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Scope of this report

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This report examines the telecommunications sectors in the Asia-Pacific, focusing on Australia, China and Hong Kong, India, Japan, Singapore and South Korea. The industry can be broadly broken into two categories: services and manufacturing. However, communications media has diversified and a wide range of companies, including voice and data, wireless service providers and equipment makers, have broadened the industry. The report examines the current environment, profiles the industry and discusses market trends. The key financial results for leading companies in each country sector, as reported by the company, are presented in the comparative data tables on proceeding pages.

Research analysts draw on a range of credible industry and company data sources as well as news and information services to research and analyze the current trading environment, industry landscape and market trends and outlook for a particular sector. Primary sources are used, unless otherwise indicated, and include company data, e.g. annual reports and company financial results: macroeconomic and trade data; data information from global and country regulatory, industry and trade bodies; government data; and reports; and reports from industry organizations and private research organizations.

The following SIC codes are relevant to the industry. For the services side: 4812 (Radiotelephone Communications); 4813 (Telephone Communications, excl. Radio); 4822 (Telegraph and Other Communications) and 4899 (Communications Services). For the manufacturing segment: 3661 (Telephone and Telegraph Apparatus); 3663 (Radio and TV Communications Equipment) and; 3669 (Communications Equipment).

Current Environment

Sector Overview

The Asia-Pacific mobile market remained the fastest growing globally over the last six months, with the number of connections more than double those of any other region. The Asia Pacific accounted for half the number of mobile subscribers globally and remained one of the world's fastest growing mobile markets, according to the GSMA. According to its ?Mobile Economy Asia Pacific 2014?, the majority of Asia-Pacific mobile subscribers were concentrated in four major markets: China, India, Japan and Indonesia. The region incorporates a diverse range of markets, from highly advanced 4G digital pioneers, such as Australia, Japan, Singapore and South Korea, to developing markets, such as India, where operators focused on building-out networks to rural areas and offering affordable mobile broadband services.

Google (NASDAQ : GOOG) announced its intention in August to boost internet speed with China Mobile (HKSE: 0941), China Telecom (HKSE: 0728) and Singapore Telecommunications Ltd (SingTel) (SES : Z74) with an investment of US$300 million in an underwater cable system, Faster, with a capacity of 60 terabits per second. Faster, with a ten-million-times faster connection speed than a cable modem, will boost internet speed, a significant tool for the faster growth of Google in connecting several billion citizens in Asia and other parts of the world. Google said it hopes to begin installing the cable system late in 2014, and start operations in the second quarter of 2016.

In July 2014, LG Electronics (LGE) (KSE: 066570) introduced its wearable mobile device for young children, the KizON, designed for preschool and primary school pupils, which allows parents to keep track of their children's whereabouts. One Step Direct Call enables parents to communicate with their children easily, and provides information on their location throughout the day. The device, which utilizes GPS and Wi-Fi, providing real-time location information, made its public debut in South Korea on July 10, and will be introduced in North America and Europe before December 2014.

South Korea's Ministry of Education , Science and Technology (MEST) announced plans in January to invest KRW1.6 trillion (US$1.6 billion) to develop 5G technology that will be 1,000 times faster than current 4G LTE. MEST will prioritize developing new, key features for 5G, and upgrading social networking services, estimating that projected sales for related industries using the 5G infrastructure could reach up to KRW331 trillion (US$0.33 trillion) between 2020 and 2026. The ministry wants to implement the plan in cooperation with operators such as SK Telecom Co (KSE: 017670), Samsung Electronics (KSE: 005930) and LG, which own a huge portion of the worldwide smartphone market.

India's Reliance Communications Ltd (BSE: RCOM) meanwhile pushed ahead with plans to invest in LTE broadcast technology to boost its video offerings. It is currently deploying 4G LTE services on both TD-LTE and FD-LTE technology, and said its 4G services would be available in 2015.

Sector Performance

In 2013, the mobile industry contributed US$864 billion to The Asia-Pacific's gross domestic product (GDP), directly supported 3.7 million jobs and contributed US$82 billion to public funding. In the first half of 2014, most Asia-Pacific telecoms sectors enjoyed moderate growth and, thanks to investment by local operators, smartphone penetration continued to grow. There was a rise in the average share price of most major players between January and June 2014.

Leading Companies' Stock Price Movements in the Six Months from January 6, 2014 to June 3, 2014

company	Ticker	Exchange	Share Price on January 6, 2014	Share Price on June 3, 2014	Rise/Fall %
NTT DoCoMo Inc	9437	TSE	Y1,711.00 (US$16.94)	Y1,709.00 (US$16.92)	-0.12
China Mobile	0941	HKSE	(US$10.09)	(US$9.92)	-1.66
China Telecom	0728	HKSE	(US$0.48)	(US$0.50)	4.28
Singapore Telecommunications Ltd (SingTel)	Z74	SES	(US$2.83)	(US$3.10)	9.60
Samsung Electronics	005930	KSE	(US$1,307)	(US$1,470)	12.47
Average Rise/Fall %					4.91

Source: Mergent analysis

In the first half of 2014, the share prices of major players in the telecommunications sector rose by an average of 4.91%, with Samsung Electronics ' up the most, by 12.47%, while China Telecom 's rose the least, by 4.28%, and China Mobile's had the steepest fall, 1.66%.

By 2020, mobile is likely to be a major driver of the Asia-Pacific economy, contributing more than 6.9% of the region's GDP and supporting more than 6.1 million jobs. The growth will be supported by US$730 billion capital investment in new infrastructure by regional mobile operators.

Leading Companies

NTT DoCoMo Inc

On March 31, NTT DoCoMo (TSE: 9437) launched an outbound LTE roaming service for users travelling in eight countries and regions, including the mainland USA and Hawaii, Hong Kong and France, allowing its customers to roam on ultra-high-speed LTE mobile networks overseas with existing flat-rate data roaming plans. NTT plans to continue to expand its global LTE roaming coverage, teaming up with additional overseas partners.

In April, the company introduced new billing plan ?Kake-hodai & Pake-aeru? and, on June 1, two new discount services for users of its 3G FOMATM and LTE XiTM mobile networks. The new billing plan enables all Kake-hodai subscribers to make nationwide voice calls for a flat monthly rate and allows customers to set and share monthly data quotas with family members and corporate users based on the

type of mobile devices they are using. In addition, its new Zutto discount provides savings on a graduated basis for subscribers of at least six years standing, while its U25 Ouen plan offers discounts for budget-minded customers aged 25 or younger.

China Mobile

China Mobile, the world's largest mobile operator by number of subscribers, sold 120 million TD handsets (including TD-SCDMA and TD-LTE) through all distribution channels in the first half of 2014. The increase in sales was due to the accelerated migration of customers from 2G to 3G and 4G networks. By the end of 2014, the company will accelerate network construction to achieve continuous coverage in almost all major and county-level cities, and effective network coverage in key villages and towns. In January, China Mobile announced seven new data packages for 4G services ahead of the official launch of Apple Inc 's (NASDAQ : AAPL) iPhone. Effective February 1, the cheapest monthly package is RMB40 (US$6.43) for 400 megabytes, and the most expensive costs RMB280 (US$45.02) for a 10-gigabyte package. On January 17, China Mobile and Apple launched iPhones using its 4G TD-LTE technology.

Singapore Telecommunications Ltd (SingTel)

To cater to the growing needs from enterprises in the Greater China region, SingTel expanded its data hosting capabilities in Hong Kong with the launch of Tier III data center at the Hong Kong Science and Technology Park in Sai Kung. The data center is connected to SingTel 's large fiber and cable network, which totals 14 data centers, allowing customers to enjoy a consistent level of service quality throughout the entire network. The Tseung Kwan O Data Centre offers Greater China enterprises a secure, world-class co-location data hosting services.

Since July 27, 2014, SingTel 's Indonesian customers in Singapore can use their mobile phones to transfer money to the bank accounts of family and friends in their homeland through its mRemit service. Funds can be remitted to more than 80 Indonesian banks, including Bank Danamon, Bank Negara Indonesia and Bank Mandiri , and recipients can access the funds within three minutes of a successful transaction.

LG Electronics

LG, a leader in consumer electronics and mobile communications, plans to continue its global rollout of G3 and to introduce more mass tier products in second half 2014, including variations of the LG G3, such as the recently announced G3 Beat, and additional L Series models. At the end of June, LG and Samsung launched smartphones supporting wireless charging technology, with charging modules produced by affiliates Samsung Electro-Mechanics and LG Innotek .

In December 2013, LG launched its first Google Play Edition tablet, the LG G Pad 8.3, which uses the latest Android operating system, Android 4.4 KitKat. The new device combines KitKat's full-screen immersive mode and LG's 1920 x 1200 WUXGA Full HD IPS display. LG argues its already close working relationship with Google would be strengthened by their collaboration on Google 's first Android Open Source Project (AOSP) tablet.

Mergers and Acquisitions

Most Asia-Pacific telecoms sectors continued to be strong in the first half of 2014, with companies seeking new growth areas to counter more intense competition, with the larger and more powerful telcos better positioned to acquire other companies. For example Bharti Airtel (BSE: 532454), India's largest mobile operator by subscriber base, announced plans in February to acquire Khaitan family-owned Loop Mobile Ltd for Rs7 billion (US$0.12 billion). In June, Bharti signed a definitive agreement with Loop Mobile to acquire the latter's operations in Mumbai. Through the deal, Bharti will get Loop's three million subscribers, about 400 telecom towers and optic fibre and electronic equipment on which Loop's network currently runs, enabling Bharti to surpass Mumbai market leader Vodafone India Ltd in customer numbers.

The transaction adds Loop's 2G-enabled network, supported by more than 2,500 cell sites, to Bharti's 2G and 3G networks supported by more than 4,000 cell sites in the Mumbai circle. In December 2013, Japan's Softbank Mobile Corp (TSE: 9434) paid US$1.26 billion for privately owned US mobile device distributor Brightstar Corp . The deal strengthens SoftBank's purchasing scale for mobile devices and further increases its competitiveness in Japan and the US. Acquisitions such as these show how Asia-Pacific companies are developing next generation mobile services and are constantly looking for technologies to give them an edge in providing more engaging and advanced smartphone apps.

Industry Profile

Industry Size and Value

CDMA, or code division for mobile communications, is a widely used mobile standard throughout the Asia-Pacific, with the CDMA Development Group estimating the region continues to lead the world in numbers of subscribers, revenue and service creation. High-growth markets such as China and India raised the global number of subscribers to more than 600 million. By the end of January 2013, the world's largest CDMA operator China Telecom 's CDMA users made up 22% of the global total. India remained the second largest CDMA market, with more than 208.68 million subscribers at the end of February 2013.

er spending on information technology to RMB3.2 trillion (US$0.51 trillion) by 2015 at a rate of 20% each year.

The broadband market in Australia continued to expand throughout first half 2013, with the Australian Bureau of Statistics (ABS) reporting that in June 2013, there were 12,408,000 internet subscribers in Australia, up 30% from 9,569,000 in June 2010. They use the internet mostly for downloading TV shows, online gaming, working from home, and Voice over Internet Protocol (VoIP). The number of subscribers with advertised internet access speeds of 24Mbps or greater grew by 9% to 1,785,000 in the three months ended June 30, from 1,645,000 in December 2012.

As of July 2013, there were 464 million mobile internet users in China, while South Korea had 23 million 4G subscribers in second quarter 2013. Australia's 4G penetration rate was 6.76% as of June 2013, while Singapore's was 22.9%. The Asia-Pacific had 895 million active mobile broadband subscriptions in 2013, a 43% increase from 625 million in 2012. China Mobile estimates around 42% of its capital expenditure budget in 2013 was allocated to its mobile network, of which 52%, RMB41.5 billion (US$6.67 billion), was channelled to TD-LTE technology.

Sector Investment

The Chinese Government plans to spend RMB2 trillion (US$0.32 trillion) to enhance its broadband infrastructure by 2020 to put almost the entire population online. It aims to boost fixed-line and wireless connectivity throughout China, and the investment could benefit global network equipment makers such as Ericsson (NASDAQ : ERIC) and Alcatel-Lucent (NYSE : ALU), as well as homegrown players such as Huawei Technologies Co Ltd (SHE: 002502) and ZTE Corp (HKSE: 0763).

The Ministry of Information and Industry wants the 3G and 4G networks covering cities and villages to be deployed at the same time. By 2015, the Government aims to boost the average broadband speed in cities to 20 Mbps, and to 4 Mbps in rural China, where internet penetration is very low. The plan is expected to increase the number of 3G and LTE users to 1.2 billion by 2020, four times the current figure.

On July 23, 2014, KDDI Corp (TSE: 9433) announced that it would spend Y24 billion (US$0.24 billion) to construct Telehouse London Docklands North Two (North Two), a large-scale data center with a total floor area of 23,000 square meters located in the Docklands area of London, UK. The center will increase the total floor space of all facilities, including the four existing data centers (North, East, West, and Metro), to 73,000 square meters. It will bring the number of sites to 43 in 24 cities in 13 regions around the world, with a total floor space of 365,000 square meters.

CIB (EPA : ACA), while Softbank Mobile and Softbank Corp (TSE: 9984) will act as guarantors.

Research and Development

In August 2014, South Korea's LG Uplus (KSE: 032640) and China's Huawei established a research facility to test technology with potential applications in 5G networks. The Seoul-based Mobile Innovation Centre (MIC) will also enable LG Uplus to try out Huawei's latest LTE-Advanced carrier aggregation kit, small cells and network quality solutions. The MIC will provide LG Uplus and Huawei with an increased competitive advantage in the ICT market, and Huawei is committed to industry cooperation and to bring the world's most advanced mobile broadband services to more people worldwide. The 5G research center will allow the companies to focus on small cells, FDD/TDD convergence, gigabyte data transmission and ultra-wideband, low-latency technology that has the potential to enable remote driving.

In November 2013, Japan's mobile carrier NTT DoCoMo began to install its latest indoor multi-band base stations and antennae compatible with the 1.5 and 1.7 GHz frequency bands for extra-high-speed LTE network service. The network, with a maximum downlink of 150 Mbps, is currently available in parts of Tokyo, Kanagawa, Aichi, Osaka, Kyoto and Hyogo prefectures. The new base station and antenna are compatible with 3G/W-CDMA, 4G/LTE and LTE-Advanced (LTE-A) carrier aggregation technologies, and are the same size as the current single band antennae, which can fit into limited indoor spaces. By March 2016, NTT DoCoMo plans to launch its LTE-A service, which can support maximum downlink speeds of 225 Mbps.

Policy and Regulatory Environment

South Korea's telco watchdog the Korea Communications Commission (KCC) found that the country's mobile operators have broken subsidy rules again. An investigation between May 26 and June 13 found that the average subsidy offered by SK Telecom , KT Corp and LG Uplus totalled KRW616,000, (US$616) far exceeding the legal limit of KRW270,000 (US$270).

The KCC imposed fines totalling KRW58.41 **billion** (US$0.06 **billion**), of which market leader SK Telecom will pay KRW37.1 **billion** (US$0.04 **billion**), KT Corp KRW10.71 **billion** (US$0.01 **billion**), and smallest player LG Uplus KRW10.55 **billion** (US$0.01 **billion**). SK Telecom and LG Uplus served one-week sales bans after a separate KCC investigation found that they had violated subsidy rules in January and February 2014. LG Uplus was not allowed to sign up new customers from August 27 to September 2, while SK Telecom was banned from September 11 to September 17.

To avoid the operators breaking the same rules again, the Government, in May, passed the Device Distribution Act, which aims to make operators' sales techniques more transparent, to curb illegal subsidies once and for all, and to impose tougher sanctions if rules are breached. Under the new laws, which come into effect in October, the KCC will set a benchmark device subsidy based on the factory cost of a handset, and operators will be restricted to offering subsidies within 15% of that level. The Government found that sales bans and fines are not sufficient to prevent illegal subsidies as operators have been caught breaking the same rules several times.

Key Points

Current Environment

The Asia Pacific accounted for half the number of mobile subscribers globally and remained one of the world's fastest growing mobile markets over the last six months.Google (NASDAQ : GOOG) announced in August that it wants to boost internet speed with **China** Mobile (HKSE: 0941), **China** Telecom (HKSE: 0728) and Singapore Telecommunications Ltd (SingTel) (SES : Z74) with an investment of US$300 **million** in an underwater cable system.South Korea's Ministry of Education , Science and Technology (MEST) announced in January that it would invest KRW1.6 trillion (US$1.6 **billion**) to develop 5G technology.In the first half of 2014, the share prices of major players in the telecommunications sector rose by an average of 4.91%.New guidelines for the introduction of disaster-resilient telecommunications networks in Japan aim to improve emergency response in the event of a major disaster.

Industry Profile

ting Time Division Long Term Evolution (TD-LTE) technology.The **Chinese** Government plans to spend RMB2 trillion (US$0.32 trillion) to enhance its broadband infrastructure by 2020 to put almost the entire population online.In August 2014, South Korea's LG Uplus (KSE: 032640) and **China**'s Huawei Technology Co Ltd (SSE: 002502) established a research facility to test technology with potential applications in 5G networks.The broadband market in Australia continued to expand throughout first half 2013, with ABS reporting that in June 2013, there were 12,408,000 internet subscribers in Australia, up 30% from 9,569,000 in June 2010.

Market Trends and Outlook

Smartphone owners across five markets - the US, Brazil, **China**, South Africa and Indonesia - are now more likely to be using social messaging applications such as Wechat, KakaoTalk and Line on a daily basis rather than making voice calls, sending texts and emailing.South Korea's Ministry of Engineering, Science and Technology forecasts private companies would spend more than US$300 **billion** on 5G infrastructure and technology over the coming decade to take 5G worldwide.The rising uptake of mobile devices such as smartphones and tablets is driving mobile app revenue.With the continuous increase in smartphone adoption, the demand for Wi-Fi is also growing, as checking in or logging on to various social media has become the daily routine for smartphone users no matter where they are.Mobile app and mobile web consumption is likely to continue to grow, driven by rising smartphone penetration.

Market Trends & Outlook

The Rising Mobile Addiction

As the number of people using smartphones increases rapidly so does mobile addiction, with Flurry, a mobile analytics **firm**, defining a mobile addict as a user who launches a mobile app or opens a mobile process more than 60 times a day. Smartphone owners across five markets - the US, Brazil, **China**, South Africa and Indonesia - are now more likely to be using social messaging applications such as Wechat, KakaoTalk and Line on a daily basis rather than making voice calls, sending texts and emailing.

New York-based media monitoring **firm** Nielson Media Research Inc estimates Singapore and **Hong Kong** had two of the world's highest smartphone penetration rates. Global information services **company**

Experian (ISE: EXPN) estimates Singaporeans spend an average 38 minutes a session on Facebook , almost twice as long as Americans. Some hospitals sch as the Singapore General Hospital have found that more people are reporting ?text neck? or ?iNeck? pain, due to constantly lowering their heads to look at their smartphones.

By 2017 ==China== will likely account for almost half of all Asia-Pacific smartphone shipments and nearly a quarter of global shipments and, in February 2014, had an estimated 300 internet centers to tackle rising smartphone addiction. However, growing mobile addiction is good news for mobile developers, as the more people use smartphones, the higher the demand for content, applications, and functionality on mobile devices.

How Much Faster is 5G?

Fifth-generation (5G) service demand in the Asia-Pacific is growing as smartphone users seek higher internet speeds. A 5G service can download an 800 MB file in one second, compared with 40 seconds using 4G technology. According to the Telecommunications Standards Development Society of India, Indians do not need high internet speed to control their air conditioners, fridges or microwaves, but they need it to watch a live cricket match without latency. With streaming speeds 40 times faster than the current best technology, they could watch live cricket matches on 5G mobile phones wherever they are.

While India's 5G networks are scheduled to start in 2021, South Korea, the world's most enthusiastic adaptor of mobile technology, plans to roll out its 5G network in 2017, with full availability by 2020, following US$1.5 ==billion== in investment. The US, Japan, and the EU are also testing 5G technology, but South Korea's investment and commitment dwarfs their efforts. South Korea's Ministry of Engineering, Science and Technology forecasts private companies to spend more than US$300 ==billion== on 5G infrastructure and technology over the coming decade to take 5G worldwide. The Government hopes to implement the plan with investment and cooperation from operators such as SK Telecom and Korea Telecom as well as handset makers such as Samsung Electronics and LG Electronics .

Japanese operator NTT DoCoMo plans to work with mobile vendors Alcatel-Lucent , Ericsson, Fujitsu Ltd (TSE6702), NEC Corp (TSE: 6701), Nokia (HEX: NOK), and Samsung on its test run of 5G technologies across a range of frequencies. NTT announced plans in 2013 to deploy 5G commercially by 2020 with speeds up to 10Gbps, compared with today's LTE networks which peak at 100Mbps to 150Mbps. The ==company== will begin indoor trials before December 2014 at its R&D center in Yokosuka in Kanagawa prefecture, ahead of outdoor field trials scheduled for 2015, sharing its research with other industry players to help with 5G standardization from 2016.

Samsung will test its technology with NTT in the 28GHz band, while Ericsson will join NTT's outdoor experiments in the 15GHz band, exploring new antenna technologies supporting Massive Multiple Input and Multiple Output (MIMO) using the additional antennas to improve throughput. NEC and Fujitsu will join the trial at the lower end of the higher frequency bands, between 3GHz to 6GHz, with NEC focusing on ?time-domain beam forming? with a large number of antennas for small cells in the 5GHz band. Fujitsu will work on technology to increase capacity per area using small cells deployed in high density with remote radio connection. Alcatel-Lucent will use existing frequency bands below 3GHz to support mobile broadband and M2M applications.

==China=='s Huawei announced plans in November 2013 to invest US$600 ==million== in 5G research over the next five years, ahead of the expected launch of 5G networks in 2020. The funds will be used for research into a range of key enabling technologies, including air-interface technology. Huawei said it needs to resolve several issues before 5G is implemented, such as the availability of spectrum and technological challenges.

Smartphones to Drive Mobile Gaming Market

has become the world's biggest market, generating almost US$6 ==billion== in revenue per year and 48% of global revenue. The rising uptake of mobile devices such as smartphones and tablets has driven mobile app revenue, which is set to almost double between 2013 and 2015, from US$13.2 ==billion== to US$22 ==billion==. According to Games Industry Media, Western Europe, North America and the Asia-Pacific will remain the most attractive markets for mobile game publishers.

Interactive entertainment ==company==King Digital Entertainment (ISE: KING), which created popular games such as Candy Crush Saga and Pet Rescue Saga, is the largest game developer on Facebook , and develops games for the web, mobile (iOS and Android). It launched Candy Crush Saga on its own website in March 2011 and on Facebook in April 2012. Following its success on Facebook , King launched Candy Crush Saga on mobile in November 2012 and, in January 2013; it became the number one game on Facebook . In December 2013, King entered the Japanese market with a series of television commercials,

and by December 4, it had become the 23rd most downloaded game in Japan on Android devices and most downloaded from the App Store.

One in seven ==Hong Kong== citizens plays the game daily, with the number of ==Hong Kong==Candy Crush Saga fans up by 0.3% to 457,000 in September 2014, from 455,500 in July 2014. As of September 2014, King had eight games available for download on the App Store including Candy Crush, Pet Rescue, Papa Pear, Farm Heroes, Bubble Witch, Bubble Witch 2, Pyramid Solitaire and Diamond Digger. The ==company== has 665 employees and in 2013 it spent US$110.5 ==million== on R&D.

Another top downloaded mobile game is Plants vs. Zombies, released by private developer PopCap Games and publisher Electronic Arts Inc (NASDAQ : EA) through Facebook in May 2013. Electronic Art provides games for mobile devices and internet-only games, as well as related functions in North America, Europe, Asia and Australia. The game was first released on May 5, 2009, and the version for iOS was released in February 2010, while the Android version was released on May 31, 2011, on the Amazon App Store.

Wi-Fi Demand Grows

With the continuous rise in smartphone adoption, the demand for Wi-Fi is also growing as checking in or logging on to various social media has become the daily routine for smartphone users no matter where they are. Wi-Fi is generally defined as a local area wireless technology that allows electronic devices to exchange data or connect to the internet using 2.4 GHz UHF and 5 GHz SHF radio waves.

The leading web portal in ==China==, Sina.com, estimates 77.7% of outbound tourists in ==China== say that they must have access to the internet, while about 64% of them want free Wi-Fi at hotels, airports and restaurants because they think the fees of their communication carriers are too high. Now, they can also surf the web through their mobile devices while on buses as Lijiang Gaokuai Passenger Coach Station in ==China== has installed a free Wi-Fi system on nearly 50 buses to provide internet access for passengers. Users say that the service has enabled them to stay connected with their friends and family through social media such as Facebook and WeChat .

EAP-SIM, which started in April 2014. This is part of ongoing efforts by the Infocomm Development Authority of Singapore (IDA) to improve the user experience of Wireless@SG, a free public Wi-Fi service that offers internet access speeds of up to 2Mbps.

The new SIM-card-based login feature offers users an always-on experience by allowing them to connect automatically to any Wireless@SG hotspot using a supported device with a local SIM card. Singapore's Minister for Communications and Information claims the pervasive cellular network and presence of Wi-Fi hotspots have paved the way for service providers to roll out location-based and context-driven services to consumers and businesses.

Market Outlook

In the second half of 2014, the number of internet subscribers is likely to continue to increase as the internet has become an integral part of people's daily lives. The demand for spectrum is likely to increase as more LTE services are rolled out. According to the Fibre-to-the-home (FTTH) Council, the Asia-should have 100 ==million== FTTH homes by December 2014. Mobile app and mobile web consumption is likely to continue to pick up, driven by rising smartphone penetration. The mobile trend is expected to continue for the next three years.

Country Profiles

Australia

Sector Overview

Telstra Corp Ltd (ASX : TLS), Australia's largest telecommunications provider, has signed a A$150 ==million== (US$150 ==million==) deal with NBN Co Ltd , a government business enterprise, to connect 206,000 homes and businesses with the government's preferred fibre-to-the-node (FTTN) technology. The agreement, announced in June 2014, will involve around 1,000 nodes across Queensland and New South Wales. The construction program is scheduled to run for 12 months, the cost to be covered by federal government funding to NBN.

Following an investigation into telemarketing calls to numbers on the Do Not Call Register, the Australian Communications and Media Authority (ACMA) issued a formal warning to Telco Service Holdings Pty Ltd. ACMA found that the ==company== engaged call centers to make telemarketing calls promoting its telecommunications products and services. From August to October 2013, 25 calls were made to numbers

listed on the Register. Under the Do Not Call legislation, businesses are responsible for telemarketing calls made by outsourced call centers and must oversee the activities of contracted third parties.

On June 16, Telstra 's strong rival Optus announced a partnership with the Victorian Government and VicTrack to allow Melbourne commuters to call, text, update social networks and browse the internet in the city's rail tunnels. VicTrack is a Victorian Government enterprise, which owns all railway and tram lines, associated rail lands and other related rail-related infrastructure in the state of Victoria. The move is an important first step in delivering mobile coverage to millions of rail commuters in Melbourne, allowing them to stay connected even underground. The agreement is part of the A$152 million (US$161.48 million) government program to upgrade the state's digital train radio system, but financial details of the agreement were not disclosed.

Industry Size and Value

The mobile telecommunications industry continues to be an important contributor to Australia's economic growth, with most people preferring to use mobile phones. The Australian Communications Consumer Action Network (ACCAN) claims this is partly due to falling cost of mobile phones in the past six years. ABS data shows the volume of data downloaded via mobile handsets in fourth quarter 2013 was 27,627 terabytes, a 41% increase from 19,636 terabytes in the second quarter. There was a 3% rise in mobile handset subscriptions from 19.6 million to 20.3 million.

The internet is a necessity for many Australians, who use it to complete everyday tasks and access information and services that facilitate daily social and economic interactions. In June 2013, there were 12,408,000 Australian internet subscribers, up by 30% from 9,569,000 in June 2010. They use the internet mostly for downloading TV shows, online gaming, working from home, and VoIP. However, despite the strong shift toward mobile and the internet, fixed-line phone services have maintained their presence in the Australian communications environment.

Leading Companies

Telstra Corp Ltd

For the fiscal year ended June 30, 2014, Telstra 's net profit totaled A$4.3 billion (US$4.57 billion), up by 10% from A$3.9 billion (US$4.14 billion) the previous year. Sales revenue rose by 3%, from A$24.3 billion (US$25.82 billion) to A$25.1 billion (US$26.67 billion), thanks to its growing number of mobile subscribers. Telstra aims to create one of the world's largest Wi-Fi networks by offering Australians access to two million Wi-Fi hotspots across the nation within five years of launch in early 2015. The plan will usher in a new Wi-Fi era, which will help meet current data needs and deliver future capacity for the expected explosion of Wi-Fi traffic.

Telstra announced in July that starting January 2015 it would conduct commercial trials using 20MHz of the 700MHz spectrum band at six locations around Australia. Telstra also plans to roll out more 4G 700MHz services in a range of cities and regional centres, saying that the spectrum's lower frequency will give customers better 4G coverage in buildings, lifts and car parks. The addition of new 700MHz spectrum is a major investment in the future of Australian telecommunications.

Optus

In third quarter 2013, Optus' operating revenue totalled A$2.46 billion (US$2.61 billion), down by 6% from A$2.62 billion (US$2.78 billion) in the second quarter, but net profit rose by 31% from A$167 million (US$177.42 million) to A$218 million (US$231.60 million), thanks to cost saving initiatives that reduced operating expenses by A$202 million (US$214.60 million).

In July 2014, Optus launched its superfast 4G service in Darwin, following the previous grant of a licence for 4G 700MHz spectrum by the Australian Communications and Media Authority (ACMA), enabling faster web browsing, downloading and video streaming in the Darwin area. Optus has also enhanced its mobile coverage in Horsham, Victoria, with a new dedicated tower to expand mobile coverage to the south of town. Optus argues the new tower has improved reception along major roads such as Henty and Western Highways, giving local customers a better mobile service.

Policy and Regulatory Environment

In June 2014, the ACMA formally warned Dodo Services Pty Ltd (Dodo) (a private company) over its compliance with the Telecommunications Consumer Protections Code (TCP Code). ACMA discovered that Dodo failed to send alerts to 5,300 fixed broadband customers about their data use, as required under the TCP Code, during October and November 2013. The code stipulates that all telco providers must send use alerts to customers on post-paid broadband internet plans when they have reached 50%, 85%, and 100% of their monthly data allowance.

According to the ACMA, Dodo cooperated with the investigation and has since rectified the issue, compensating affected customers and capping the excess use charges. The TCP code came into effect in September 2012, and, as of June 2014, the ACMA had issued 110 formal warnings, ten directions to comply and one infringement notice.

Market Outlook

By the end of 2015, NBN Co 's fiber penetration will match that of DSL with about three ==million== active connections to homes and businesses as it continues its rollout across Australia. The telecommunications industry will continue to grow as Optus expands its 4G network to 200 holiday destinations and regional locations, starting in January 2015. This will bring 4G coverage to new regional locations as well as improve indoor 4G reception in metro areas. Thanks to the availability of compatible mobile devices and Telstra 's new consumer data share packages, the adoption of data services is likely to accelerate.

==China== and ==Hong Kong==

Sector Overview

==China=='s MIIT awarded ==China== Telecom and ==China== Unicom==Hong Kong== high-speed 4G mobile network test licences for the Frequency Division Duplex-Long Term Evolution (FDD-LTE) standard in 16 cities. This will allow the two telcos to compete better with ==China== Mobile, which has been deploying base stations across the country using the TD-LTE with 4G licenses issued December 2013.

In July, the three players agreed to establish ==China=='s first joint network infrastructure ==company==, ==China== Communications Facilities Services Corp Ltd with registered capital of RMB10 ==billion== (US$1.61 ==billion==), with ==China== Mobile having a 40% share, ==China== Unicom 29.9% and ==China== Telecom 30.1%. The joint venture will build telecom towers, base stations and other transmission assets, while building these jointly could help protect the environment, conserve resources and reduce network construction costs.

==Hong Kong=='s Key Telecommunications Statistics for the Six-month Period January - June 2014

```
                            January 2014   June 2014    Increase/Decrease
Short Message Service Sent   227,768,793   207,228,243   Decrease of
20,540,550
Short Message Service Received 426,511,449  380,613,849  Decrease of
45,897,600
Public mobile customers       17,393,689    17,174,628   Decrease of
219,061
Mobile data usage (Mbytes)   12,045,613,697 13,618,818,513 Increase of
1,573,204,816
```

Source: Office of the Communications Authority

Industry Size and Value

although the key regional telecommunications hub is a world leader in broadband connection speeds and competitive pricing, Google announced in December 2013 it had cancelled plans to build a new data center there due to high operating costs and real ==estate== problems. The US$300 ==million== project would have enhanced Google 's service speed in Asia by 30%.

==Hong Kong=='s Key Telecoms Statistics

```
telecommunications services
Quantity
Mobile network operators (July 2014)                            4
*Note 1                                                         21
*Note 2                                                        274
*Note 3
101.62%
Mobile subscriber penetration rate (May 2014)
237.7%
Mobile subscribers (May 2014)
17,163,311
2.5G and 3G/4G mobile subscribers (May 2014)
12,710,731
Internet Services
Quantity
*Note 4                                                        201
```

```
Registered customer accounts with dial-up access (estimated) (May 2014)
321,289
Registered customer accounts with broadband access (estimated) (May 2014)
2,241,113
Household broadband penetration rate (May 2014)
83.1%
Public Wi-Fi access points (July 2014)
28,512
```

Source: Office of the Communications Authority

Note 1: Includes all licensees authorised to provide facility-based local fixed telecommunications services under fixed telecommunications network services (FTNS) licences, fixed carrier licences (FCL) or unified carrier licences (UCL) using wireline or wireless technology.

Note 2: Includes all licensees authorised to provide facility-based external telecommunications services (?ETS?) under FTNS licences, FCL, UCL and service-based ETS under services-based operator (?SBO?) licences.

Note 3: The number of residential fixed lines refers to the total number of residential exchange lines and non-exchange lines, while residential fixed line penetration is calculated by dividing the number of residential fixed lines by the number of households.

Note 4: Includes all licensees authorised to provide Internet access services under FTNS licences, FCL, UCL and SBO licences.

China Mobile was the most active 4G deployer throughout 2013, while China Unicom maintained its existing 3G infrastructure, which is its strength. Apple made a deal with China Mobile in December 2013 to sell iPhones, giving Apple access to all carriers in the world's biggest handset market. The agreement helped China Mobile to attract new high-end subscribers to its fourth-generation network, and it started selling the iPhone 5s and 5c models in its retail stores from January 17, 2014.

Leading Companies

China Mobile

China Mobile's operating revenue was RMB324.681 billion (US$52.21 billion) in the first half of 2014, an increase of 7% from RMB303.104 billion (US$48.74 billion) a year earlier. Profit totalled RMB57.742 billion (US$9.28 billion), down by 9% from RMB63.128 billion (US$10.15 billion), due to higher expenses and intense competition.

Number of Customers from February 2014 to July 2014

```
                         (in 000s) (in 000s)
As of July 31, 2014       793,573   20,437
As of June 30, 2014       790,614   13,943
As of May 31, 2014        787,295    8,109
As of April 30, 2014      784,613    4,798
As of March 31, 2014      781,082    2,793
As of February 28, 2014   775,615    1,340
```

Source: China Mobile

As of August 31, 2014, China Mobile's Shanghai branch had opened more than 5,000 4G base stations with an investment of RMB15 billion (US$2.41 billion). It also plans to strengthen its information infrastructure in important regions such as the Shanghai Free-Trade Zone (SFTZ) and complete the coverage of network lines in the 7,000 main business buildings and new-built residential districts.

By December 2014, China Mobile plans to achieve complete coverage in almost all major and county-level cities as well as effective coverage in key villages and towns in Mainland China. It has built 410,000 4G base stations, providing coverage to more than 300 cities. It also plans to trial voice over LTE (VoLTE) before year-end as part of its plan to consolidate its first mover advantage in 4G services.

China Unicom Ltd

During the first half of 2014, China Unicom 's revenue rose by 4% to RMB149.57 billion (US$24.05 billion), from RMB144.31 billion (US$23.21 billion) a year earlier, with its profit up 26%, from RMB5.32 billion (US$0.86 billion) to RMB6.69 billion (US$1.08 billion), thanks to the net addition of more 40

million 3G and 4G subscribers in the year to June 30. In April, the **company** launched 4G services, being the last among its rivals to enter the expanding **Chinese** 4G market.

Its mobile subscriber base totalled 295.89 **million** as of July 30, up by 4% from 284.11 **million** on January 30. The number of fixed-line local access subscribers declined by 3%, from 88,023,000 to 85,440,000, while 3G and 4G subscriber numbers rose by 13%, from 126,469,000 to 143,318,000.

China Telecom

The operating revenue of **China**'s third telecommunications **company** totalled RMB165.97 **billion** (US$26.69 **billion**) in the first half of 2014, up by 5% from RMB157.56 **billion** (US$25.34 **billion**) a year earlier, thanks to increasing numbers of 3G customers. Its net profit rose 12%, from RMB10.23 **billion** (US$1.64 **billion**) to RMB11.44 **billion** (US$1.84 **billion**). **China** Telecom received a TD-LTE license in December 2013, and plans to launch large-scale 4G mobile services with the FDD-LTE standard, licenses expected to be issued within the next two years. MIIT has authorized **China** Telecom to extend trials of its hybrid TD-LTE/FDD LTE network to 40 cities, including Beijing, Dongguan, Guangzhou, Tianjin, and Xiamen.

Hutchison Telecommunications **Hong Kong** Holdings Ltd

Hutchison's first half 2014 revenue totaled HK$66.23 **billion** (US$8.54 **billion**), down by 6% from HK$6.63 **billion** (US$0.86 **billion**) a year earlier, while its net profit was down 6% from HK$344 **million** (US$44.38 **million**) to HK$323 **million** (US$41.67 **million**), due to lower mobile hardware sales and intense price competition.

The Share Price of Hutchison Telecommunications **Hong Kong** Holdings Ltd from March 2014 - August 2014

```
date            Share Price ( HK$)
August 29, 2014 3.370 (US$0.43)
July 31, 2014   3.330 (US$0.43)
June 30, 2014   3.160 (US$0.41)
May 30, 2014    2.880 (US$0.37)
April 30, 2014  2.450 (US$0.32)
March 31, 2014  2.580 (US$0.33)
```

Source: Hutchison Telecommunications **Hong Kong** Holdings Ltd

On July 8, Hutchison announced the exclusive introduction of NTT DoCoMo 's popular Japanese Translator application in **Hong Kong**, which enables users to communicate with ease in Japanese, even if they do not know the language. The app, developed by NTT, can translate spoken English, Mandarin and Korean into written and spoken Japanese, and vice versa, on a mobile handset. Users need only to speak into their smartphones and the app will automatically translate what they say into Japanese, displaying a voice-to-text translation on screen and dictating the message audibly.

PCCW Ltd

Hong Kong-based PCCW Ltd 's (HKSE: 0008) first half revenue totalled HK$14.44 **billion** (US$1.86 **billion**), up by 13% from HK$12.82 **billion** (US$1.65 **billion**) a year earlier, while profit increased by 13.1%, from HK$1.45 **billion** (US$0.19 **billion**), to HK$1.64 **billion** (US$0.21 **billion**). The increase was driven by continued demand for data center capacity and timely execution of projects.

In August, PCCW extended its support for Telecoms Sans Frontieres (TSF), the world's leading telecommunications non-government organization (NGO), with further contributions for the next three years. Founded in 1998, TSF is a humanitarian-aid, non-governmental organization specialising in telecommunications in emergency situations for victims of natural disasters and conflicts, and to humanitarian aid organisations. PCCW was the first Asian telco to support TSF.

Policy and Regulatory Environment

On August 4, a 6.5 magnitude earthquake in Ludian, Zhaotong City, Yunnan Province, caused 589 deaths and injured 2,401 people. MIIT announced that the earthquake disabled 61 mobile communication base stations and services from 16 fixed network access points. **China** Telecom , **China** Unicom and **China** Mobile sent emergency repair personnel and vehicles to the disaster area. Because damaged roads made access difficult, it was not known at publication time when full services would be restored.

Market Outlook

The number of mobile subscribers in <mark>Hong Kong</mark> is likely to increase in second half 2014, due to the strong and fiercely competitive mobile segment. <mark>China</mark>'s telecoms industry is likely to grow as smartphone penetration rises and the country expects to start <mark>commercial</mark> use of its homegrown 4G telecoms technology by the beginning of 2015. <mark>China</mark> Telecom expects to receive its official licence for a fully <mark>commercial</mark> FDD LTE rollout in early 2015.

India

Sector Overview

The number of wireless and wireline subscribers and the number of broadband subscribers picked up over the last six months as the country's internet usage rose further. As of May 31, 2014, the number of wireless and wireline subscribers was 938.34 <mark>million</mark>, up 3% from 915.19 <mark>million</mark> on December 31, 2013, while the number of broadband subscribers increased by 18% to 65.33 <mark>million</mark>, from 55.20 <mark>million</mark>, according to the Telecom Regulatory Authority of India (TRAI).

The telecom industry aims to use social media such as Facebook , Twitter and YouTube to connect with mobile users across the country. The platforms will help the industry engage with the 900 <mark>million</mark> Indian mobile users on topics such as technological advances, health and scientific facts, expert views and other industry issues.

In April 2014, India's fourth biggest mobile phone carrier Reliance Communications Ltd increased tariffs on discounted and promotional plans by up to 20% for all its pre-paid customers and headline call tariffs to 1.6 paise every second from 1.5 paise. The move was part of its continued efforts to reduce free and discounted minutes. It should also offset the ever-rising costs of input materials and continue to focus on increasing the number of profitable or paid minutes on its network.

Top major player Bharti Airtel said in July it had more than 300 <mark>million</mark> customers for its mobile, fixed line, digital subscriber line (DSL) and direct to home (DTH) services. As of May 31, 2014, Bharti had a 22.88% share of the Indian wireless subscriber market, more than 208 <mark>million</mark> mobile phone subscribers and 3,347,309 wireline users, according to the TRAI.

Industry Size and Value

the lowest growth, 22%, from 2.3 <mark>million</mark> in 2012 to 2.8 <mark>million</mark> in 2013.

May 2014

```
company   As of December 2013 As of May 2014 Increase/Decrease
Airtel    198.41              208.24         9.83
Vodafone  160.41               168.27         7.86
IDEA      128.69              137.72         9.03
BSNL      97.17               97.17          0
Aircel    66.91               72.09          5.18
Uninor    32.78               37.88          5.10
Videocon  3.97                5.41           1.44
MTNL      3.46                3.27           -0.19
Loop      3.03                3.03           0
TOTAL     694.83              733.08         38.25
```

Source: Cellular Operators' Association of India

The TRAI estimates the number of broadband subscribers reached 12.98 <mark>million</mark> at the end of October 2011, compared with 10.52 <mark>million</mark> a year earlier. With huge market potential, broadband subscription numbers are set to continue to grow in the next few years, while the country moves forward with new technology, especially in convergence.

Leading Companies

Bharti Airtel

Bharti's fourth quarter (ended March 31, 2014) revenue totalled Rs222.19 <mark>billion</mark> (US$3.71 <mark>billion</mark>), a 1.3% increase from Rs219.39 <mark>billion</mark> (US$3.66 <mark>billion</mark>) in the third quarter (ended December 31, 2013). Its net income increased by 64.5%, from Rs6.23 <mark>billion</mark> (US$0.10 <mark>billion</mark>) to Rs10.25 <mark>billion</mark> (US$0.17 <mark>billion</mark>), thanks to less market competition.

Bharti launched its 4G services in Jalandhar in May 2014, enabling its customers to connect to high-speed home broadband and internet on the move, allowing them to download ten movies in less than 30 minutes

and full holiday photo albums in less than five minutes anywhere, anytime. On February 14, Bharti and Apple launched India's first 4G on mobile to give customers the 4G experience at 3G prices regardless of location.

Reliance Communications Ltd

In June, India's fully integrated telecommunications service provider Reliance launched its Next-Gen 3G services in the Karnataka, Andhra Pradesh, Tamil Nadu, Kerala and Uttar Pradesh-East circles. Reliance covers more than 80% of India's fast-growing 3G data revenue market as smartphone sales rise. Reliance has expanded its 3G footprint to 18 circles, consolidating its position as the leading data operator in the Indian telecom industry.

Its fourth quarter revenue reached Rs56.71 **billion** (US$0.95 **billion**), up 5% from Rs54.03 **billion** (US$0.90 **billion**) the previous quarter, while net profit increased by 44% to Rs1.56 **billion** (US$0.03 **billion**), from Rs1.08 **billion** (US$0.02 **billion**), primarily due to easing competition. On June 9, Reliance introduced the first-of-its-kind free national roaming offer for post-paid and pre-paid GSM customers, making all roaming incoming calls free on the RCOM network.

Policy and Regulatory Environment

In July 4, TRAI recommended that no new mobile number portability (MNP) licences be issued. The two MNP service providers, Syniverse Technologies and MNP Interconnection Telecom, should not be charged more for extending nationwide MNP. Syniverse provides business and network engineering services and software for managing and interconnecting voice and data network systems, while MNP Interconnection Telecom is a joint venture between US-based Telcordia Technologies Inc and Indian enterprise, DTC Pvt Ltd. The two service providers were given MNP licences in 2009, and TRAI recommended that the maintenance of their existing entry fees, performance bank guarantee (PBG) and financial bank guarantees (FBG).

This is a complete U-turn from its September 2013 suggestions on nationwide MNP that the Department of Telecommunications (DoT) may make necessary changes to the existing MNP service licence to facilitate inter-service area porting, or full MNP. Trai has asked DoT to give telecom companies six months to make suitable changes to their networks from the date the full MNP is approved.

Market Outlook

In the first half of 2014, continuous data traffic growth led to investment in additional capacity by telcos to maintain growth. It is expected that higher adoption of data services, driven by the availability of compatible mobile devices, affordable data plans and rapidly rising numbers of internet users, will be the next growth driver. The number of Global System for Mobile (GSM) subscribers in India is likely to continue to grow, from around 733 **million** in May 2014 to 780 **million** in December 2014.

Japan

Sector Overview

Japan's major operator NTT DoCoMo announced in May 2014 it would conduct 5G experimental trials with six world-leading mobile technology vendors: Alcatel-Lucent , Ericsson, Fujitsu Ltd , NEC Corp , Nokia and Samsung Electronics . The trials, to begin in the second half 2014, will examine the potential of 5G mobile technologies to exploit frequency bands above 6GHz and to realize very high system capacity per unit area.

They will also test new radio technologies' ability to support various applications, including machine-to-machine (M2M) services. A new-generation cellular system due for **commercial** deployment in 2020, 5G will enable ultra-high-speed data transmissions at more than 10Gbps, 1,000 times the capacity of existing LTE networks, and allow connectivity of massive numbers of devices to support the ever-expanding market for M2M services.

Internet search services provider Yahoo Japan Corp (TSE: 4689) announced plans to acquire SoftBank's mobile internet service provider eAccess Ltd for Y324 **billion** (US$3.21 **billion**), but changed its mind in May, saying that it would be better for the two companies to operate independently. SoftBank owns 42.6% of Yahoo Japan and a 99.68% **stake** in eAccess but only 33.29% of the voting rights due to regulatory restrictions. The planned **acquisition** was part of Yahoo 's expansion strategy in the wireless data and voice sectors.

Industry Size and Value

In November 2013, NTT DoCoMo and South Korea's KT Corp launched a Wi-Fi roaming exchange solution in cooperation with privately owned, global multi-service internetwork packet exchange (IPX) solution provider Aicent . Their customers can connect automatically through extensible authentication protocol (EAP) that utilises credentials contained in SIM cards to access a Wi-Fi network without the need of a pre-established password. KT subscribers can enjoy a better roaming experience in Japan through NTT DoCoMo and South Korea's network of Wi-Fi hotspots.

Exports of Telecommunications Systems (Electronics) from Japan, December 2013 - May 2014

```
month           Yen (
Millions)
May 2014        208
April 2014      300
March 2014      262
February 2014   208
January 2014    119
December 2013   198
Total           1,295
```

Source: Japan Electronics and Information Technology Industries Association (JEITA)

JEITA data shows that in the six-month period to May 2014, the total value of electronics for telecommunications systems exported from Japan to other countries was Y1,295 million (US$12.82 million), up 11% from Y1,170 million (US$11.58 million) in the six-month period to November 2013.

According to telecommunications market research and consulting firm TeleGeography, NTT DoCoMo , the first company in Japan to launch LTE services commercially, in December 2010, passed the ten million subscriber milestone in February 2013. NTT DoCoMo has developed an indoor base station and antenna, compatible with the 1500MHz, 1700MHz and 2000MHz frequency bands, and started commercial deployment on November 21, 2013, in Tokyo, Kanagawa, Aichi, Osaka, Kyoto and Hyogo prefectures. The technology supports maximum downlink transmission speeds of 150Mbps and is suitable for long-term evolution (LTE) technology.

Leading Companies

NTT DoCoMo

NTT DoCoMo 's operating revenue was down 3% to Y1,075.30 billion (US$10.65 billion) in second quarter 2014, down from Y1,113.57 billion (US$11.02 billion) a year earlier. Its net income was down 14% to Y136.4 billion (US$1.35 billion), from Y158 billion (US$1.56 billion), primarily due to the impact of discount programmes and lower sales of handsets. The number of mobile subscriptions grew by 1.5% to 63,105,000 as of March 31, 2014, from 62,182,000 on December 31, 2013, while the number of prepaid subscriptions dropped by 6% to 34,000, from 36,000.

To satisfy consumer demand for high-speed, high-quality voice and data services, NTT DoCoMo launched its first VoLTE service on June 24. The service, which requires a subscription to extra-high speed network Xi, enables users to access up to 150 Mbps high-speed LTE data communication during VoLTE voice calls, and receives Area Mail disaster-information notifications while making VoLTE voice or video calls. Xi and Area Mail, which are trademark services of NTT, are available only to subscribers in Japan.

KDDI Corp

KDDI 's operating revenue increased by 2%, from Y1,002.42 billion (US$9.92 billion) in second quarter 2013 to Y1,020.55 billion (US$10.10 billion) in the same period in 2014, due to higher mobile communications revenues in the personal services segment, while net income rose by 67%, from Y68.17 billion (US$0.67 billion) to Y113.51 billion (US$1.12 billion).

In July, KDDI and Sumitomo Corp (TSE: SSUMY) agreed to joint telecommunications operations in Myanmar with Myanmar Posts and Telecommunications (MPT). Japan-based Sumitomo is involved in a variety of social infrastructure projects such as power generation, telecommunications and railways in countries throughout the world. KDDI and Sumitomo have set up a joint venture, KDDI Summit Global Myanmar (KSGM), through which they will conduct their business in Myanmar. KDDI aims to bring Japanese-quality fixed and mobile services to Myanmar and to upgrade the country's telecoms infrastructure. MPT, formerly known as The Posts and Telecommunications Corp, provides postal, telegraph, and telephone services throughout Myanmar.

Softbank Mobile Corp

Softbank posted net sales of Y1,992.2 <mark>billion</mark> (US$19.72 <mark>billion</mark>) in second quarter 2014, up by 126% from Y881.1 <mark>billion</mark> (US$8.72 <mark>billion</mark>) a year earlier. However, net income fell by 59%, from Y269.7 <mark>billion</mark> (US$2.67 <mark>billion</mark>) to Y111.3 <mark>billion</mark> (US$1.10 <mark>billion</mark>), mainly due to interest repayments on loans to finance its Sprint Nextel Corp**acquisition** in 2013. Softbank signed a Y1.98 trillion (US$20 <mark>billion</mark>) loan facility with a number of banks to refinance its previous one-year bridge loan for the Sprint**acquisition**. In August, Softbank announced that it had dropped its bid to acquire US carrier T-Mobile US for US$40 <mark>billion</mark>, after regulatory resistance showed no signs of softening despite months of lobbying. US regulators insisted that they wanted to keep the number of major wireless carriers at four.

Policy and Regulatory Environment

New guidelines for the introduction of disaster-resilient telecommunications networks in Japan aim to improve emergency response in the event of a major disaster. The Ministry of Internal Affairs and Communications (MIC) in July announced guidelines for the introduction of disaster-resilient telecommunications networks following from the Great East Japan earthquake and tsunami in 2011. The new measures include telecommunications systems with disaster-resilient features and the capability to support early recovery from disasters to be part of smart grid deployment.

The new system will enable emergency responders to coordinate action, allowing responders and members of the public to share and receive information, and to provide early warnings and critical updates. The 2011 earthquake and tsunami damaged 1.9 <mark>million</mark> fixed communication lines and 29,000 base stations, and more than 80% of fixed and mobile communications breakdowns were caused by widespread and prolonged power outages.

Market Outlook

Continuous investment by major players in LTE networks should ensure that Japan's mobile market continues to grow in the second half 2014. Growth is expected to be driven by the handset market, mainly in the smartphones segment. Shipments of devices such as PCs, tablets, and smartphones to the highly developed Japanese telecoms market are expected to pick up significantly over the next six months.

Singapore

Sector Overview

In July 2014, major operator Singapore Telecommunications Ltd (SingTel) (SES : Z74) launched the world's first <mark>commercial</mark> 4G service with a 300 Mbps peak connection speed, available on the Huawei E5786 mobile MiFi device. SingTel said the launch brought the benefits of LTE-advanced services to Singaporeans before anyone else in the world.

In August, MobileOne Ltd (M1) (SES : B2F) became the first mobile operator to launch a plan for disabled individuals. The ConnectSurf plan includes 500 minutes of outgoing calls, up to 10,000 short message services (SMS) or multimedia messaging service (MMS), and a generous 6GB data bundle. M1 also improved its benefits for seniors and its youth benefits packages. Seniors can now enjoy unlimited free calls to five M1 numbers as well as a complimentary 500MB data bundle, while the youth complimentary data bundle has been doubled to 1GB.

In November 2013, StarHub Ltd (SES : CC3), using Tencent's WeChat , a mobile text and voice messaging communication service developed in <mark>China</mark>, launched the first WeChat plan that allows StarHub's mobile pre-paid customers to find and stay connected with friends. The plan allows prepaid customers to text, send animated stickers and voice messages, enjoy hold-to-talk (HTT) and many more features.

Industry Size and Value

The Infocomm Development Authority of Singapore (IDA) estimates as of June 30, 2013, Singapore had 1,980,100 fixed line subscriptions, down by 0.3% from 1,987,600 in first quarter 2013, due to accelerating smartphone take-up.

Singapore's Telecom Services Statistics (Fourth Quarter 2013- First Quarter 2014)

```
category                                           Fourth Quarter Ended
2013 Ended 2014 (%)
3G Mobile Subscriptions                            5,258,300
   5,703,100  8.0
Total Wireless Broadband Subscriptions             9,260,100
   9,979,800  8.0
Household
```

Residential Wired Broadband Penetration Rate 106.0%   105.6%
   -0.4
Residential Wired Broadband Subscriptions   1,292,100
   1,300,200 0.6

Source: Infocomm Development Authority of Singapore

Infocomm industry revenue totalled S$102.5 **billion** (US$82.02 **billion**) in 2012, up by 23% from S$83.4 **billion** (US$66.74 **billion**) in 2011, while the annual growth rate increased by 4.3%, from 18.5% to 22.8%.

Leading Companies

Singapore Telecommunications Ltd (SingTel)

On June 16, 2014, SingTel launched Easy Mobile, Asia's first postpaid mobile service, which allows users to customise their tariff plans each month to suit their lifestyle needs and budgets. Customers can quickly and conveniently tweak their voice, SMS and data bundle while on the move via the MySingTel smartphone app or the Easy Mobile online portal. Easy Mobile uses digital platforms to handle all **transactions** and serve customer needs, including post-sales support.

SingTel 's net profit totalled S$881 **million** (US$704.98 **million**) in first quarter 2014, a 2% drop from S$898 **million** (US$718.58 **million**) in fourth quarter 2013, while revenue increased by 0.5%, from S$4.13 **billion** (US$3.30 **billion**) to S$4.15 **billion** (US$3.32 **billion**), mainly due to a growing mobile customer base and higher take-up of data services.

StarHub Ltd

StarHub's operating revenue increased by 1%, from S$571.4 **million** (US$457.23 **million**) in first quarter 2014 to S$576.4 **million** (US$461.24 **million**) in the second quarter, while net income grew by 12%, from S$84.2 **million** (US$67.38 **million**) to S$94.3 **million** (US$75.46 **million**), thanks to its growing customer base. In May, StarHub launched its innovative dual-network home broadband solution that maximises wireless broadband coverage and speed. StarHub's 500Mbps fibre home broadband plan includes 100Mbps cable home broadband subscription and two complimentary premium wireless networking devices, giving customers greater broadband connectivity throughout the home.

StarHub announced in June an extended trial for its rich communications services (RCS) app, expecting to officially launch the product before December 2014. RCS was developed by the GSM Association, a **group** of more than 800 mobile operators and related companies in more than 200 countries. StarHub started trials in May for the app that will allow users to share video and photos, make voice calls and send text messages.

MobileOne Ltd (M1)

M1's operating revenue totalled S$479.8 **million** (US$383.94 **million**) in the first half of 2014, down by 2% from S$487.5 **million** (US$390.10 **million**) a year earlier, but net profit rose by 8%, from S$80.2 **million** (US$64.18 **million**) to S$86.7 **million** (US$69.38 **million**), thanks to growth in its post-paid mobile and fixed customer base, and by higher mobile data revenue.

In May 2014, M1 launched a new service, which allows customers using Windows Phones to pay for apps on their M1 bills. The service offers several features to prevent accidental or fraudulent **purchases**, including the option to require a Microsoft Wallet PIN number to confirm a **purchase**. Most Windows Phone devices have the option to charge **purchases** to the customer's M1 bill as the default payment method, unless the user chooses alternative payment options.

Policy and Regulatory Environment

From January 2014, the Personal Data Protection Commission (PDPC) Singapore requires anyone sending promotion or marketing messages to a Singapore phone number to first check whether that number is listed in the new national Do Not Call (DNC) Registry. Organizations or individuals are required to set up an account with the DNC Registry and submit lists of telephone numbers for checking. DNC provisions under the Personal Data Protection Act 2012 (PDPA) prohibit organisations from sending marketing messages (in the form of voice calls, text or fax messages) to Singapore telephone numbers, including mobile, fixed-line, **residential** and business numbers, on the DNC Registry.

The registry comes under new PDPA rules, the rest of which took effect on July 2, since when organizations that check their marketing list with DNC Registry can rely on the results returned for up to 30 days. Between June 1 to July 1, 2014 (both dates inclusive), all results received during this transition

period were valid until July 31, 2014. Breaches of the new legislation could result in fines of up to S$1 ==million== (US$0.80 ==million==).

Market Outlook

more than half of the ==island== by the end of October 2014 and nationwide coverage is expected by the end March 2015.

South Korea

Sector Overview

In South Korea, subsidies have long been a common telco strategy to make smartphones more affordable to attract customers. Regulators have used fines, business suspensions and stern warnings to make mobile carriers end subsidies, but to no avail. However, in March 2014, three major South Korean carriers, SK Telecom Co , KT Corp and LG Uplus , agreed to end illegal subsidies to stabilize the local market. The regulator also ordered SK Telecom and LG Uplus to suspend their mobile business for seven and 14 days, respectively, and fined all three operators KRW30.4 ==billion== (US$0.03 ==billion==) won for previously offering illegal subsidies.

In April, LG Uplus announced the nation's first unlimited mobile service package, followed by announcements of similar services by SK Telecom and KT Corp . LG Uplus ' LTE 80 and LTE 85 plans offer unlimited LTE data use, and unlimited voice calls and messaging for KRW80,000 (US$80). The package includes services such as U+HDTV, U+Professional Baseball and Ticket Planet. SK Telecom , the world's first provider to offer a LTE-Advanced network, in 2013, will introduce three LTE data plans providing customers with unlimited LTE data use, voice calls, and text messages.

In June, South Korea announced that it is collaborating with the European Commission (EC) on a global definition of 5G and in 5G research, to meet the need for more internet speed. South Korea's Samsung will handle global marketing to consumers worldwide. The move will streamline the global standardization of 5G tech and allow companies to share research, aiming to make South Korea and the EC leaders in 5G technology.

Industry Size and Value

In 2008, South Korea announced that it would invest KRW60 ==billion== (US$0.06 ==billion==) in 4G and 5G technology development, aiming to have the biggest mobile phone market share by 2012. Thanks to substantial investment in R&D, and the collaboration of the public and private sectors, smartphone uptake has significantly increased since 2011. A high-speed internet network makes Wi-Fi widely available, even in underground trains, making South Korea the leading force in telecommunications.

South Korea became a world leader in distribution and use of near field communication (NFC) technology in mobile devices in 2012, with KT and SK Telecom selling more than three ==million== NFC-enabled phones that allow customers to use their phones to pay transit fares and conduct other business at NFC terminals.

South Koreans were early tech adopters and remain the most tech-savvy consumers, particularly receptive to new technologies, and mobile penetration exceeded 110% in 2013, driven by the popularity of smartphones. In 2009, the Government announced an ultra-broadband convergence network (UBcN) plan to establish an information and communications environment. The plan aimed at 1Gbs speeds on fixed lines or 10Mbs on wireless by the end of 2013 by upgrading the UBcN to a 46 ==million==-subscriber network with speeds of 1Gbps.

Leading Companies

SK Telecom Co

SK Telecom 's operating revenue totalled KRW4,201.9 ==billion== (US$4.20 ==billion==) in first quarter 2014, down 2% from KRW4,294.8 ==billion== (US$4.29 ==billion==) a year earlier. Its net income totalled KRW267.3 ==billion== (US$0.27 ==billion==), a 9% decrease from KRW293.7 ==billion== (US$0.29 ==billion==), primarily due to a temporary rise in marketing expenses. SK Telecom had 18,816,000 smartphone subscribers as of March 31, 2014, up by 3% from 18,286,000 in the previous quarter, while the number of LTE subscribers increased by 10%, from 13,487,000 to 14,773,000.

In June 2014, SK Telecom launched a 225Mbps LTE-Advanced service, making it the first among 300 telcos in 107 countries with commercialized LTE to use the technology on smartphones. It offers speeds of up to 225Mbps, enabling customers to download a 1GB movie in 37 seconds. Customers will not be charged extra for the service as SK Telecom aims to expand the market for diverse convergence services based on faster data communications.

KT Corp

KT Corp made a net loss of KRW41 ==billion== (US$0.04 ==billion==) in first quarter 2014, compared with a loss of KRW542.5 ==billion== (US$0.54 ==billion==) in the previous quarter, while operating revenue declined by 6% from KRW6,214.5 ==billion== (US$6.21 ==billion==) to KRW5,846.1 ==billion== (US$5.85 ==billion==). The decrease was mainly due to business suspension orders from telecom authorities in the first quarter.

In June, KT announced plans to sell KT Capital Co Ltd and KT Rental Co Ltd to focus on its information and communications business, hoping to increase competitiveness and growth. On February 24, it announced collaboration with Radisys Corp (NASDAQ : RSYS) to deliver Intel ?-based small cell solutions across its LTE WARP+ network, allowing customers to benefit from the increased capacity and coverage that small cells bring to the network. US-based Radisys is a market leader in wireless infrastructure solutions for telecom, aerospace and defence applications.

LG Uplus

South Korea's third largest mobile carrier LG Uplus 's revenue for first quarter 2014 declined by 6% to KRW2,780.4 ==billion== (US$2.78 ==billion==), from KRW2,948.0 ==billion== (US$2.95 ==billion==) the previous quarter. Its net income totalled KRW26.8 ==billion== (US$0.03 ==billion==), down 44% from KRW48.1 ==billion== (US$0.05 ==billion==), mainly due to strong competition in early January and increased marketing costs. As of May 31, 2014, LG had 2,983,759 broadband subscribers and 4,844,409 telephony subscribers.

LG Uplus and Huawei, a leading global information and communications technology (ICT) solutions provider, announced the completion of the world's first ==commercial== network field trial of the aggregation of three different band carriers (3CC CA) on June 9. The aggregation will enable LG to meet higher throughput demand and efficiently deliver ultra-fast data speeds.

The KCC ordered KT to inform customers about what happened and to allow them to check on a special website if they had been affected. The KCC also announced, in March 2014, that it was investigating retail stores selling mobile services, saying that retailers caught selling data can face fines of up to KRW30 ==million== (US$0.03 ==million==). According to the KCC, the investigation has no deadline and every shop will be investigated.

Market Outlook

In the second half of 2014, deployments of LTE will continue to drive revenue growth, with LTE becoming the dominant technology in 2015. By the end of 2014, the country should have 38 ==million== LTE subscribers. Mobile SIM penetration is expected to increase from 117% in 2013 to around 120% by the end 2014, while smartphone penetration is likely to rise to 60% from 53%. Driven by LTE and fibre broadband, overall telecoms retail revenue for the region is likely to increase, along with mobile data revenue, to US$70 ==billion== in December 2014, up 4% from US$67.3 ==billion== in December 2013.

Currency Convesion Table

Currency exchange rates as of September 10, 2014

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currency unit                  US$ per Unit Units per US$
Australian Dollar ( A$)        1.0624       0.9413

Chinese Yuan Renminbi ( RMB)   0.1608       6.2180
Hong Kong Dollar ( HK$)        0.1290       7.7517
Indian Rupee ( Rs)             0.0167       60.0400
Japanese Yen ( Y)              0.0099       101.3900
Singaporean Dollar ( S$)       0.8002       1.2497
South Korean Won ( KRW)        0.0010       1013.3000
British Pound Sterling         1.6139       0.6196
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Source: Federal Reserve Bank of New York

Key References

Key References

Global

Organisation for Economic Cooperation and Development (OECD)

An international organization that helps governments tackle the economic, social and governance challenges of a globalized economy.

http://www.oecd.org

International Telecommunications Union (ITU)

Headquartered in Geneva, Switzerland, the ITU is an international organization within the United Nations system where governments and the private sector coordinate global telecoms networks and services.

http://www.itu.int

United Nations Statistics Division

A United Nations body established to collect, process and disseminate statistical trade information. It also manages the UNCTAD COMTRADE database on international trade statistics.

http://unstats.un.org

United Nations Conference on Trade and Development (UNCTAD)

UNCTAD aims to facilitate trade between developed and developing countries and undertake research, policy analysis and data collection to provide substantive input for expert and government discussions.

http://www.unctad.org

OECD STAN Database of Industrial Analysis

One of the OECD 's main industry statistical databases.

http://www.oecd.org

The Semiconductor Industry Association (SIA)

The Semiconductor Industry Association (SIA) is the premier trade association representing the US semiconductor industry.

http://www.sia-online.org

Cellular Telecommunications and Internet Association (CTIA)

CTIA is an international organization representing all sectors of wireless communications - cellular, personal communication services and enhanced specialized mobile radio.

http://www.ctia.org

Australia

Australian Communications and Media Authority (ACMA)

The ACMA is an Australian government agency whose main roles are to regulate broadcasting, radiocommunications and telecommunications, and to represent Australian interests in international communications matters.

http://www.acma.gov.au

Australian Telecommunications Users Group (ATUG)

A lobby group aiming to achieve high quality telecoms services at OECD benchmark prices for Australian businesses.

http://www.atug.com.au

Australian Mobile Telecommunications Association (AMTA)

The AMTA is the national industry body representing the mobile telecoms industry in Australia.

http://www.amta.org.au

Internet Industry Association (IIA)

The IIA represents Australian internet industry companies, primarily internet service providers.

http://www.iia.net.au

National ICT Australia (NICTA)

The NICTA plays a major role in the Australian Government's policy to promote science and innovation. It is capitalizing on Australia's extensive ICT talent through world-class research, commercialization, education, and industry collaboration.

http://nicta.com.au

Telecommunications Industry Ombudsman (TIO)

The TIO is an independent non-government consumer complaints organization. It is not a consumer advocate, but rather a service to help consumers and telecoms companies resolve disputes.

http://www.tio.com.au

China and Hong Kong

Office of the Communications Authority (OFCA)

The OFCA is an independent government department which has different departments designated for broadcasting services, telecommunication services, radio spectrum, and the unsolicited electronic messages ordinance.

http://www.ofca.gov.hk

Hong Kong trade development Council

A statutory body established to promote Hong Kong's external trade in goods and services.

http://www.tdctrade.com

Ministry of Foreign Trade and Economic Cooperation

The Chinese ministry responsible for overseeing mainland China's foreign trade and economic affairs.

http://english.moftec.gov.cn

Hong Kong Wireless Technology Industry Association (WTIA)

The industry body that represents the interests of Hong Kong's wireless providers.

http://www.hkwtia.org/wtia/index.htm

Internet and Telecom Association of Hong Kong (ITAHK)

A non-profit organization that assists the industries on standards, specifications on products and rules and regulations on local and worldwide telecommunication.

http://www.itahk.org.hk/index01.htm

China's State Information Center (CIC)

The China Information Center (CIC) is a non-profit organization that engages in research projects on China's politics, economy, social and cultural development.

http://www.cicus.org

The Ministry of Information Industry (MII)

MII is China's main technology regulatory body that formulates national strategies, policies, plans, regulations and technical standards for the information industry in China.

http://www.mii.gov.cn

India

Department of Telecoms

Part of India's Ministry of Communications and Information Technology that oversees communications promotion and policy development.

http://www.dotindia.com

Ministry of communications and information Technology

An Indian government body that assists the development of information communications technology.

http://www.mit.gov.in

Telecom Regulatory Authority of India (TRAI)

India's national telecoms regulatory authority.

http://www.trai.gov.in

The Ministry of Finance (MoF)

The government ministry responsible for coordinating matters relating to the country's finances.

http://finmin.nic.in/index.html

Confederation of Indian Industry (CII)

CII works to create and sustain an environment conducive to the growth of industry in India, partnering industry and government alike through advisory and consultative process.

http://www.ciionline.org

Cellular Operators Association of India (COAI)

COAi is a registered, non-profit, non-governmental society dedicated to the advancement of communication, particularly modern communication through cellular mobile telephone services in India.

http://www.coai.in

Japan

Japan's Ministry of Economy, Trade and Industry

The government ministry responsible for managing economic activity, including trade and industry.

http://www.meti.go.jp/english/index.html

Nomura Research Institute

Nomura Research Institute was established in 1965 as a private think-tank in Japan to provide research, analysis, proposals and consulting, systems integration and operation, with an emphasis on the development of a better society.

http://www.nri.co.jp/english/index.html

The Ministry of Internal Affairs and Communications (MIC)

The MIC is responsible for national administrative organizations, the public service, local tax/finance, the election system, fire/disaster prevention, information and communications, postal services, and statistical systems.

http://www.soumu.go.jp/english/index.html

Telecommunications Carriers Association (TCA)

The TCA was established in 1987 to promote the sound growth of the telecoms industry, to improve the convenience of services for the Japanese public by solving problems common to telecoms carriers having network line facilities, and to investigate research and study the telecoms business.

http://www.tca.or.jp/index-e.html

Japan Electronics and Information Technology Industries Association (JEITA)

JEITA is an industry organization that covers both the electronics and information technology fields. JEITA makes proposals on industry policies by the Japanese government, supports technological development, and promotes the diffusion of products in new fields.

http://www.jeita.or.jp

Singapore

Infocomm Development Authority of Singapore (IDA)

The IDA regulates infocommunications in Singapore.

http://www.ida.gov.sg

Ministry of Trade and Industry (MTI)

The MTI provides comprehensive information on Singapore's economic policies, strategies, and statistics.

http://www.mti.gov.sg/public/home/frm_Mti_Default.asp

South Korea

The Information and Communications Ministry

The Ministry that sets policy on broadcasting, internet, broadband, IT security, encryption, and negotiates information and communications-related trade policy.

http://www.mic.go.kr

South Korean Ministry of Science and Technology

The ministry responsible for IT policy development and industry promotion.

http://www.most.go.kr/index-e.html

Korea Information Service (KOIS)

The KOIS aims to promote South Korea and its people and culture, as well as major government policies.

http://www.korea.net/

Korea National Statistical Office (KNSO)

The KNSO provides major South Korean statistics, graphs, publications, and surveys.

http://www.nso.go.kr/eng

Korean Electronics and Telecommunications Research Institute (ETRI)

Established in 1976, ETRI is a non-profit government-funded research organization in South Korea that has been at the forefront of technological excellence for more than 25 years.

http://www.etri.re.kr

Korea Fair Trade Commission (KFTC)

KFTC is South Korea's competition authority that is charged to ensure the fairness of trade in the country.

http://www.ftc.go.kr/eng/

Sales Contacts

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CO acmay : Australian Communications and Media Authority

IN i7902 : Telecommunication Services | i34411 : Mobile Communications Equipment | i3441 : Telecommunications Equipment | itech : Technology

RE asiaz : Asia | austr : Australia | china : China | jap : Japan | skorea : South Korea | victor : Victoria (Australia) | kanag : Kanagawa | saga : Saga | apacz : Asia Pacific | ausnz : Australia/Oceania | bric :

BRICS Countries | chinaz : Greater China | devgcoz : Emerging Market Countries | dvpcoz : Developing Economies | easiaz : Eastern Asia

IPD Telecommunications

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