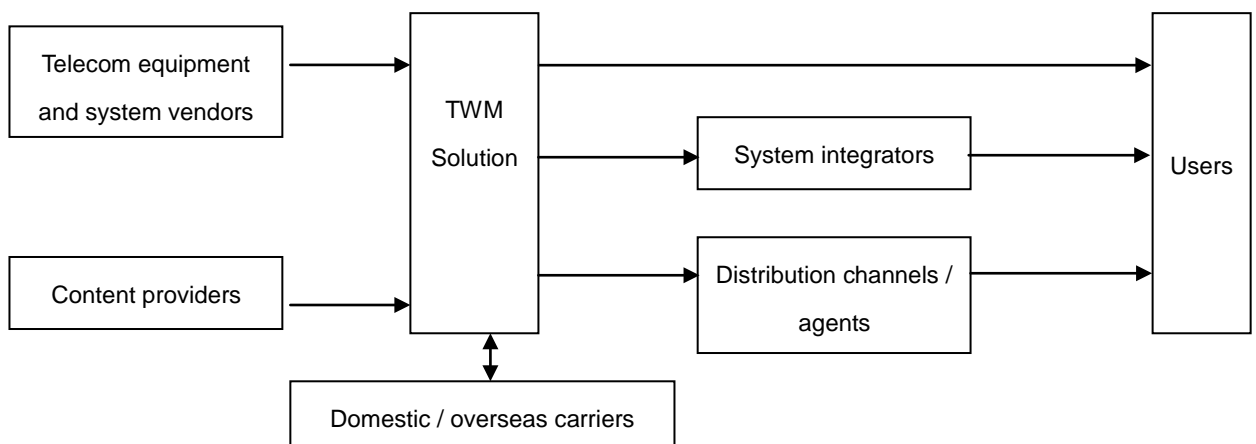## 3. Product development trends and competitive landscape

Despite the intense competition in the broadband internet access market, HBG's cable internet service subscriber number has continued to grow rapidly. To counter the competition, TWM Broadband has provided super broadband internet access service of 60Mbps and above since December 2011 and developed more innovative digital value-added services to let subscribers enjoy a whole new experience in home entertainment.

Enterprise Business Group

1. Industry status and development

According to NCC statistics, there were 83 Type I telecommunication providers, including four fixed-line operators, six mobile operators and 62 circuit leasing operators; and 454 Type II telecommunication providers, including international simple resale (ISR), internet service providers (ISP), VoIP and other value-added service providers. All these have resulted in keen competition. And as the trend toward digital convergence expands, the boundaries among telephone, cable TV, wireless and PC are getting increasingly blurry, intensifying cross-industry competition.

2. Industry value chain

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┌──────────────────┐
│ Telecom equipment│ ──────▶┌──────┐──────────────────────────────────────────────▶┌───────┐
│ and system vendors│       │ TWM  │                                                │       │
└──────────────────┘       │Solution│──▶┌──────────────────┐──────────────────────▶│ Users │
                           │       │   │System integrators│                        │       │
┌──────────────────┐       │       │   └──────────────────┘                        │       │
│ Content providers│ ──────▶│       │──▶┌──────────────────┐──────────────────────▶│       │
└──────────────────┘       │       │   │Distribution       │                        │       │
                           └──┬───┘   │channels / agents  │                        └───────┘
                              │▲      └──────────────────┘
                              ▼│
                     ┌─────────────────────────┐
                     │Domestic / overseas carriers│
                     └─────────────────────────┘
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3. **Product development trends and competition landscape**

Since CHT has the "last mile" advantage, other ISPs find it hard to effectively compete with the firm. Based on NCC statistics, Chunghwa Telecom (CHT) had a virtual monopoly of the local network, long-distance network and international network service markets, accounting for 97.57%, 70.08% and 59% of the revenue in these three areas, respectively. xDSL is the most popular type of broadband internet access in Taiwan, with an increasing number of users choosing higher bandwidths (>=10M).

Revenue from data circuit and internet access/value-added services is expected to rise slightly in the future, while revenue from fixed voice services is forecast to decline.

As the popularity of smart devices rises and network infrastructure matures, the government is planning to invest in upgrading the telecommunications industry into a cloud computing industry. Aside from continuing to promote mobile applications for enterprise customers, all carriers will build cloud centers to provide various cloud application services. Henceforth, cloud, mobile internet and ICT services will be the main future revenue growth driver.

Research and development expenditure

Investment in research and development and its ratio as a percentage of total revenue are shown in the table below. For 2012, the Company plans to spend NT$834mn on the research and development of more advanced technologies designed to increase customer satisfaction, which in turn should boost value-added service revenue and overall operations growth.

