HD **IT & High Technology - Asia Pacific**

WC 14,706 words

PD 1 July 2014

SN Mergent Industry Reports

SC MIRAUS

LA English

LP

Scope of this report

The Scope of This Report

TD

This report looks at the information technology and high technology industries across the Asia-Pacific, with a focus on Australia, **China** and **Hong Kong**, India, Japan, South Korea and Taiwan. A number of industry segments are examined, namely: IT services; computer hardware and equipment; software and; semiconductors. Key financial results 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 and information from global and country regulatory, industry and trade bodies; government data; and reports from industry organizations and private research organizations.

Industries covered by the industry reports are defined by standard industry classification systems and leading companies are identified on this basis. The relevant SIC codes used to search for companies in these sectors are as follows: 3674 (Semiconductors and Related Devices); 5045 (Computers Peripherals and Software); 7371 (Computer Programming Services); 7372 (Prepackaged Software); 7373 (Computer Integrated System Design); 7374 (Data Processing and Preparation); 7375 (Information Retrieval Services); 7376 (Computer Facilities Management); 7378 (Computer Maintenance and Repair); 7379 (Computer Related Services).

Current Environment

Sector Overview

The Asia-Pacific information communication technology (ICT) sector improved over the six months under review. **China**'s economy picked up after the Government reframed its economic policy, while the Japanese economy continued its recovery with an increase in consumption spurred by a last-minute rise in demand. Japan also raised its consumption tax, with ongoing quantitative and qualitative monetary easing and fiscal stimulus booting the sector. India's ICT sector meanwhile was affected by the economy, delayed reforms, the freefall of the rupee against major currencies and political gridlock. This was partially offset by improvements in Australia, Japan and South Korea.

Market researcher Forrester expects the Asia-Pacific ICT market to grow by 4.5% to be worth US$516 **billion** in 2014. It also forecasts mixed business and government **purchases** of IT goods and services - strong in countries such as **China**, India and Thailand, where it was weak in 2013, weak in Japan, where ICT market growth was better in 2013, and improving but still subdued in Australia and South Korea. Asia-Pacific countries focused their spending mostly on software-as-a-service apps, mobile devices analytics and big data, and smart process apps.

China's growth slowdown could be short-lived as the country continued to attract intense vendor interest thanks to its size and growth potential, while big exporters Taiwan and South Korea still looked to expand in **China**. Australia's ICT companies were cautious with their IT budgets until **China** - the biggest market for Australia's natural resource exports - returns to a solid growth path. There was a moderate rise in IT spending in Japan, thanks to monetary easing by the Bank of Japan, rises in share prices, and further

exports due to yen depreciation. However, Japanese companies continued to take a cautious stance on ICT investments.

ICT spending in emerging countries such as Vietnam, Indonesia, Malaysia and the Philippines was healthy, with governments budgeting to further develop high-tech ICT infrastructure such as cloud computing and the rollout of fiber-based high-speed broadband networks. The Asia-Pacific's reputation for providing ICT growth opportunities continued to attract global players from the US and Europe.

Sector Performance

The ten leading Asian IT stocks saw mixed performances over the six months to May 13, 2014, but most of them saw growth, with prices up by an average 19.6%. Fujitsu Ltd (TSE: 6702) had the largest share price rise, 51.72%, as it swung to a third-quarter profit of Y12 **billion** (US$116.6 **million**), thanks to improved sales. NEC Corp's (TSE: 6701) share price also rose, by 30.91%, after it announced plans to sell its internet service provider Biglobe Ltd to investment fund Industrial Partners for about Y70 **billion** (US$680 **million**). Asustek Computer's (TWN: 2357) share price rose by 32.29%, due to further demand for its products and strong foreign institutional interest.

Samsung Electronics' (KSE: 005930) share price fell by 1.34%, as the **company** faced growing competition from Apple's iPhones and budget devices from **Chinese** producers. Japanese IT **company**Toshiba Corp's (TSE: 6502) share price slipped by 1.23%, due to the negative impact of the reassessment of the asset value of a US developer of nuclear power plants, discontinuation of its optical disc drive (ODD) business, and abolition of the special corporate tax for reconstruction.

Stock Performances of Leading Asia-Pacific IT and High-Tech Companies

company	Ticker	Closing Price	November 13, 2013	May 13, 2014	%
Asustek Computer Inc	TWN: 2357	(US$7.32)	(US$9.68)	(US$9.68)	32.29%
Taiwan Semiconductor Manufacturing Co Ltd (TSMC)	TWN: 2330	(US$3.38)	(US$3.96)	(US$3.96)	17%
Samsung Electronics Co Ltd	KSE: 005930	(US$1,327.60)	(US$1,309.82)	(US$1,309.82)	-1.34%
Quanta Computer Inc	TWN: 2382	(US$2.12)	(US$2.62)	(US$2.62)	23.34%
Hon Hai Precision Industry Co	TWN: 2317	(US$2.44)	(US$2.89)	(US$2.89)	18.15%
Compal Electronics Inc	TWN: 2324	(US$0.69)	(US$0.73)	(US$0.73)	5.74%
Acer Inc	TWN: 2353	(US$0.53)	(US$0.63)	(US$0.63)	19%
NEC Corp	TSE: 6701	(US$2.14)	(US$2.80)	(US$2.80)	30.91%
Toshiba Corp	TSE: 6502	(US$3.95)	(US$3.91)	(US$3.91)	-1.23%
Fujitsu Ltd	TSE: 6702	(US$4.23)	(US$6.41)	(US$6.41)	51.72%

Source: Mergent analysis

Leading Companies

Personal Computers (PC)

Global PC shipments totaled 76.6 **million** in first quarter 2014, a 1.7% decline from a year earlier, according to market researcher Gartner. The decline was not as severe as in the previous past seven quarters, due to the end of Windows XP support on April 8, 2014, which caused many people to **buy** computers with the latest operating system. Asia-Pacific PC shipments totaled 24.9 **million**, a 10.8% decline from the previous year, as pressure on traditional notebooks continued because the installed base transitioned to alternative devices and replaced only on an as-needed basis. Japan was greatly affected by the end of XP support, recording a year-over-year 35% increase in PC shipments. Lenovo (HKSE: 0992) continued to **lead** the market, accounting for 18.5% of global shipments in the quarter. The **company**'s shipments grew in all regions except the Asia-Pacific, where growth in **China** slowed, partly because of the long Lunar New year holiday in the middle of the quarter.

Taiwan's struggling PC maker Acer (TWN: 2353) continued to suffer weak consumer demand for its PCs, including its high-priced ultrabooks. Its net profit of NT$1 **million** (US$32,800) was down from NT$515 **million** (US$17 **million**) a year earlier, but ended three consecutive quarterly losses due to better cost and inventory control. Revenue totaled NT$127 **million** (US$4.2 **million**), down by 16.6% from the previous year, despite effective control of inventory and costs.

Acer, which holds a 7.3% share of the global PC market and makes most of its revenue from netbook sales continued its restructuring efforts and is betting on cloud computing technology to boost its revenue, gross margin and operational efficiency. The **company** has adopted a build-your-own-cloud (BYOC) strategy, which allows users to build their own cloud services for purposes such as managing music and photos on all Acer PCs and mobile devices.

The world's second largest PC maker Lenovo remained in a virtual tie for the top position with HP, with shipments of 32.6 **million** in the quarter, or almost five devices every second. Lenovo shipped 15.3 **million** PCs, while 17.3 **million** shipments of smartphones and tablets, a 47% rise from a year earlier, surpassed those of PCs, giving it a 4.8% share and solidifying its position as the world's fourth largest smartphone supplier. Gartner estimates the **company**'s shipments grew in all regions except the Asia-Pacific.

Semiconductors

The global semiconductor industry continued to be driven by growth in electronic applications as almost every electronic item uses semiconductors. The mobile era has changed the dynamics of the industry, particularly for fabless companies, foundries, and outsourced semiconductor assembly and testing (OSAT). The demand for mobile chips gathered momentum, driving investment in advanced technologies and manufacturing capacities. Spurred by countries such as **China**, South Korea, India and Taiwan, the Asia-Pacific led the global semiconductor market with a share of more than half.

Taiwan was a prime example of a country riding the tide of mobile demand. Leading foundry supplier TSMC (TWN: 2330) worked on an enhanced transistor version of 16 FinFET plus, which will deliver performance improvement of around 15%. The **company**'s revenue totaled NT$148.22 **billion** (US$4.9 **billion**) in the first quarter of 2014, up 11.6% from a year earlier, mainly due to strong demand for its wafers across all segments, which was more pronounced in mobile-related applications.

Semiconductor Equipment and Materials International (SEMI) expected foundries to continue their hefty investment throughout 2014 with the ramp-up of 20nm production. Foundry capacity could account for 70% of Taiwan semiconductor capacity by the end of 2014. **China**'s consumption of semiconductors has grown in recent years, due to the continuing transfer of global electronic equipment production and the above-average semiconductor content of electronic products. The Asia-Pacific should continue to control the global semiconductor market as demand for products containing semiconductors is growing in developing countries. Emerging economies will become the most attractive markets for semiconductor consumption due to strong demand from a broad range of industry verticals.

IT Services and Outsourcing

The number of outsourcing contracts in the Asia-Pacific rose in the second half of 2013, but annual contract value remained flat at US$1 **billion**, reflecting a trend toward smaller deals, according to IT information **firm**Information Services **Group** (ISG). The Asia-Pacific suffered from a lack of large deals, particularly in Australia and India. ISG expects that the Asia-Pacific market will remain soft throughout the first half of 2014, but that service providers will continue to offer more varied solutions, such as system integration, transformation, project services and automation.

Top tier Indian players continued to expand from mass generic production by adding capacity and ability in higher-value services, while outsourcing companies strengthened their competitive positions by establishing expanding long-term client relationships in key markets in Europe and the US. India's biggest IT services **firm**Tata Consultancy Services (TCS) (BSE: 532540) and second largest software **firm**Infosys Ltd (BSE: 500209) reported positive results, mainly due to strong demand from the US, the UK and emerging markets. As Europe recovered from its economic crisis, firms on the continent worked with Indian IT players to save costs and, more importantly, Indian IT firms took on more consulting work and delivered high-value services.

Although India-based providers were hampered by poor government policies, delayed reforms and the free fall of the rupee, they reported positive growth thanks to steady demand from European and many first time outsourcers. TCS's revenue for the fiscal fourth quarter ended March 31, 2014, rose 15.2% from a year earlier to US$3.5 **billion**, thanks to higher growth in the US - the long-time dominant market. The **company** stepped up efforts to expand its European market share to reduce dependence on the US, which is by far the largest market for India's US$108 **billion** IT service industry.

Infosys' fiscal fourth quarter 2014 revenue rose 7.9% from a year earlier to US$2.1 billion. The company signed four large deals worth US$700 million, two in the Americas and two in Europe. Indian IT players made further headway in Europe, which ranked second in contribution to the export revenues of the more than US$118 billion Indian IT-BPO market.

TCS and Infosys invested in different European markets, promising a strong deal pipeline and signs of demand momentum that contributed to a confident outlook. After seeing the growth potential of African economies and their growing interest in technology, the ambitious software services companies continued to invest big in Africa, eager to win customers and market share in a continent that is home to fast-growing enterprises and has an under-developed technology infrastructure.

Merger, Acquisition and Alliance Activity

Asia-Pacific merger and acquisition (M&A) activity improved in both volume and value over the past six months. There were more acquisitions by Japanese companies, which have suffered from unprofitable consumer electronics businesses and uncertain market conditions. Many troubled electronics giants, which once ruled the world, were overtaken by the digital revolution and switched their focus to industrial businesses and moved production to low-cost countries to boost their profit margins. It is expected that 2014 will be a better growth year for technology M&A, with the long-term outlook strong. The growing popularity of smart technologies was expected to spur more deals throughout 2015.

In January 2014, Chinese PC maker Lenovo acquired Motorola's (NYSE: MSI) smartphone business from Google (NASDAQ: GOOG) for US$2.91 billion in China's biggest technology deal. It gave Lenovo Motorola's portfolio of innovative smartphones such as the Moto X and Moto G and the DROID Ultra series. Lenovo has a strong PC and a fast-growing smartphone business and the acquisition should strengthen its position in the smartphone market. It should also give it a presence in North America, Latin America and Western Europe to complement its strong, fast-growing smartphone business in emerging markets. Google will maintain ownership of the vast majority of the Motorola mobility patent portfolio, including current patent applications and invention disclosures. As part of its continuing relationship with Google, Lenovo will receive licenses to this rich portfolio of patents and other intellectual property, as well as more than 2,000 patent assets, and the Motorola mobility brand and trademark portfolio.

After announcing plans to combine their struggling system chip operations more than a year ago, Fujitsu and Panasonic (TSE: 6752) agreed to form a new merged company with the help of the Japanese Government. It will be capitalized at Y50 billion (US$486 million), with Fujitsu taking a 40% stake and Panasonic 20%, and the state-owned Development Bank of Japan investing up to Y20 billion (US$194 million) and granting a Y10 billion (US$97 million) loan. The company will be a fabless operation contracting manufacturers to fabricate its semiconductors rather than having its own production equipment.

Fujitsu has strength in wireless-communications and image-processing technologies, while Panasonic excels in control technology for household electronics. They will work together on semiconductors targeted at enhancing automobile and home functionality through better networked connectivity. The merged firm will focus on cloud computing and new growth areas such as medical equipment and energy.

As part of Panasonic's global reorganization amid financial losses it plans to sell three chip assembly plants in Indonesia, Malaysia and Singapore to Singapore's United Test and Assembly Center Ltd. Panasonic, which had net losses of US$15 billion over the two financial years to March 2013, has been selling off or closing down unprofitable businesses and focusing on more promising lines such as supplying batteries and components to automakers. In December 2013, it announced a joint venture to be majority owned by Israeli chipmaker TowerJazz Semiconductor Ltd that will acquire Panasonic's three semiconductor factories in Japan and will manufacture Panasonic's products.

In January 2014, Toshiba completed the acquisition of OCZ Storage Solutions, a failed Silicon Valley maker of solid-state drives (SSD), for US$35 million, making it a wholly owned subsidiary. The acquisition provides Toshiba with OCZ's enterprise and client SSD business and allows the established OCZ brand to continue producing its current serial advanced technology attachment (SATA) and Peripheral Component Interconnect Express (PCIe) consumer drives for high-performance and mainstream applications. OCZ's storage solutions will leverage Toshiba's cutting edge NAND and combine it with the company's proprietary controllers, firmware and software to provide client and enterprise customers with innovative and cost-effective solid-state storage solutions.

In March 2014, NEC succeeded in its second attempt to acquire the A123 Energy Solutions business unit of A123 System LLC, an American green-energy technologies provider that was funded by the Obama administration before filing for bankruptcy protection in 2012. NEC paid US$100 million to acquire the business from Chinese companyWanxiang Group Corp, which bought A123, including its automotive battery business, for US$257 million.

The acquisition will strengthen the energy storage capability of NEC's smart energy business, making NEC the world's leading supplier of lithium-ion grid energy storage systems (GSS). NEC's high quality, cost-effective lithium-ion technology adds to the ever-growing portfolio of energy storage technologies for future use in A123 Energy Solution's GSS platform. The acquisition will leverage A123 Energy Solutions' experience in commercial batteries to serve NEC's telecommunication carrier, enterprise and government customer base, helping to drive the global expansion of NEC's smart energy business.

Industry Profile

Industry Size and Value

The Asia-Pacific ICT sector has grown rapidly during the past decade, accounting for a greater share of the global ICT market each year. The sector grew in almost all major Asia-Pacific economies, especially those of emerging countries, although at a slower rate as the global economy continued its unsteady recovery. A Mergent analysis shows the market capitalization of the nine leading Asia-Pacific IT companies totaled US$199.38 billion as of May 6, 2014, with 50.4% held by TSMC, 19.3% by Hon Hai Precision Industry, 8.2% by Toshiba and 6.6% by Fujitsu Ltd. TSMC remains the biggest foundry player and will continue to dominate as it has the biggest capacity and best foundry technology.

IT and High Technology Components

Semiconductors

A semiconductor is usually a solid chemical element or compound that can conduct electricity under some conditions but not others, making it a good medium for the control of electrical currents. In the Asia-Pacific, the semiconductor industry is driven by growth in electronics applications as almost every electrical item uses semiconductors in some way or another. Emerging economies such as China, South Korea, India and Taiwan are leaders of and control more than half of the global semiconductor market.

Asia-Pacific semiconductor sales totaled US$53.36 billion in the first quarter of 2014, compared with US$48.98 billion a year earlier, according to the Semiconductor Industry Association (SIA). This is an encouraging sign for the region's industry. The global semiconductor industry picked up steam through the first quarter of 2014, with sales totaling US$78.47 billion, its highest-ever first quarter sales. It is likely to enjoy further growth in 2014, as mobile devices become slimmer and demand for more data processing and power-saving features rise. Semiconductor companies are trying to cram more power into tinier chips and building futuristic factories to meet global demand.

TSMC, which holds a 50% market share, has reaped profits in the past two years from its dominance in offering its cutting-edge 29nm process technology. It is moving to the more advanced 20nm process and plans to start mass production using 16nm multi-gate or tri-gate architectures, also known as FinFET technology, in 2015. The smaller the process the more transistors can be included in a chip, making it more powerful and efficient. TSMC had the third-largest capital spending of around US$10 billion in the chip industry in 2013, trailing Samsung and Intel, which spent around US$22 billion and US$11 billion, respectively.

Integrated Chips

An integrated chip (IC) or monolithic integrated circuit is an electronic circuit manufactured by diffusion of trace elements on to the surface of a thin subtract of semiconductor material. IC plays a significant part in IT products that are specially made for a specific task and contain thousands of transistors, diodes and resistors.

Thanks to the mobile handset manufacturing market, IC vendors in the region should see continuing market growth in 2014, especially in China, which is the world's largest producer of several electronics products. According to China's National Bureau of Statistics IC production volumes rose 10.5% to 86.71 billion in 2013, while sales revenue rose 16% to RMB250 billion (US$40.2 billion). The integrated circuit industrial chain, including silicon wafer production, packaging, testing, design and high-end application, rose in 2013 boosted by increased demand from domestic smartphone manufacturers such as Xiaomi and Huawei (SSE: 002502), which accounted for 20% of global sales.

The IC design industry has created strong demand for chip original equipment manufactures (OEMs), which local manufacturers are unable to satisfy due to lack of advanced technology and investment, weak R&D capabilities and insufficient production experience. It still relies heavily on the import of core techniques and technologies, with chip imports totaling US$231.34 billion in 2013, up by 20.4% from a year earlier. China will invest RMB120 billion (US$19.3 billion) in its domestic IC industry to boost development by reducing reliance on imported chips, the core product for high-tech and manufacturing industries.

Wire and Cable

The electrical wire and cable segment is one of the most significant in the ICT sector, and is often considered an indicator of the industry's progress. The Asia-Pacific is the largest and the fastest growing regional market for insulated wire and cable, which is gradually recovering from the global recession, thanks to growing demand for telecommunications, data wire and cable products, particularly in **China** and India.

China's aluminum wire and cable exports increased in February 2014 due to a saturated domestic market and quicker payment by overseas buyers, according to the Shanghai Metals Market (SMM), with outbound shipments of the materials soaring by 65% year on year to 6,982 tonnes in February. However, excess capacity and soaring raw material prices have made **Chinese** aluminum cable and wire less attractive in overseas markets. Low R&D capabilities have also weakened domestic producers' competitiveness against foreign rivals.

India's wire and cable industry comprises 40% of the entire electrical industry, which could double in size by 2017. India has great potential in the **mining**, power, **oil** and gas, metro railways, cement and steel industries, and in other sectors. Different types of cables such as extra high voltage and elastomer cables are being used for special applications in the **mining**, **oil** and shipbuilding industries, for crane and **solar** power plant cables, and for new generation motor vehicles, windmills, security systems and data distribution. The Indian Government plans to provide rural regions with broadband connection, and the rapid growth of the sector will continue to underpin the demand for wire and cables.

Sector Investment

Globally, companies are investing in mobility, cloud-based services and collaboration tools, and demand for memory chips is rising, thanks to the introduction of smartphones with ever-higher memory capacity. Taiwan's TSMC and South Korea's Samsung and SK Hynix (KSE: 000660) dominate chip making but, while some Japanese companies, notably Toshiba, are still in the game, others, including Panasonic, have decided to scale back because building high-tech plants is expensive. There were no cash-burning business projects in chips over the six months under review, due to their increased complexity, as the market is approaching scaling limits.

China is driving the industry's rapid shift to cheaper smartphones, helping chipmakers to broaden their customer base beyond Samsung and Apple. The partnership between Toshiba and SK Hynix to produce the next-generation memory device will not be affected by Toshiba suing SK Hynix for the theft of data surrounding NAND flash memory technology. SK Hynix is seeking new business opportunities in **China** to capitalize on increasing demand for high-end devices supporting long-term evolution (LTE) wireless technology. Accelerating investment is led by the Asia-Pacific, where most companies are investing more in new technologies than are their European counterparts.

Samsung, the world's top supplier of memory chips, plans to cut its investment in components by at least 30% in 2014, as it does not plan to build new fabrication facilities due to industry consolidation, increasing uncertainty surrounding technology and sluggish demand. Total investment in components will remain under KRW10 trillion (US$9.4 **billion**) throughout 2014. Samsung's primary target for its semiconductor business is to mass-produce advanced flash memory chips including vertical NANDs to meet demand for NAND-intensive digital devices such as smartphones, tablets and solid state drives. Samsung may cut processor chip production and investment in its plant in Austin, Texas, due to sluggish demand from Apple and rising inventory, and its failure to win any major orders. Apple is cutting its reliance on Samsung-manufactured processors, and has started using TSMC products.

South Korea's already impressive internet speeds are about to move further ahead of the rest of the world through the introduction of next-generation 5G wireless services capable of downloading full-length films in a second. The South Korean Government will triple its budget for the 5G industry and bet heavily on securing global leadership for the next generation ICT industry by investing KRW1.6 trillion (US$1.5 **billion**) over the next seven years. The Government and private sector will invest jointly in developing the terminal market, to gain a 20% share of the communications equipment market, to secure the highest competitive power in international standard patents, and to create 16,000 jobs by 2020.

Policy and Regulatory Environment

The Japanese Government plans to start certifying companies that tap into big data, including information about consumer **purchases**, to deal with privacy concerns. Big data is seen as a promising growth field but corporations may hesitate to **buy** and sell information for fear of lawsuits. The Ministry of Economy, Trade and Industry hopes to introduce a certification framework by the end of 2014 to address these issues. It will check whether companies acquire information properly and take steps to prevent data leaks,

as well as allowing firms to simplify their often overly complex terms of services, which they are legally required to disclose whenever personal information is used for business.

South Korea's Ministry of Science, ICT and Future Planning has banned the common practice of mobile manufacturers and networks including un-removable apps, also known as bloatware, in smartphones, which causes inconvenience to smartphone users and unfair competition among industry players. Telcos must make all pre-installed apps deletable or removable, except for those that enable Wi-Fi connectivity, near field communication, customer service and an app store. The users will benefit from the move by gaining longer battery life and increased data storage capacity.

Key Points

Current Environment

The overall Asia-Pacific information communication technology (ICT) sector improved over the six months under review.The ten leading Asian IT stocks had mixed performances over the six months to May 13, 2014, but most saw growth, with prices rising by an average of 19.6%.The end of Windows XP support somewhat boosted the sales of PCs with the latest operating system, but PC shipments continued to decline in first quarter 2014.Asia-Pacific merger and **acquisition** (**M**&A) activity improved in both volume and value over the past six months, with more acquisitions by Japanese companies.

Industry Profile

Albeit at a slower rate, the Asia-Pacific IT and high technology sector held up well on a worldwide basis, accounting for a greater share of the global ICT market.A Mergent analysis shows the market capitalization of the top nine major Asia-Pacific IT companies tracked totaled US$199.38 **billion**, as of May 6, 2014.Semiconductor sales in first quarter 2014 rose by 8.9% to US$53.36 **billion**, reflecting encouraging signs for the region's industry.IT giants continued to focus investment on chip production, but there were no major business projects in chips over the past six months.

Market Trends and Outlook

Chinese firms aim to conquer the smart TV space to draw customers' attention with impressive large screens and a range of internet-based entertainment services.South Korea hopes to be the global tele-health leader by promoting the tele-health market as a new growth engine.The Asia-Pacific is still an exceptionally strong mobile advertising market, thanks to the growing popularity of free mobile content, largely in the form of apps.

The Asia-Pacific could **lead** global expansion of cloud markets, providing ICT vendors with strong and sustainable growth.

Market Trends & Outlook

China's Smart TV Market Booms

China is not only eyeing a greater share of the smartphone market but is also aiming to conquer the smart TV space. Since 2013, a flurry of **Chinese** firms, especially internet companies, have rolled out smart TVs, hoping to draw customers' attention with impressive large screens and a range of internet-based entertainment services. Smart TV sales are growing thanks to the rise of on-demand video streaming and the interaction of TV with mobile devices. The internet has transformed TVs into portals to cyberspace with more potential for applications. Applying software to traditional TVs has allowed third-party application developers to capture a larger audience.

When Xiaomi, the increasingly popular startup phone maker, moved beyond handsets with the September 2013 launch of a 47-inch 3D smart TV retailing for RMB2,999 (US$483), it **sold** 3,000 sets in less than two minutes. In May 2014, the **company** launched the second generation of the TV, Mi TV 2, which most notably supports 4K resolution. Priced at US$640, the 49-inch TV is in line with Xiaomi's aim to launch devices that undercut the prices of rivals' similar products.

In July 2013, **Chinese** e-commerce giant Alibaba joined the smart TV race, unveiling a smart TV operating system (OS) and set-top box. It hopes to create its own ecosystem of TV-related assets and be involved in digital content, providing a platform for users to share content with mobile devices. A few large **Chinese** manufacturers have agreed to incorporate Alibaba's OS in their devices, including consumer electronics companies Skyworth, Haier and Changhong. The TV OS was designed by its AliCloud subsidiary, which developed the Linux-based Alibaba mobile OS in 2011, allowing users to use their mobile phones to control Alibaba TVs and connect with TVs to stream content to their handsets. The **company** plans to have an app store for video games and will incorporate its music streaming service into the TV ecosystem.

Its smart TV also takes advantage of the **company**'s e-commerce and online payment assets such as Tmall, Taobao and Alipay by enabling users to shop and pay bills via their phones.

More than a month after Alibaba unveiled its smart TV OS, its fierce rival Baidu launched its own smart TV to compete with Alibaba, Xiaomi, Samsung and Apple. Known as TV+, Baidu's first smart TV is manufactured by **Chinese** electronic firms TCL Multimedia and features content and branding from its online video platform iQiyi. Baidu plans to **merge**iQiyi with online video provider PPS, which it acquired for US$370 **million** in May 2013, to create **China**'s largest online video provider, unseating Youku-Tudou and giving TV+ an edge in content.

To drive the adoption of TVs and capture a latent audience, manufacturers need to ensure that the hardware performance of smart TVs can match that of desktop computers and smartphones. The demand for smart TVs is likely to keep increasing in **China**, with vendors promoting smart TVs to capture possible opportunities by introducing value-added services, while internet companies are keen to be in the market to better provide content and OS as they may be weak in manufacturing.

South Korea to Foster Tele-health Market

The global tele-health market could grow by more than a factor of ten from 2013 to 2018, IT researcher IHS Technology (NYSE: HIS) predicts, as medical providers increasingly utilize remote communications and monitoring to cut costs and enhance the quality of care. South Korean President **Park** Geun-hye is promoting the tele-health market as a new growth engine, hoping that the country will become a global tele-health leader with a strong domestic use of the technology. Tele-health, which involves the remote monitoring of diseases and symptoms using telecommunications technology, will be used mostly by small hospitals.

It will allow the country's largest conglomerate Samsung to transform itself into a healthcare giant as the smartphone market reaches maturity. Among South Korean players, Samsung may be best fitted to meet strict tele-health requirements. It also has the capital strength, manpower, brand value and technology expertise plus the will to invest in the healthcare sector. Samsung will invest KRW23.3 trillion (US$21.8 **billion**) by 2020 across all its growth sectors, including biomedicine and medical equipment. It already produces major hospital equipment such as ultrasound and digital radiography systems, operates a massive hospital and cancer center in Seoul, and is active in the health app market. In September 2013, Samsung rolled out its first-generation wearable device Galaxy Gear smart watch that could be used as a tele-health device.

Previously, tele-health in South Korea was restricted by laws that permitted medical consultations only when the doctor could examine the patient in person. In March 2014, the South Korea Cabinet passed a bill allowing doctors to employ tele-health technology to diagnose and treat patients remotely. The Government will implement a six-month pilot program before enacting a bill allowing tele-medicine. Patients with chronic diseases such as hypertension and diabetes, people with disabilities and those living in remote areas will be main users of these services. They will also be able to consult doctors, receive diagnoses, and prescriptions for medications without an in-person visit. If the pilot program is successful, the tele-medicine bill would become effective in 2015.

The Asia-Pacific Leads Mobile Advertising Spending

The growing popularity of free mobile content, largely in the form of apps, is having a big impact on mobile advertising and many developers and publishers are monetizing the content. The Asia-Pacific continues to be an exceptionally strong mobile advertising market, primarily in South Korea and Japan, slightly surpassing North America and far ahead of Europe. This is partially because many mobile device users, unlike consumers in the developed markets, go mobile directly without earlier having a PC or laptop. The decline of more traditional advertising, such as in newspapers and magazines, is boosting the popularity of mobile advertising as media buyers and brands are turning to tablets and smartphones on which more consumers are viewing.

The Asia-Pacific region is a strong market largely thanks to Japan and South Korea being early-adopting and mobile-crazy countries. As mobile advertising is becoming more mature in Japan, growth will be largely in two of the world's biggest mobile markets - **China** and India. The latter continues to grow rapidly and has become one of the largest mobile advertising markets in the region due to its improving ad ecosystem. An independent mobile advertising network InMobi estimates smartphones remain relatively promising with 88% of all mobile advertisements served on sophisticated phones, especially from Nokia, while Android and iPhones are not as popular in India.

The uptake of the audio or video format of advertisements could be higher because the tablet form will drive video, while search/map advertisement types will benefit from increased use of location data gathered from users. Gartner predicts the Asia-Pacific will keep its dominant position in mobile advertising

for the next three years, as the global mobile advertising market grows by 400% to US$24.5 billion between 2013 and 2016. However, it says the growth in mobile advertising spending could slow due to ad space inventory supply growing faster than demand as the number of mobile websites and applications rises faster than brand request advertising space on mobile devices.

Market Outlook

Major Asia-Pacific IT and high technology sectors continued to grow in 2013 but at a slower pace, due to sluggish growth in China and India, but their ICT markets should start to improve in 2014. IT researcher Ovum estimates that the highest growth in the Asia-Pacific will be in the small to mid-sized enterprise sub-sector and in business intelligence and analytics solutions. Domestic demand for high-value products is growing as Asian companies move up the value chain, while western manufacturers are likely to see margins squeezed by increasing competition from lower-cost Asian rivals and cuts in government support.

The growing demand for IT products and services in China and India, and in other developing countries such as Vietnam and the Philippines, continues to generate spending and boost local companies. Large-scale IT and high technology infrastructure spending by several countries in the region will provide good opportunities for sector-related companies and industries.

The Asia-Pacific could lead global expansion of cloud markets, providing ICT vendors with strong and sustainable growth. Big cloud platform providers are slowly building out their support in the region, with Amazon active in Japan, Singapore and Australia, while Microsoft is investing heavily and made its cloud platform Azure available in China in March 2014. Google has launched its first two compute engine zones in the region, allowing more developers to experience the speed and scale of Google's infrastructure with the expansion of support for cloud platforms. The Asia-Pacific will continue to leverage cloud technologies as a major enabler for future growth and innovation strategy.

Country Profiles

Australia

Sector Overview

Most IT companies grew over the six months under review, with spending across all major technological areas, despite caution due to federal election uncertainty. Gartner estimated 2013 IT spending at A$76.9 billion (US$71 billion), an increase of 2.54%. Government spending dropped due to budget constraints, but technologies that support real productivity improvement and those that can support new models for citizen engagement and service delivery will continue to receive government investment.

Amid worries about the decline in manufacturing and the fading of the mining boom there are diversification opportunities in the digital revolution in emerging markets. The tech start-up and biotech sectors are at the forefront of a push to transform Australia from an iron ore exporter to an idea exporter. More than 21,000 new IT jobs are expected to be filled in the next three years but the industry is still falling short in its efforts to meet manpower demand.

Industry Size and Value

Australia's ICT market totaled A$91 billion (US$84 billion) in 2012, accounting for around 7.74% of GDP, making it the fifth largest in the Asia-Pacific after Japan, China, India and South Korea, and the 15th largest globally. There are more than 30,300 ICT businesses, mostly in property and business services, finance and insurance, government administration and defense, communications services and manufacturing, employing around 540,000 ICT professionals, of whom, some 250,000 work in IT support functions in other industries.

Australia had more than 12.4 million internet subscribers at the end of December 2013, comprising almost three million business and government subscribers and more than nine million household users, according to the Australian Bureau if Statistics (ABS). Thanks to the wider availability of fast internet technology, Australian internet subscribers are seeking faster access speeds, with more than two million subscribers accessing download speeds of 24Mbps or greater as of December 2013, an increase of 443,000 from a year earlier. Smartphone penetration totaled 65% in 2013, up from 52% a year earlier, according to Google's 2013 Our Mobile Planet Smartphone Research.

Leading Companies

Data #3 (ASX: DTL)

IT solutions company Data #3's revenue for the first half of fiscal 2014, ended December 31, 2013, dropped by 1.8% to A$399.1 million (US$368.7 million), with product revenue falling by 1.7% to A$332.7

million (US$307.4 million) and services revenue decreasing by 2.3% to A$65.1 million (US$60.1 million) from a year earlier. The company blamed the competitive nature of the market and changes in some partner incentive programs for the decline. Total gross profit fell by 6.8% to A$57.5 million (US$53.1 million), with product gross profit decreasing by 11.7% to A$28.7 million (US$26.5 million), due to weaker software sales in Queensland and reduced hardware sales in Western Australia. Services gross profit decreased by 1.3% to A$28.8 million (US$26.6 million) as the services mix changed slightly.

While product sectors were challenged, Data #3 recorded a number of strategic wins with outsourcing and cloud services at Brisbane Airport Corp, British-Swedish pharmaceutical and biologics company AstraZaneca, project delivery and consulting services provider Worley Parsons, Queensland-based law firm McInness Wilsons Lawyers and global natural resources company Vale Australia that strongly endorse the company's hybrid IT strategy. These wins will help improve second half performance but, with the shortfall in the first half, it will be difficult for the company to achieve its full year target. However, Data #3's pipeline is strong and well positioned to increase revenue and profit as its customers continue to transition to hybrid IT, the combination of on premises, outsourced and cloud services.

TechnologyOne (ASX: TNE)

TechnologyOne, a leading supplier of powerful integrated enterprise software solutions and one of Australia's largest publicly listed software companies, reported revenue growth of 7% to A$180.6 million (US$166.9 million) in fiscal 2013, ended September 30, 2013. Net profit tax totaled A$27 million (US$25 million), up 15% from a year earlier. The performance was boosted by the ongoing success of its enterprise suite and its commitment to its preconfigured solutions for targeted vertical markets such as local government, financial services and health.

TechnologyOne invested A$35.6 million (US$32.9 million) in R&D, up 6% from a year earlier. With the release of its next generation enterprise suite Ci? in 2014, momentum in new license fees will increase in coming years. A key focus of Ci? is to incorporate smart mobile devices including iPad, iPhone and Android devices into its product. By enabling all of its enterprise software to be operated on all smart mobile devices, it will open up a new world of possibilities for its customers, allowing them to abandon the traditional PC or laptop and access data anywhere, anytime. Another focus is the TechnologyOne Cloud, which delivers its enterprise suite to customers through the cloud, which will become a major platform for growth, with strong demand building up in e coming years.

Market Outlook

Australia's IT market should continue growing against a backdrop of steady but unspectacular economic growth in the customer, government and business segments in 2014. While IT spending on servers and PCs has been falling, Australian business spending on emerging technologies such as big data, cloud, mobility and social business will continue to grow. However, Gartner estimates that spending on mobile devices to drop by more than US$4 billion to US$3.7 billion in 2014, as prices for smartphones fall, cheaper alternatives to the ubiquitous iPhone become available, and bring your own device (BYOD) gains popularity.

IDC says that, as enterprises seek to mobilize their business processes, there could be a shift away from BYOD to choose your own device (CYOD). Under BYOD, employees can access business files, e-mails and apps from their own devices, while with CYOD, employees can choose from a range of company provided smartphones or tablets. The CYOD model allows companies to mobilize their processes and deliver tangible business value to organizations.

The opportunities for Australian cloud services are immense, with spending of A$2.2 billion (US$2 billion) in 2012, which could grow to A$10.4 billion (US$9.6 billion) by 2017. Cloud offerings are adopted across an increasingly wide range of industries. Cloud computing in Australia's mining sector, which contributes 4.5% of GDP, is likely to continue growing as cloud data collection and storage expands, allowing investors to follow more closely the progress of their mining operations.

China

Sector Overview

China's economic growth slowed, there were market fluctuations throughout 2013 and there is likely to be downward pressure in 2014. Nevertheless, Forrester expects IT spending to grow by 8% to RMB752 billion (US$4.671 trillion) in 2014, lower than the 11% growth in 2011 and 9% in 2012. China is still largely a hardware-driven market but spending on software and IT services is slowly gaining prominence in the current economic climate. Local vendors such as Huawei, Inspur (SSE: 600756) and Lenovo are likely to benefit from the National Security Agency (NSA)/Snowden leak issue, gaining share mostly in the hardware market, including servers, storage and networking, as US tech companies including Cisco

(NASDAQ: CSCO) and IBM (NYSE: IBM) are facing unprecedented difficulties selling their goods and services in **China**.

The Ministry of Science and Technology has made supporting the ICT industry a major national priority since 2000 and IT is one of the most significant sectors in the National 12th Five Year Plan to enhance **China**'s economic and social development by 2015. The Government is fostering the construction of the next generation national information infrastructure, including next generation internet, the convergence of internet, telecom and TV broadcasting, the Internet of Things (IoT), cloud computing, new display equipment, high-end software, servers and information services. The **China** National Broadband Plan will also build next generation information infrastructure to meet the increasing demands for data throughput.

Industry Size and Value

China has become the world's second-largest economy and third-largest IT market after the US and Japan, but IT spending per capita is still less than 5% of that in the US. The Ministry of Industry and Information Technology (MIIT) said that the ICT market totaled US$1.79 trillion in 2012, with the hardware and telecommunications segments having the dominant share, but software and IT services showing the greatest growth over the past few years. Local software products comprise less than 30% of the market, as foreign brands enjoy the largest share.

With the rapid development of 3G, wireless and smart terminal technology, the internet and mobile device markets have developed rapidly during the past ten years. **China** has the most internet and mobile phone users in the world, with the number of web users climbing by 9.5% to 618 **million** in 2013, with almost 250 **million** accessing the internet via their smartphones, up by 83.8% from a year earlier. By the end of the 12th Five Year Plan, 3G and wireless broadband networks are likely to cover most urban and rural areas, and 4G is expected to be commercialized across most cities. However, the penetration rate remains low compared to that in Germany, France and the UK, so there is significant potential for further market expansion.

Leading Companies

Lenovo **Group** Limited (HKSE: 0992)

The world's second largest PC vendor Lenovo reported revenue of US$10.8 **billion** in the third fiscal quarter ended December 31, 2013, a 15% increase from a year earlier, driven by strong global execution, an innovative product portfolio and an increasing mix of PC Plus revenues. Lenovo shipped a record 32.6 **million** devices in the quarter or almost five devices every second. Sales from its mobile internet and digital home division, which develops PC Plus products such as smartphones, tablets and smart TVs, was 15% of total revenues, up from 11% a year earlier.

Lenovo shipped 15.3 **million** PCs, retaining its position as the world's largest PC vendor, giving it its highest-ever quarterly market share, 18.5%. Combined shipments of smartphones and tablets of 17.3 **million** surpassed those of PCs, with a 47% rise from a year earlier, giving it a 4.8% share and solidifying its position as the world's fourth largest smartphone supplier. Lenovo shipped a record 3.5 **million** tablets, a year-over-year rise of more than 300%, following the launch of the Yoga, the world's first multimode tablet. These results illustrate success of the **company**'s PC Plus transformation, with the PC at the heart of an ecosystem of tablets, smartphones and smart TVs.

The recent investment in Motorola mobility and the IBM server business are logical next steps in the PC Plus strategy, and will make Lenovo the third biggest server player globally in a business with higher margins than PCs, and a strong number three smartphone maker. The **company** believes that the investment will accelerate the geographical reach and competitiveness of its existing smartphone, tablet and server businesses, while ensuring that future growth is stronger and more sustainable.

Great Wall Technology Co Ltd (HKSE: 0074)

Great Wall Technology researches, develops, manufactures PCs and information terminals, and sells storage devices, power supply products, monitoring terminals, LCD TVs and electronics manufacturing services (EMS). Although its revenue declined by 3.2% to RMB92.816 **billion** (US$576.55 **billion**) in 2013, net profit improved from a loss of RMB160 **million** (US$994 **million**) in 2012 to a gain of RMB73.91 **million** (US$459 **million**). This was mainly due to a provision for the impairment of assets of RMB117 **million** (US$726.8 **million**) in relation to its business partner **company**Satcon Technology Corp and a provision by its subsidiary Shenzhen Kaifa Magnetic Recording Co Ltd for the impairment of assets of RMB47 **million** (US$292 **million**) a year earlier.

In 2014, Great Wall Technology will actively encourage its member enterprises to accelerate industrial transformation and development. Its monitors section will continue to reinforce and enhance its current position in the global market. The **company** aims to overcome the adverse effects of a slow global

economy, and strengthen its position in the EMS business. Its LED section will speed up the development and industrialization of epitaxies/chips and application systems and expand its business scale to ensure steady profits. The power supply section will focus strategically and selectively on powering sectors such as servers, communication equipment and LED devices, and will speed up its transition to the high-end market.

Market Outlook

China's ICT market outlook is expected to remain positive through 2014, with a growing market and solid uptake of technologies such as cloud computing, smart terminals, 4G LTE and 3D printing. Cloud computing has made a breakthrough with the rapid growth of IoT; 4G, as the successor to 3G, brings faster speeds and better use experience, while 3D printing is a cutting edge technology that can be used for making prototypes and in customized tasks in many manufacturing industries. **China**'s IT companies are in the midst of an ambitious spending spree, helping to push the industry into new businesses and potentially changing large swathes of the country's economy.

China is the world's largest market for computer products and the Government makes great efforts to support the development of computer, integrated circuit and display technologies. Domestic companies are catching up with their international rivals due to accumulation of experience, increases in skills and government support. Software-as-a-service (SaaS) is an on-demand IT trend, with Gartner estimating that **China**'s SaaS market will total US$336 **million** in 2014. E-commerce is also highly developed in **China**, with 243 **million** e-shoppers, an annual increase of 30 **million** users, and a market likely to total US$800 **billion** in 2015. Driven by growing internet and broadband coverage, mobile apps and online gaming have quickly become the industry's highest revenue earners.

India

Sector Overview

India endured a tough 2013 due to poor policy, delayed reforms, the free fall of the rupee against major currencies and political gridlock, which negatively affected the country's growth and all industries. Despite slower growth in the ICT market, 2013 was a year of rapid transition and transformation, leading the industry into the newer verticals and geographies, attracting new clients, and transforming technology partners to strategic business partners.

It was the year of the internet in India, with more people accessing the web via mobile phones. The Internet and Mobile Association of India (IAMAI) estimates the number of internet users grew by 43% to 213 **million** in 2013, from 150 **million** a year earlier, and is likely to total 243 **million** by June 2014. Of the total user base, mobile internet users accounted for 130 **million**, and are expected to total 185 **million** by June 2014. The growth in internet use has led to a substantial growth of other digital industries such as e-commerce and digital advertising. Investors are pumping large sums of money into India's e-commerce firms, hoping that they will gain sizeable market share as a younger generation with higher disposable income starts purchasing online over the next five years.

As part of the National Electronics Policy, the Government has taken major initiatives to promote the ICT sector, planning to set up 15 laboratories under the public-private-partnership (PPP) model for hardware and software testing. Under the 12th Five Year Plan (2012-17), the Department of Information Technology proposes to strengthen and extend existing core infrastructure projects to provide more horizontal connectivity, build redundancy connectivity, and undertake **energy** audits of state data centers (SDCs).

Industry Size and Value

India has established itself as a global leader in the sector, capitalizing on its talent pool, lower costs and its innovative remote delivery model. Despite challenges in the global market, the National Association of Software and Services **Company**'s (Nasscom) estimated 2013 export revenue from India's IT-business process management (BPM) industry at US$75.8 **billion**, with a year-on-year growth rate of 10.2%, and that domestic market revenue rose by 14.1% to Rs1,047 **billion** (US$17.5 **billion**). It expects 2014 export revenue of US$84-87 **billion**, maintaining a growth rate of 12-14%, while domestic revenues should grow by 13-15% to Rs1,180-1,200 **billion** (US$19.7-20 **billion**). The sector continues to be one of the largest employers in the country, directly employing nearly three **million** professionals, adding more than 180,000 employees in 2013.

India is the only country that offers depth and breadth of offerings across different segments of the industry, such as IT services, BPM, engineering and R&D, internet and mobility, and software products. IT services is a US$50 **billion** sector, with BPM worth US$20 **billion** and engineering US$10 **billion**, while software products, internet and mobility are emerging opportunities. More companies are expanding their offerings to make India a hub for analytics, mobility, cloud, social collaboration and emerging verticals such as healthcare and medical devices.

Leading Companies

Tata Consultancy Services Ltd (BSE: 532540)

Leading multinational IT services, business solutions and outsourcing provider Tata Consultancy Services (TCS) reported revenue in the fiscal fourth quarter ended March 31, 2014, of US$3.5 **billion**, up 15.2% from a year earlier. Sales for the year totaled US$13.4 **billion**, up 16.2% from the previous year, handily beating the Nasscom's growth target of 12-14%. The encouraging results were mainly driven by demand from mature markets, led by Europe, the US, and the UK, alongside growth in emerging markets such as Latin America and the Asia-Pacific. There was holistic growth across all industry segments, led by retail, manufacturing, life sciences and healthcare and banking, financial services and insurance. Strong international demand for its services and discipline in execution should help TCS maintain its momentum and robust growth.

Infosys Ltd (BSE: 500209)

India's second largest IT services provider Infosys performed well in 2014, passing the US$2 **billion** revenue mark in Europe for the first time, driven by strong demand for consulting and system integration (CSI) services. Fiscal fourth quarter 2014 revenue rose by 7.9% from a year earlier to US$2.1 **billion**, and annual revenue totaled US$8.2 **billion**, up 11.5% from fiscal 2013. North America accounted for 59.8% of revenue, down by 0.8%, as the harsh winter in the US made selling difficult. Europe contributed 25.2%, up by 1% from a year earlier.

Infosys signed four large deals worth a total of US$700 **million**, with two deals each in the Americas and Europe. Large outsourcing deals are expected to come from the US as clients spend more on IT and outsourcing than in the past few years. Indian IT players are also making headway in Europe, which ranked second in contribution to the export revenues of the more than US$118 **billion** Indian IT-BPO market. However, activity was limited to the UK and Nordic countries, and the rest of the Continent remains largely untapped. Infosys expects annual revenue to grow by between seven to 9% in 2014/2015, a slower rate than in 2013/2014.

Market Outlook

Investments in ICT are becoming highly selective as the Indian economy continues to feel pressure. The tech market is also being affected by a slowdown in government and public sector undertakings because of national elections in April 2014. Nonetheless, the long-term outlook for India's ICT market continues positive. Some of the key growth drivers such as smart computing, anything-as-a-service, technology enablement in emerging verticals and the SMB market should continue to gain momentum amid optimism that 2014 will bring further innovation and growth, with Forrester expecting Indian IT **purchases** to grow by 8% in 2014.

Indian organizations are likely to increase spending on business intelligence and real-time customer and business analytics, as well as continue to focus heavily on optimizing their infrastructure capacity by implementing virtualizations and incorporating newer data center designs. As demand for cloud-based services such as storage, disaster recovery, and cloud-bursting continues to increase, India will see a faster and wider adoption to create a strong cloud strategy and implementation plan. However, legacy systems, unvirtualized infrastructure, inconsistent download speeds and latency issues will hinder the widespread migration of enterprise applications to the cloud in India.

Japan

Sector Overview

Japan's economy has improved dramatically since Prime Minister Shinzo Abe took office on December 2012. Employee incomes have improved and consumer spending increased steadily due to a rush in demand before a rise in consumer tax. Monetary easing by the Bank of Japan, a recovery in corporate earnings, especially among exporters who have benefited from the rapid weakening of the yen, and the rise in stock prices have contributed to recovery. Although boosted by large application modernization projects in banking, manufacturing and the public sector, Forrester expects IT spending growth to slow to around 2% in 2014, due to the consumer tax increase planned for April 2014 and the weakening effects of the government stimulus package.

The Government has tried to revive the economy by promoting the use of public data stored in administrative agencies. In response to global open data initiatives, the Government launched a test version of its own public data **site**, data.go.jp, on December 20, 2013, hoping to catch up with the US and European countries in developing uses for such data by the end of 2015. The Government also plans to begin certifying companies that tap into big data, including information about consumer **purchases**, to

address privacy concerns. Conservative Japanese companies are cautious about using their gathered data due to fears of their business reputations being jeopardized by misuse of data.

Exports and Imports

Although Japan's ICT market improved in 2013, foreign rivals overtook it, with many introducing faster improvements with integrated products and user-friendly software and online services. ICT and electronics sector production in second half 2013 fell by 7.14% from a year earlier to Y6.93 trillion (US$67.34 **billion**).

Japan's IT and electronics exports and imports increased in second half 2013, with exports rising by 8.7% to Y5.59 trillion (US$54.28 **billion**) and imports increasing by 26.72% to Y6.12 trillion (US$59.48 **billion**), according to Japan Electronics and Information Technologies Industries Association (JEITA). Japan's economy is in continuing recovery, bringing increases in production, the recovery of capital investment and rising exports thanks to the depreciation of the yen.

Japan's ICT and Electronic Production (Y/US$ **millions**)

type	Second Half 2013	Second Half 2012	% Change
Consumer electronic equipment	(US$5,040)	(US$5,347)	-5.74%
Industrial electronic equipment	(US$21,360.92)	(US$21,679.55)	-1.47%
Electronic components and devices	(US$40,942.45)	(US$35,826.56)	-14.28%
Total	(US$67,343.45)	(US$62,853.07)	-7.14%

Source: Japan Electronics and Information Technologies Industries Association

Japan's IT Exports and Imports (Y/US$ **millions**)

type	Second Half 2013	Second Half 2012	% Change
Exports from Japan			
Consumer electronic equipment	(US$4,002)	(US$4,672.83)	-14.36%
Industrial electronic equipment	(US$7,855.89)	(US$7,091.35)	10.78%
Electronic components and devices	(US$42,419.97)	(US$38,170.14)	11.13%
Total	(US$54,277.86)	(US$49,934.33)	8.70%
Imports Into Japan			
Consumer electronic equipment	(US$4,062.90)	(US$3,234.41)	25.72%
Industrial electronic equipment	(US$29,403.60)	(US$23,740.12)	23.86%
Electronic components and devices	(US$26,015.27)	(US$19,963.45)	30.31%
Total	(US$59,481.78)	(US$46,937.97)	26.72%

Source: Japan Electronics and Information Technologies Industries Association

Leading Companies

NEC Corp (TSE: 6701)

Japan's largest PC maker NEC's consolidated net sales totaled Y700.4 **billion** (US$6.8 **billion**) in third quarter fiscal 2014 ended March 31, 2014, a decrease of 3% from a year earlier. This was mainly due to lower sales of mobile phones and electronic components, despite increased sales in the public and system platform businesses. Its net loss totaled Y11.1 **billion** (US$107.9 **million**), an improvement of Y7.6 **billion** (US$73.8 **million**) from a year earlier. System platform business enjoyed the largest increase in sales, by 11% to Y185.7 **billion** (US$1.8 **billion**), mainly due to increased sales of hardware. Public business sales rose by 9.9% to Y164 **billion** (US$1.6 **million**), due to steady demand from government offices and public services. NEC's business has begun to improve thanks to increased production, the recovery of capital investment and increasing exports due to a depreciation of the yen, contributing to a trend of continuing recovery.

Fujitsu Ltd (TSE: 6702)

Fujitsu, a leading provider of ICT-based business solutions for the global market, reported revenue of Y1.201 trillion (US$11.67 **billion**) in third quarter fiscal 2013, an increase of 14.5% from a year earlier. Net income totaled Y12 **billion** (US$116.6 **million**), up by Y92.8 **billion** (US$901.7 **million**) from a loss of Y80.8 **billion** (US$785 **million**) in fiscal 2012. Net sales in Japan rose by 9.2%, with sales of system integration services increasing, primarily in the public and financial services sectors, and PC sales also rising, primarily to enterprise customers. Sales outside Japan rose by 24.9%, thanks to increased sales of car audio and navigation systems in North America, and improved sales of large-scale integration (LSI) devices.

Fujitsu's business has improved along with Japan's economy and a moderate increase in consumer spending. ICT investment is gradually increasing on signs of a rebound in corporate capital investment. The **company** is optimistic as it begins to see the positive impact of structural reforms in its LSI business, in businesses outside Japan, and of various workforce-related measures.

Market Outlook

There was a moderate increase in consumer spending in the period under review, thanks to monetary easing by the Bank of Japan and rises in share prices. Exports also rose due to yen depreciation, and the improved economy caused consumer spending to grow steadily amid rising confidence. Despite the signs of recovery, Japanese companies continue to take a cautious stance on ICT investments.

IT spending on services has been solid, but spending on hardware remains stagnant due to deteriorating market conditions. As restoration occurs, IT vendors are likely to play an active role in developing products such as smart grid and home **energy** management systems to resolve power supply issues in eastern Japan. Leading banks, retailers and services firms are increasingly initiating mobile strategies and investing in analytics to improve the customer experience.

South Korea

Sector Overview

South Korea has become one of the leading economies in Asia and has established itself as a global ICT powerhouse, creating an ICT-based society, with the highly developed sector accounting for 28% of the nation's total exports. About 30% to 40% of South Korea's total GDP comes from the ICT industry, which has greater volatilities than other sectors. However, there are concerns that growth in South Korea is too dependent on big companies and is largely driven by government spending rather than private industry.

The active ICT market is backed by strong government support, with the Ministry of Science, ICT and Future Planning reporting that the Government will pour KRW4.9 trillion (US$4.58 **billion**) into the country's ICT sector in 2014 to fuel economic growth and enhance competitiveness. The funds will be used to finance numerous projects, including KRW1.12 trillion (US$1.05 **billion**) to strengthen IT research and KRW1.84 trillion (US$1.72 **billion**) to upgrade ICT infrastructure. Key projects include the nation's digital infrastructure and initiatives to increase its presence in cloud computing, mobile services and next-generation mobile wireless technology.

Exports and Imports

IT and high technology is one of the most lucrative sectors in South Korea, which is at the forefront of key industry developments in terms of growth potential, trade and added value, and is one of the world's leading IT producers and exporters. Production in the sector in 2013 is estimated to have increased by 5.1% from a year earlier to KRW391.5 trillion (US$366.3 **billion**), and 2014 production could grow by 3.8% to KRW406.4 trillion (US$380.3 **billion**), according to the Korea Information Society Development Institute (KISDI).

Although demand for information devices and digital TVs declined, exports were driven by the increased global market shares of communications devices, especially smartphones, greater demand for memory semiconductors and by price increases.

Shipments of semiconductors surged by 13.3% to US$57.15 **billion**, making them the largest export item, accounting for 10.2% of total exports in 2013. Exports of mobile devices jumped 23% to US$24.87 **billion**, while those of software rose by 54.3% to US$3.45 **billion** on growing demand for mobile and cloud-based services. Shipments of ICT products to **China**, including **Hong Kong**, rose by 8.2% from a year earlier to US$85.55 **billion**.

Leading Companies

Samsung Electronics Ltd (KSE: 005930)

Global leader in semiconductor, telecommunication, digital media and digital convergence technologies Samsung's first quarter 2014 revenue grew by 1.5% from a year earlier to KRW53.68 trillion (US$50.22 **billion**). However, profits slipped by 3.3% to KRW8.49 trillion (US$7.9 **billion**), due the global slowing of smartphone growth. Although market demand for electronic devices in the first quarter is traditionally slow, profit margins for its IT and mobile communication (IM) division were driven by steady smartphone shipments, efficient management of marketing expenses and a positive impact from adjustments of one-off expenses.

Despite the weak seasonality, the semiconductor business continued its solid profitability momentum boosted by the expansion of the 20-nanometer-class process migration and a greater appetite for dynamic random-access memory (DRAMs) used in servers and for graphics solutions. The NAND business maintained profitability by actively responding to market demand for high-density cards and rising sales in high value-added 3-bit NAND.

Samsung continued to enjoy solid sales of its Galaxy S4 and Galaxy Note 3 tablet, while strengthening its premium product portfolio through the introduction of a new flagship smartphone the Galaxy S5. The **company** is pinning hopes on the latest phone to help boost earnings, as it has been ordered by a US court to pay US$119 **million** to Apple for patent infringement. Samsung is expected to see profits rally in the second quarter and beyond, thanks to improved sales of display panels and home appliances. Demand for display panels for premium smartphones and TVs are likely to increase, as new mobile devices are rolled out to enable consumers to view the upcoming World Cup in Brazil. House appliances sales should also pick up on seasonal demand for air conditioners.

LG Electronics (KSE: 066570)

Global leader and technology innovator in consumer electronics, mobile telecommunications and home appliances **company** LG reported solid positive financial results in first quarter 2014. Revenue totaled KRW14.27 trillion (US$13.35 **billion**), up by 1.2% from a year earlier, while net profit soared by 319% to KRW92.6 **billion** (US$86.64 **million**), mainly due to strong sales of large-screen TVs and better cost structure resulting from declining material prices. LG's home entertainment business posted the highest revenues, KRW4.95 trillion (US$4.63 **billion**), a 3% increase from a year earlier.

The mobile communications unit shipped 12.3 **million** smartphones, an increase of 19% from a year earlier. The shipment of five **million** LTE smartphones was the most in a single quarter, up by 79% from the previous year, accounting for 41% of all smartphone shipments in the quarter. Revenues rose by 6% to KRW3.41 trillion (US$3.19 **billion**) due to the launch of the G Pro 2 smartphone in the domestic market and more efficient marketing spending. The home appliance business posted strong sales in the Korean market, but revenue of KRW2.72 trillion (US$2.54 **billion**) was lower due to greater competition in North America and unfavorable foreign currency exchange in developing markets.

Higher revenues are expected in the second quarter with the release of the flagship LG G3 smartphone and wider rollout of the cheaper L Series III. LG will continue to diversify its premium ultra HD TV and OLED TV lineup with more sizes and price levels to offset greater competition. The **company** also expects revenues for home appliances to increase with the launch of market-leading washing machine and refrigerator products.

Market Outlook

The competitive edge of domestic premium smartphones is expected to be maintained, and exports will likely to continue growing as smartphone makers strengthen their marketing efforts with a variety of product portfolios including strategy phones and wearable devices to maintain their competitiveness. Nonetheless, as the global smartphone market approaches maturity, demand in more mature markets, particularly North America, Europe, South Korea and Japan, is expected to decline. Competition has intensified as consumers in developing nations tend to **buy** cheaper devices, especially from **China**'s Huawei, Lenovo and Xiaomi, which are expanding in South East Asia and **China**, forcing down prices. Export growth could soften due to sluggish demand for semiconductors and display panels and declining replacement demand for digital TVs.

Sustained high growth trends in software and increased provision of next-generation services by IT service providers, coupled with ongoing global expansion by domestic firms, are likely to strengthen South Korea's position as a leading enterprise IT market. The package software segment could record high growth on the back of sustained demand for cloud computing, big data analytics and security, as well as increasing demand from the public sector. A gradual increase in IT consulting associated with next-generation models and system integration is also likely to drive IT service market growth.

Taiwan

Sector Overview

Taiwan's ICT sector has long held a significant global position and accounts for 75% of the world's production of PCs, about a quarter of the world's semiconductors and about a fifth of its mobile phones. The sector's 2013 production value was estimated to have jumped by 20.5% from the previous year to US$181 **billion**. This was due to ongoing rapid growth in global shipments of tablet PCs and investment in cloud computing data centers by large multinational service providers and other corporations, which stimulated demand for customized server products. The development of new, touch-screen notebook PC products also helped to ensure some degree of growth in demand for laptops.

As the price disparity between notebook and desktop PCs shrunk, desktop PCs continued to lose their previous price advantage and many consumers bought laptops or mobile devices rather than desktop PCs. However, with competition from tablets rising, manufacturers slowly cut back on notebook original design manufacture (ODM) and OEM, and shifted their focus to the cloud computing, server and mobile device segments.

With telecommunications service providers throughout the world investing in 4G LTE technology, demand for related communications equipment continued to grow, with competition between telecommunication service providers and cable TV system operators to expand bandwidth, creating more demand for broadband access equipment. The Government fast-tracked the issuance of 4G technology licenses as part of its undertaking to assist Taiwan companies in keeping abreast of the rapidly changing ICT sector.

Exports and Imports

Taiwan's export orders in 2013 hit a record US$442.9 **billion**, a 0.4% increase from a year earlier, according to the Ministry of Economic Affairs (MOEA). Thanks to higher demand for semiconductor high-end production facilities and electronic chips orders in the information and communication, and electronics industries also hit all-time highs of US$116.19 **billion** and US$106.01 **billion**, respectively.

Taiwan's IT industry researcher Market Intelligence and Consulting Institute (MIC) estimates shipments of Taiwanese branded mobile phones totaled about 4.33 **million** in fourth quarter 2013, and grew to about 4.51 **million** in first quarter 2014, buoyed by further shipments by Asus and Acer. Asus began shipping its three ZenFone series of smartphones, while Acer began supplying Thailand's largest mobile operator Advanced Info Service (AIS). Struggling HTC, which accounts for more than half of Taiwan's annual mobile phone shipments, is relying on its new products, including flagship HTC One (M8) and mid-tier flagship Desire 816, to return to profitability.

Leading Companies

Taiwan Semiconductor Manufacturing Co (TSMC) (TWN: 2300)

TSMC is the world's largest dedicated semiconductor foundry, providing the industry's leading process technology and the largest portfolio of process-proven libraries, IPs, design tools and reference flows. Net revenues totaled NT$148.22 **billion** (US$4.9 **billion**) in first quarter 2014, an 11.6% increase from a year earlier, mainly due to strong demand for its wafers across all segments. This was more pronounced in mobile-related applications. About 34% of wafer revenues came from 23nm process technology, while 40/45nm wafers accounted for 21%. Advanced technologies, defined as 40/45nm and below, accounted for 55% of total wafer revenues, up 51% from the previous quarter.

The popularity of smartphones and tablets boosted demand for smaller and more powerful chips to make devices sleeker and more **energy** efficient. High-end phones equipped with LTE wireless technology will also drive TSMC's revenue, as will phones with advanced features such as image and fingerprint sensors that require more chips. Low supply chain inventory has prompted the country to begin actively restocking. There was a strong rebound of demand for the leading nodes extending beyond the first quarter, thanks to the better performance and higher yield and reliability of its advanced technologies. TSMC expected second quarter revenue of between NT$180 **billion** (US$5.9 **billion**) and NT$183 **billion** (US$6 **billion**).

Asustek Computer Inc (TWN: 2357)

Notebook PC pioneer Asustek's consolidated revenue totaled NT$463 **billion** (US$15.2 **billion**) in 2013, up 3.3% from a year earlier, while net income dropped by 0.13% to NT$27 **billion** (US$886 **million**). Its tablet products contributed 18% of total revenue, up from 13% in 2012, while notebook and hybrid business revenue fell by a percentage point to 59% in 2013. The **company** is in competition with Lenovo, which achieved stronger unit sales and revenue growth and is also aiming at the 2-in-1 PC and mobile devices segments. Asustek's US market share has increased, and it is exclusively partnering with US telecommunications **company**AT&T to release its PadFone X smartphone/tablet combo device in the US in 2014.

Best known for its notebooks, Asustek is tapping into new PC forms, such as the newly launched hybrid 3-in-1 upgrade of its 2-in-1 Transformer (T100) tablets and ultrabooks. Asustek remains optimistic about the desktop and laptop market, which contributes most of the **company**'s revenue, but its priority is to make the smartphone business profitable and increase production from one **million** units a year to five **million** units in 2014. The **company** uses highly aggressive pricing to capture mobile device market share from Apple and Samsung, and is likely to continue using competitive pricing to attract cost-conscious consumers in mature markets.

Market Outlook

The Industrial Economics and Knowledge Center (IEK) believes Taiwan's ICT sector will keep booming through to 2015 on the strength of globally hot-selling electronics devices, such as smartphones, tablet PCs, ultrabooks, smart TVs, e-book readers and cloud computing applications. Global sales of these products are likely to shoot up by 200-300% in 2015 from 2011 figures. Taiwan's ICT sector, which houses some of the world's leading upstream and downstream manufacturers, could benefit from sales in major product categories over the next three years.

Smartphone sales growth could be sustained by greater use of newer technologies, including near field communication (NFC), mobile payments systems, LTE and quantum dot (QD) displays. Mid-priced smartphones and tablets will continue to boost Taiwan's IC design industry, helping the country to gain market leadership by providing communications IC and processors for mid-range and premium mobile devices. Most local firms provide system integration services and act as agents for overseas software products and services, giving them a competitive edge over overseas corporations. The ongoing trend toward digital convergence should drive continued growth in demand for smartphone and tablet PCs.

Currency Conversion Table

currency unit	Units per US$	US$ per Unit
Australian Dollar (A$)	1.0824	0.9239
Chinese Renminbi (RMB)	6.2117	0.1610
Hong Kong Dollar (HK$)	7.7573	0.1289
Indian Rupee (Rs)	59.89	0.0167
Japanese Yen (Y)	102.92	0.0097
South Korean Won (KRW)	1,068.85	0.0009
New Taiwanese Dollar (NT$)	30.46	0.0328

Sources: Federal Reserve Bank of New York

Key References

Key References

Global

Semiconductor Equipment and Materials Institute (SEMI)

global industry association serving companies that develop and provide manufacturing technology, materials and services to make semiconductors, flat panel displays (FPDs), micro-electromechanical systems (MEMS) and related microelectronics.

http://www.semi.org

Semiconductor Industry Association (SIA)

The SIA represents the US semiconductor industry. It also conducts research and publishes statistics and forecasts.

http://www.sia-online.org

World Semiconductor Trade Statistics (WSTS)

WSTS is an independent non-profit organization representing around 90% of the world's semiconductor industry. It also collects data and publishes forecasts on semiconductor trade.

http://www.wsts.org

World Information Technology Services Alliance (WITSA)

WITSA is a consortium of information industry, software and IT associations around the world. The alliance also carries research and forecasts on the IT industry globally.

http://www.witsa.org

Consumer Electronics Association (CEA)

US. It is an industry authority on market research and forecasts, consumer surveys, legislative and regulatory news, engineering standards and training resources.

http://www.ce.org

Asia-Pacific

Asian-Oceanian Computing Industry Organization (ASOCIO)

A federation of computing industry associations from the Asian-Oceania region established with the objective of developing the computing society and industry in the region while promoting trade between its member organizations.

http://www.asocio.org

Australia

Australian Computer Society (ACS)

Founded in 1966, the ACS is an association for ICT professionals from all levels of the ICT industry and a member of the Australian Council of Professions.

http://www.acs.org.au

Australian Electrical and Electronic Manufacturers' Association (AEEMA)

is an industry body that represents Australia's information and communication technology (ICT), electronics and electrical manufacturing industries.

http://www.aeema.asn.au/

Australian Information Industry Association (AIIA)

The AIIA represents Australia's software and IT industries.

http://www.aiia.com.au

Australian Government Information Management Office (AGIMO)

AGIMO oversees the promotion and coordination of the use of new information and communications technology to deliver government policies, information, programs and services.

http://www.finance.gov.au/agimo/index.html

Department of Broadband, Communications and the Digital Economy

The department advises the Government on trends in the global information economy and assists with the development of policies and legislation relating to the online environment. It also administers a number of programs to help promote take-up of ICT technology.

http://www.dbcde.gov.au/

China and **Hong Kong**

Ministry of Commerce

The ministry is responsible for overseeing the development strategies, guidelines and policies of domestic and foreign trade and international economic cooperation in **China**.

http://english.mofcom.gov.cn/

Ministry of Information Industry

The ministry is responsible for administering mainland **China**'s IT industry.

http://www.mii.gov.cn (**Chinese** language)

MOST)

activities in **China**.

http://www.most.gov.cn/

India

Department of Information Technology (DIT)

The DIT oversees national policy and development matters relating to India's IT, electronics, and internet industries.

http://www.mit.gov.in/

National Association of Software and Service Companies (NASSCOM)

NASSCOM is India's software and IT service industry body.

http://www.nasscom.org

Manufacturers' Association for Information Technology (MAIT)

MAIT is an association representing the IT hardware, training and R&D services industry in India.

http://www.mait.com/index.jsp

Japan

Information and Communications Statistics Database

A statistics database on Japan's IT industry administered by the Ministry of Internal Affairs and Communications (MIC).

http://www.johotsusintokei.soumu.go.jp/english/

Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters)

The IT Strategic Headquarters was established within the Japanese Cabinet in January 2001 with the purpose of promoting and facilitating measures towards the formation of an advanced information and telecommunications network society.

http://www.kantei.go.jp/foreign/policy/it/index_e.html

Japan Electronics and Information Technology Industries Association (JEITA)

JEITA's main objective is to promote the manufacturing, international trade and consumption of electronics products and components for the development of Japan's electronics and information technology industries.

http://www.jeita.or.jp/english/

Japan External Trade Organization (JETRO)

JETRO is a government-related organization that aims to promote mutual trade and investment between Japan and the rest of the world.

http://www.jetro.go.jp

Japan Information Technology Services Industry Association (JISA)

JISA is a national organization that aims to promote Japan's IT Services industry in line with the advancement of IT infrastructure within the context of contributing to the development of the Japanese economy. Its members include software developers, information processing and database/VAN service suppliers.

http://www.jisa.or.jp/en/index.html

Ministry of Economy, Trade and Industry

Japan's government agency for trade related matters.

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

Ministry of Internal Affairs and Communications (MIC)

MIC is responsible for creating the fundamental national systems of Japan. These systems include the national administrative organizations, the public service personnel system, local tax/finance, the election system, fire/disaster prevention, information and communications, postal services, and statistical systems.

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

http://www.soumu.go.jp/joho_tsusin/eng/

National Information Security Center (NISC)

The NISC is a major participant in the formulation of national information security policies for the public and private sectors, as well as development and protection strategies pertaining to national information infrastructure.

http://www.nisc.go.jp/eng/index.html

Semiconductor Equipment Association of Japan (SEAJ)

The SEAJ is a national organization representing the interests of major semiconductor manufacturing and flat panel display (FPD) panel manufacturing equipment manufacturers and related equipment manufacturers.

http://www.seaj.or.jp/english/index.html

Statistics Bureau

Japan's Statistics Bureau conducts various socio-economic surveys and census for the Japanese Government, and promotes the use of statistics in national policy and economic planning initiatives. It is administered by the Ministry of Internal Affairs and Communications.

http://www.stat.go.jp/english/index.htm

South Korea

Invest KOREA

Invest KOREA is the Korean national investment promotion agency established with the sole purpose of facilitating the entry and successful establishment of foreign business into Korea.

http://www.investkorea.org

Korea Information Society Development Institute (KISDI)

KISDI was founded in 1985 as a government-funded think-tank tasked with helping to develop national policies for the advancement of the South Korean ICT industry.

http://www.kisdi.re.kr/

Korea Semiconductor Industry Association

The association aims to develop and promote South Korea's semiconductor industry.

http://www.ksia.or.kr

Ministry of Information and Communications

The ministry oversees the promotion and development of South Korea's IT industry.

http://www.mic.go.kr

National Internet Development Agency of Korea (NIDA)

NIDA is South Korea's representative internet authority responsible for consolidating a stable framework for internet address resource management and leading the development of next-generation internet technologies.

http://www.nida.or.kr/english/

Ministry of Knowledge Economy (MKE)

Government concerned with regulating economic policy, especially with regard to the industrial and **energy** sectors.

http://www.mke.go.kr/language/eng/

Taiwan

Industrial Development Bureau, Ministry of Economic Affairs (IDB)

The IDB is responsible for formulating policies, strategies and measures for industrial development in Taiwan, including developing and managing industrial parks and administering general industrial affairs.

http://www.moeaidb.gov.tw/portalen/

Institute for Information Industry (III)

The III is a non-profit organization involved in research and development in Taiwan's information industry sector.

http://www.iii.org.tw

Invest in Taiwan

Invest in Taiwan is the country's investment information and services initiative administered by the Department of Investment Services, formerly known as the Industrial Development and Investment Center, under the Ministry of Economic Affairs. The department is responsible for promoting Taiwan as an investment destination and is tasked with implementing industrial assistance programs to help Taiwanese companies develop and operate their businesses at a local and international level.

http://investintaiwan.nat.gov.tw

Ministry of Economic Affairs

The ministry is responsible for economic matters, trade and industry policy development.

http://www.moea.gov.tw

Market Intelligence Center (MIC)

Since 1984, Market Intelligence Center (MIC) has been serving as a strategic policy think-tank for senior decision makers in industries, governments, academic sectors, and investment communities. MIC is part of the Institute for Information Industry.

http://www.mic.iii.org.tw

National Science Council (NSC)

The NSC oversees the promotion of science and technology development in Taiwan, including support for academic research and the development of science and technology parks. The NSC also administers the National Science and Technology Survey.

http://www.nsc.gov.tw

Republic of **China** National Statistics

The bureau is Taiwan's national statistical body.

http://eng.stat.gov.tw

Taiwan Semiconductor Industry Association (TSIA)

Founded in 1996, the TSIA seeks to promote the development of the local semiconductor industry.

http://www.tsia.org.tw

Sales Contacts

RF Report Number 1366

IN i3302 : Computers/Consumer Electronics | iappsp : Cloud Computing | i8394 : