

Chapter 4 Operational Highlights

Performance by division

	Consumer Business Group	Enterprise Business Group	Home Business Group	Retail Business
Brand name	Taiwan Mobile	TWM Business Solution	TWM Broadband	momo
Services	<ul style="list-style-type: none"> ● Voice, data and mobile value-added services for consumers 	<ul style="list-style-type: none"> ● Voice and data mobile services for enterprises ● Fixed-line services ● Cloud and enterprise total solutions 	<ul style="list-style-type: none"> ● Pay TV services ● Cable broadband services 	<ul style="list-style-type: none"> ● E-commerce ● TV home shopping

Unit: NT\$m

	Telecom business		Cable TV business (CATV)	Retail business
	Mobile business	Fixed-line broadband business		
Market position	Second-largest mobile operator in a five-player market, with a market share of around 28% in terms of mobile service revenue	One of top three internet service providers (ISP), with a market share of 4.4%	Fourth-largest multiple system operator (MSO), covering about 11% of households in Taiwan	Ranked first in B2C e-commerce
2018 revenue*	70,031		6,345	42,017
2018 EBITDA*	26,192		3,188	1,743

* Source: 2018 financial reports. The difference between the sum of each division and consolidated numbers was due to inter-division adjustments and eliminations.

Scope of Business

Business overview

Telecom Business

1. Telecom products and services

Consumer Business Group (CBG)

Besides providing basic mobile voice and broadband services, the Company also offers diversified value-added services to meet customers' needs for entertainment and smart living. These value-added services include video and music streaming, mobile commerce, instant messenger, IoT related services and wearable devices.

Enterprise Business Group (EBG)

The Enterprise Business Group offers information and communication integrated total solutions to enterprise clients. Backed by its solid experience in telecoms, ranging from mobile and fixed-line voice & data to internet and cloud services, TWM can serve as a partner in AI, IoT, cloud, ICT and information security services for enterprise clients.

2. Telecom revenue breakdown

Unit: NT\$mn

Item \ Year	2018	
	Revenue	% of total
Service revenue	53,457	76%
Device sales	16,574	24%
Total	70,031	100%

3. New telecom products and services

Consumer Business Group

- (1) Tariff: Continue to roll out innovative rate plans catering to different segments based on Big Data analysis.
- (2) Diversified value-added services: Develop innovative services and versatile content not only for mainstream handheld devices, but also for wearables or IoT equipment.

Enterprise Business Group

- (1) TWM Cloud PBX service:
By implementing TWM Cloud PBX service, physical private branch exchange (PBX) as well as desk phone will no longer be needed. If someone dials extension number, the call will show not only on desk phone but also on mobile phone. No calls will be missed. Furthermore, all calls among branches are free. Thus, enterprises can not only improve communicating efficiency, but also lower cost.
- (2) Information security solutions:
TWM provides comprehensive information security solutions, including multilayer anti-DDoS, managed security services, vulnerability assessment, intrusion prevention system, and information security integrated services and equipment. Other solutions, such as APT (Advanced Persistent Threat) protection, are under development.
- (3) NCHC AI cloud services:
TWM, Quanta Computer and Asustek Computer helped the National Center for High-performance Computing (NCHC) build Taiwan 2 – an AI high-speed computing platform – to develop AI applications for IoT, smart city, fintech and smart medical solutions in 2019.
- (4) SME integrated solutions:
TWM offers vital services such as Cloud Storage, Cloud PBX and Azure Stack cloud services that can be integrated with other telecom services to provide small and medium-sized enterprises with total solutions.
- (5) IoT device connection platform:
TWM has, in cooperation with AT&T and Ericsson, developed an IoT device connection platform (DCP). With enhanced information security protection, enterprises can track, analyze and manage all company vehicles through this platform. TWM plans to form other partnerships with foreign telecom companies to tap inbound business opportunities and with auto parts manufacturers to discover outbound business opportunities.

Cable TV Business (Home Business Group)

1. CATV products and services

Leveraging off the group's resources – from mobile and fixed-line to innovative cloud technology – HBG provides digital convergence services across “multi-screens and a cloud” to home users. The group holds a cable television system operator's license and a Type II telecommunication license. Its main operations cover a variety of products and services, including cable TV, HD digital TV, high-speed fiber-optic internet access, OTT service platform, digital TV channel content agency, personal video recorder, HomeSecurity service for households, HomeSecurity service for businesses and HealthCare service. In addition, its subsidiary, TV production company Taiwan Win TV Media Co., Ltd., offers original content, such as the “momo family channel”, the HD channel for children, and owns distribution rights to a large number of outstanding domestic and foreign TV content, enabling it to provide subscribers with a wide range of digital audiovisual entertainment services to become a leading name in digital convergence.

2. CATV revenue breakdown

Unit: NT\$mn

Item \ Year	2018	
	Revenue	% of total
Pay TV	3,727	59%
Broadband	1,398	22%
TV content agency and others*	1,220	19%
Total	6,345	100%

* Including channel leasing revenues

3. New CATV products and services

(1) HD digital TV services:

TWM Broadband has led the industry in ushering in a whole new era in home entertainment with its introduction of 4K content.

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

Given the increasing demand for high-speed Internet access, TWM Broadband offers 500Mbps fiber-optic internet access solution. In the near future, DOCSIS 3.1 network technology and infrastructure will be adopted to deliver speeds of up to 1Gbps.

(3) Digital home services:

TWM Broadband was the first to offer an open platform integrating internet TV, video on demand (VOD) and connected TV with cloud framework and fiber-optic network technology to allow users to watch video on demand through an OTT set-top box.

Retail Business (momo.com Inc.)

1. Retail products and services

momo offers e-commerce and TV home shopping services.

(1) e-commerce

a) Supplier recruitment service

momoshop: Recruits suppliers across Taiwan to provide clients with premium products and the best services.

momomall: Assists suppliers interested in e-commerce to establish and operate online platforms.

b) Product offering

momoshop: Sells over 2.5 million stock keeping units (SKUs), 25% of which offer 24-hour delivery guarantee.

momomall: Hosts over 4, 700 suppliers with 50 million SKUs.

c) Customer service

Provides 24-hour online customer service and a supplier contact platform to satisfy customers' shopping needs.

(2) TV home shopping

Self-owned professional studio and filming team provides 24-hour momo TV programs for 5 million cable TV and 2 million MOD households nationwide.

Provides 0800 toll-free hotline and mobile app for consumers to purchase products featured on momo TV programs or the momo TV app. A customer service team works around the clock to answer questions about product features, purchase and return policy.

2. Retail revenue breakdown

Unit: NT\$m

Item	Year	2018	
		Revenue	% of total
E-commerce		35,389	84%
TV home shopping and others		6,628	16%
Total		42,017	100%

3. New categories and services

- (1) momoshop has continued to introduce more international brands and to enhance long-term relationships with brand partners. With the aid of key opinion leaders, live-streaming, social commerce marketing and cross-selling within Fubon Group, momo has added new categories, such as books, used cars and fresh food, to boost sales. Its TV home shopping has also continued to develop new categories and introduce more overseas niche products to enhance its unique platform and broaden its customer base.
- (2) momo has stepped up its logistics network build-out to accelerate last-mile delivery for e-commerce. As part of its three-hour delivery service plan in Greater Taipei, it has expanded its fleet of scooters to provide prompt delivery of select items, such as fresh food and household products, to offer customers greater convenience. Besides text-based searches, momo plans to launch visual and voice searches to improve users' experience.
- (3) momo's TV home shopping business has steadily adapted to changes in consumer's lifestyle and trends. To enhance engagement with its client base and boost customer stickiness, it has expanded its TV fan clubs' operation, launched a TV app, broadcast live-stream videos on Facebook since 2015 and listed two channels on MOD in 2017. It has also laid out plans for cooperation with major OTT operators.