Year	2010	2011	2012 (As of Feb. 29)
R&D expense (NT$'000)	641,928	563,461	96,331
As a % of total revenue	1.10%	0.91%	0.87%

Major research and development achievements

Project name	Description
Mobile VoIP and IP message app technologies	Develop technologies for monitoring the flow of traffic of the major mobile VoIP and IP message apps.
Cooperative multiple-input and multiple-output (MIMO) relay and carrier aggregation for long-term evolution (LTE) technology	The project comprises two parts: (1) carrier aggregation for LTE-advanced mobile communication systems (2) coordinated multipoint transmission/reception techniques for LTE
Investigation of data throughput improvement at base station cell edge	The project comprises of four parts: (1) tracking algorithms based on Kalman filter to determine the location of the mobile device (2) cooperative communication techniques to improve data throughput (3) virtual MIMO to improve data throughput (4) hybrid automatic repeat request (HARQ) mechanism to correct data error and reduce bit error rate (BER)
Customer-facing trouble ticket management system(CF-TTMS)	Build a CF-TTMS to support all business lines. The objective is to provide a customer-centric trouble ticket management system for triple/quad play in order to improve customer service quality and construct a scalable and extendable infrastructure to meet future business needs.
Electronic customer relationship management (eCRM)	Set up embedded product links on TWM's website that best meet a customer's personal preferences and needs. Customers can easily click on the link to complete an order.
Single SIM card with dual numbers for roaming	Develop a more cost-efficient single SIM card with dual numbers for roaming to attract new users. Customers traveling overseas can use the secondary number to make and receive calls and avail of local rates through TWM's roaming partner's network.
IT reusable assets	Develop IT reusable assets – e.g., workflow engine integrated with customer order management (COM) system to facilitate order execution – to avoid system duplication, save on development costs and raise productivity and quality.
Private cloud computing	Integrate infrastructure/platform/software as a service (IaaS/PaaS/SaaS) to provide users with a private cloud computing environment.
Green IT data center and network optimization	Provide a high-efficiency, environmentally friendly data center: (1) Upgrade IT data center's electrical system (high voltage) (2) Utilize variable primary flow chilled water system, T5 tube for light system. (3) Enable both dense wavelength division multiplexing (DWDM) and fiber channel over Ethernet (FCoE) for IT network.
Systems service monitoring system upgrade	Build an end-to-end monitoring system to track customer service system performance and in-store IT status. The upgraded system provides complete maintenance information and detail single failure point to provide reliable, high-quality IT services for businesses.
Build web application firewall (WAF), store information network and computer security management policy	Enhance network security protection to guard against data theft, network hacking and virus attacks: (1) Deploy WAF to all external website services. (2) Install device control system in all retail stores, including MAC (Media Access Control) list and computer authority auto report system.
3C merchandise, e-invoice and shopping	Introduce new functions for myfone's e-commerce system so customers can purchase 3C (computers, communications and consumer electronics) merchandise and receive e-invoice billing. Set up a "Mofun Shopping via Handset" function to let customers purchase merchandise using their mobile phones.
Handset operation guide, search engine optimization and e-payment via TWM brand portal	Provide a "handset operation guide" on the TWM portal as a self-help service for customers; establish search optimization rules to increase the visibility of the TWM website; and introduce a new function that allows customers to pay their bills via e-payment.
TWM new sales channel on momo e-commerce	Create new TWM sales channel to sell 3C merchandise over momo's e-commerce platform. Provide simple and convenient shopping experience for customers.
Electronic payment hub (EPH) and fraud prevention	Customers can use the interactive voice response (IVR) or website to pay their phone bills, e-commerce transactions and value-added-services using their credit/ATM cards. A stringent bank review process has been implemented to prevent

Project name	Description
	card fraud.
Sales management and channel commission system	Set up a sales management system e-platform to replace most manual work in order to increase the accuracy of commission calculation and enhance overall efficiency. By integrating associated resources to strengthen back office management, the system is designed to enhance support for salespeople and boost their performance.
Direct store real-time customer feedback system	Install touch panel screens in stores where customers can provide immediate feedback on service quality. This helps store managers monitor sales agents' work and provide a timely response to promote customer satisfaction. It also provides analysis reports for upper management to further improve overall service quality.
Prepaid card system for independent travelers from China	Visitors from China can order TWM prepaid cards via TWM portal and pick up the cards when they arrive in Taiwan. The commission system applies for purchases made through travel agencies in China.
Revenue assurance project	Cross-check data provided by network equipment and application system to track discrepancies in call detail records and defects in system/workflow design. The objective is to enhance billing accuracy and promote trust among customers so as to boost the Company's revenue.
Bill formatting system	Convert all types of mail sent to customers – including bills, invoices, receipts, call detail reports, registered mail and collections letters –into printable or PDF formats to enhance information security and reduce printing costs.
Subscriber usage reminder system	The system sends an SMS to remind subscribers when their voice or data usage is nearing their monthly threshold. This service helps subscribers keep track of their expenses as well as give them a better idea of which tariff plan to choose in the future. It also minimizes potential disputes over billing, enhances customer satisfaction and boosts TWM's revenue.
myBook	Launched Taiwan's first mobile book store. Customers – both TWM and non-TWM users – can buy e-books or hard copies via their mobile devices anytime, anywhere.
Taiwan Mobile TV	Build a new live streaming system to provide real time video programs with dynamic bit rate adaptation for smartphone and tablet users.
Taiwan customer care mobile app	Launched Taiwan's first mobile customer self-help service app. Subscribers can use this to check their bills, locate nearest TWM store and check international roaming rates among others. It is a convenient tool for subscribers and reduces call-center costs for TWM.
myPhoto service	Based on TWM's new digital convergence platform, it provides a Photo Society cloud service for users to store their photos and view the photos via TV / mobile phones / tablets / PCs. This service is open to TWM and non-TWM users.
Appguru	Provide an online forum for new apps discussion. Users can share their experiences and suggestions as well as receive the latest software information updates..
Taiwan Mobile member center	Build a new TWM member center to manage the Company's mobile, cable internet and digital TV subscribers, as well as open select services to non-TWM users, such as myBook, matchApps and Mofun to expand its market reach.

Sales development plans

Consumer Business Group

1.   Short-term plan

Besides encouraging existing subscribers to upgrade to 3G services, the Company will also seek to boost mobile broadband and mobile internet access penetration rates through new innovative services. At the same time, network quality will be maintained and further optimized. New, high-quality, affordable smartphones will be introduced for customers to embrace an all mobile lifestyle.

2. Long-term plan

The Company aims to integrate the mobile phone, TV, tablet and computer platforms to provide subscribers with a variety of digital convergence services. The focus will be on the following:

(1) Establishing a "quadruple-play" platform that integrates mobile communications, fixed-line, broadband internet access and cable TV services to give the Company a lead over its competitors in offering digital convergence services in Taiwan.

(2) Leveraging machine-to-machine (M2M) technology into our products and services to integrate mobile handsets, high-quality mobile networks and cloud computing technology so as to expand our service range and support the development of innovative, profitable business models.

(3) Increasing the number of company stores and providing extensive training to the franchise shops to enhance the availability and quality of our services, and aiming to fulfill customers' mobile needs with a wider variety of services as well as supplying more ways to experience them.

Home Business Group

1. Short-term plan

(1) TWM Broadband will continue to expand its network infrastructure in those regions where it is already operating cable TV systems, providing residential subscribers with CATV, digital TV, digital TV recorder, high-speed fiber-optic internet access services and innovative digital convergence services.

(2) TWM Broadband will continue to level up the penetration rate of cable internet to raise the percentage of high-speed service users and increase the number of "new TV" digital TV service subscribers.

2. Long-term plan

TWM Broadband will launch 100Mbps and above super high-speed internet access service and will integrate digital content, internet terminal devices, and cloud technology to provide cloud related value-added services in 2012. Through the implementation of the long-term product and service development plan, TWM Broadband aims to let families and individual subscribers enjoy the benefits of the integration of mobile phones, PCs, handheld devices and TV, or "four screens and a cloud" converged digital services, and establish a new milestone in the evolution of cable TV.

Enterprise Business Group

1. Short-term plan

The popularity of smart devices has gradually changed enterprise communication patterns. To meet the needs of mobile offices, the Company will not only provide mobile applications, but also better cloud computing services after a 26,000sq.m. cloud internet data center (IDC) officially opens in 2013. In addition, the company will promote mobile

virtual private network (MVPN) services through TWM channels to help corporate users reduce expenses and enhance operating efficiency.

Given the increasing demand for cloud computing services, transnational bandwidth traffic is also growing rapidly. The company has invested in the Tam-Fu underwater cable project, which will establish a direct link across the Taiwan Strait, to strengthen its position in Asia.

2. **Long-term plan**

EBG's vision is to expand its enterprise services from network-centric to ICT-centric solutions and services by implementing the following:

(1) Grow revenue from cloud computing and mobile applications.

(2) Raise sales productivity and expand the small-and-medium enterprise market segment by integrating channels.

(3) Improve the international business division's operating efficiency by increasing direct peering coverage, managing quality and reducing international IP cost.

Customer satisfaction

To create the best experience for customers, TWM conducts annual customer satisfaction surveys by telephone to better understand customer needs and expectations. Customers are asked to evaluate call quality, rates, bills, customer hotline service, store service, value-added services, and website among others. The findings from these polls are used as a reference to set new objectives and improve service quality.

Customer satisfaction key indicators	2009	2010	2011
Overall satisfaction	3.6	3.7	3.7
Call quality	3.7	3.7	3.6
Customer hotline service	4.2	4.3	4.3
Store service	4.0	4.1	4.0
Note: Customer satisfaction is rated based on the following scores: Very satisfied (5), Satisfied (4), Neither satisfied nor dissatisfied (3), Dissatisfied (2) and, Very dissatisfied (1).			