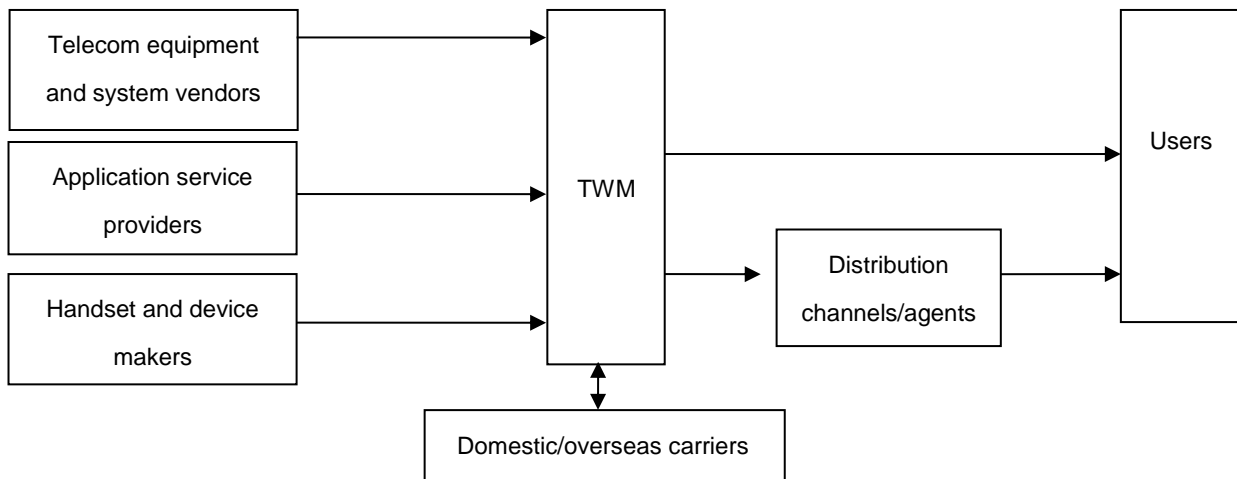
Industry overview

Consumer Business Group

1. Industry status and development

The telecom industry has entered a pure 4G era in 2019, with mobile internet access quality and content services becoming the core competencies. The National Communications Commission (NCC) is expected to auction off 5G spectrums in 2020. The development of Internet of Things and artificial intelligence applications should promote the emergence of new business models.

2. Industry value chain



3. Product development trends and competitive landscape

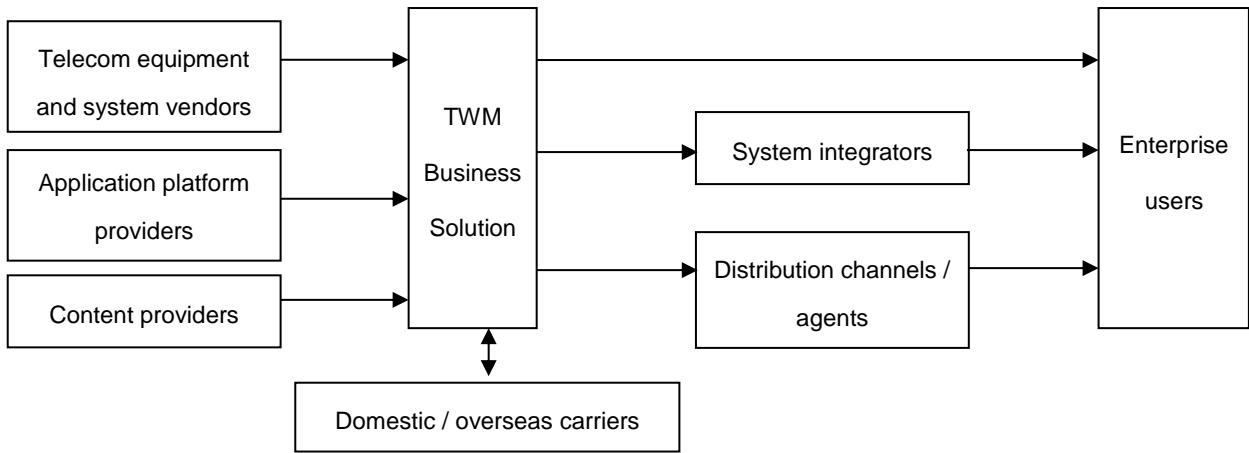
Given longer mobile phone lifecycles, rising SIM-only subscriptions, and increasing demand for wearable devices and audiovisual content, product bundling has become the blue ocean strategy, as telecoms compete not only on pricing and mobile internet access quality, but also on content differentiation and product diversity.

Enterprise Business Group

1. Industry status and development

According to the NCC, there were 83 Type I telecommunication providers, including four fixed-line operators, 15 mobile operators and other circuit leasing operators, and 390 Type II telecommunication providers, such as ISR, ISP, VoIP and other value-added service providers. Given intense competition in the fixed-line market and the growing trend toward cloud network and digital convergence, telecommunication providers have to offer not only infrastructure, but also applications and total solutions.

2. Industry value chain



3. Product development trends and competitive landscape

Data provided by the NCC shows that Chunghwa Telecom (CHT) has a virtual monopoly of the telecom market. It has an over 90% share of local network service revenue, and about 50% of long-distance network service and international network service revenue.

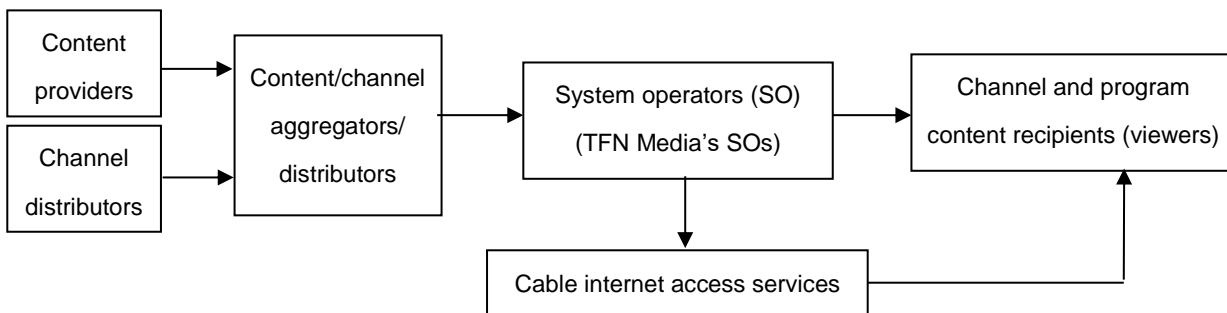
Cloud, IoT and enterprise mobility applications will be the main trends in the future. Carriers will provide various efficient and effective mobile commercial application services to enhance the competitiveness of enterprise clients.

Home Business Group

1. Industry status and development

Cable TV has become a must-have video platform, but it faces challenges from alternative services, such as IPTV, digital terrestrial TV and other emerging media (e.g., OTT video streaming) that have successively entered the market. The cable TV industry is now facing a critical period of transformation.

2. Industry value chain



Thanks to its control over “last mile” access to customers, TWM Broadband is aiming to take the lead in vertical integration to build up its core competitiveness and explore new business opportunities in the digital age.

3. Product development trends and competitive landscape

Fixed broadband is a saturated market that is dominated by Chunghwa Telecom and characterized by slowing growth. Nonetheless, TWM Broadband managed to grow its subscriber number in the cable internet business by following the

examples of PCCW in Hong Kong, and AT&T and Comcast in the US of bundling cable broadband products with HD digital TV services and video on demand in its CATV market. To fend off competition, TWM Broadband has not only upgraded its high-speed broadband internet access service quality, but also increased the number of HD programs and provided various platforms for viewing TV programs and more innovative digital value-added services in line with households' digital application service needs.

Retail Business

1. Industry status and development

The proliferation of CATV, digital TV and smart devices has given rise to a new breed of home shoppers. Consumers can order by telephone or through virtual platforms, choosing from a plethora of convenient payment options and receive the product within a short period.

2. Industry value chain



momo sources its products from suppliers of 3C electronics, daily necessities, beauty and personal care, travel services, and other products and services, and sell them through its TV home shopping networks, online shopping sites and mail order catalogues for members and general consumers.

3. Product development trends and competitive landscape

- (1) E-commerce: Although momo entered the market later than industry peers such as Yahoo! Taiwan and PChome Online, it has made major strides as a comprehensive B2C e-commerce player, growing rapidly by leveraging its know-how in TV home shopping. momo is the largest B2C operation in Taiwan.
- (2) TV home shopping: Aside from momo, leading players in the industry include Easter Home Shopping (EHS) and viva. The rise of virtual shopping platforms, such as e-commerce and mobile commerce, has intensified competition in TV home shopping. momo has countered this by launching its own mobile apps and leveraging its social platform and capabilities, including live streaming, to bolster engagement with its members and customer base

Research and development expenditure

Research and development expenses totaled NT\$707,454 thousand in 2018 and NT\$51,286 thousand in January 2019. Continued investment in the research and development of more advanced technologies is expected to increase customer satisfaction, which in turn should boost value-added service revenue and overall operations growth.

Major research and development achievements

Project name	Description
Study of massive machine-type communications in 5G	<p>5G mobile communications can be classified into three categories: enhanced mobile broadband (eMBB), massive machine-type communications (mMTC) and ultra-reliable low latency communications (URLLC). This project is focused on mMTC. It aims to study how signal waveforms can be designed so that multi-user detection techniques at base stations can improve transmission capacity by eliminating interference.</p> <p>As energy efficiency is affected by the amount of data transmissions from IoT devices to base stations, this project also seeks to study how multi-user detection techniques should be modified to facilitate synchronization between these devices and base stations.</p>
myVideo	Integrate TAMedia to provide video advertising business model to increase revenue. Support Dolby Digital 5.1, cooperate with Twitch channels, extend service to more OTT devices, and enhance video recommendations.
myBook	<p>Provide text-to-speech function and Free Zone service to improve user experience and engagement.</p> <p>Extend sales channel to momo e-commerce store to boost revenue.</p>
myAir	Design and develop portable PM 2.5 detectors and exclusive myAir App to provide intelligent automatic detection, hazard alerts, historical tracking analysis and cloud services.
MyMusic	<p>Develop voice-controlled functions with Google Assistant.</p> <p>Extend sale channels to momo e-commerce store and Asia Pacific Telecom to increase revenue.</p> <p>Broadcast South Korea Melon Music Awards 2018 live event to MyMusic customers.</p>

Sales development plans

Consumer Business Group

1. Short-term plan

- (1) Make good use of Fubon Group resources to acquire new customers and increase sales of self-owned channels, such as direct stores, internet store and telemarketing.
- (2) Provide diversified offerings to create differentiation and focus on churn prevention to minimize loss of customers.

2. Medium to long-term plan

To optimize the quality of data transmission in order to meet user's needs, TWM has continued to develop various digital convergence services, such as myVideo, MyMusic and myBook:

- (1) myVideo: Keep developing large-screen video viewing channels and enhancing marketing cooperation and data analysis; leverage group resources to invest in the production of exclusive content; and optimize personalized video recommendations to improve user experience and loyalty.

- (2) MyMusic: Take advantage of group resources to accumulate new users and create synergies, and develop innovative business models to attract more young people.
- (3) myBook: Use minimal manpower and resources to operate myBook's subscription service and provide customers with a better user experience to increase user stickiness.

Enterprise Business Group

1. Short-term plan

- (1) Continue to develop services and total solutions that improve enterprise efficiency for clients.
- (2) Cooperate with internationally famous cloud operators to provide comprehensive cloud solutions. A specialized sales team is to be set up to cater to enterprise clients.
- (3) Expand venture into government-related markets to grasp new business opportunities.

2. Long-term plan

The company's vision is to expand its telecom-centric services to cover mobile applications, IoT, information security and cloud services through steady investments in the following:

- (1) Organizational restructuring and skills improvement by making strategic investments and merging key technologies.
- (2) IoT, cloud and AI total solutions for enterprise clients.
- (3) Channel integration to raise sales productivity and expand SME market innovative services through mobile and cloud platforms.

Home Business Group

1. Short-term plan

- (1) TWM Broadband will continue to optimize its network infrastructure in regions where it is already operating CATV systems and provide more HD digital content and video on demand to set the foundation for its digital services.
- (2) TWM Broadband plans to launch over 500Mbps super high-speed internet access service and HD digital TV service to boost its cable broadband and digital TV service penetration rates, increase its ratio of high-speed broadband internet users and increase its subscriber numbers.

2. Long-term plan

With the CATV industry becoming fully digitalized, the Home Business Group plans to integrate HD digital content, multiple-viewing terminal devices, high-speed fiber-optic internet access services and cloud technology to introduce more innovative and value-added digital TV services, allowing families and individual subscribers to enjoy the benefits of "multi-screens and a cloud" (i.e., mobile phones, PCs, tablets and TVs) and lead them further toward smart living.

Retail Business

1. Short-term plan

- (1) E-commerce:
Provide differentiated and value-added services: Leverage big data analysis and recommend more personalized products to customers.
Increase sales weighting of KOL sales channel: Introduce profit-sharing mechanisms to increase revenue

contributions from community shopping websites.

Integrate offline and online loyalty programs: Use big data technologies to optimize product portfolios and create synergies between brands and momoshop.

- (2) TV home shopping: Enhance distribution channel's competitiveness by listing more branded products from overseas, cultivating fan bases on social platforms, such as Facebook and LINE, and cooperating with e-commerce suppliers to expand product offerings.

2. Medium to long-term plan

- (1) E-commerce: Increase market share to further dominate B2C market by implementing a multi-channel sales strategy, optimizing search functions, and facilitating short-chain logistics efficiency.
- (2) TV home shopping: Take a pro-active approach in raising momo's brand image, further exploit Southeast Asia's TV shopping market, export best-selling products across multiple countries, leverage the group's marketing resources and sales channels to enhance operating efficiency, and provide innovative services through mobile and cloud platforms.

Market and Sales Overview

Market analysis

Consumer Business Group

1. Main products and service areas

The Company provides mobile services nationwide, covering Taiwan and the outlying islands of Kinmen and Matsu.

2. Market status

As of the end of 2018, the penetration rate for mobile subscription was 124%, signifying a saturated market. However, along with the fast adoption of mobile internet and rapid innovation of mobile devices, the demand for mobile broadband, smart devices and value-added services have grown dramatically.

3. Competitive advantages

- (1) Diversification strategy

The Company integrates telecom, cable and e-commerce to provide diversified telecom bundle plans and increase user stickiness through cross-selling.

- (2) Low frequency spectrum advantage

The Company is the only operator in the industry with a low-band 700MHz spectrum of up to 20MHz, giving it high coverage and penetration in urban areas and allowing it to provide high-quality telecommunication services at a reasonable cost.

- (3) Universal service for digital convergence

The Company provides customers with universal service for digital convergence, such as myVideo, MyMusic and myBook.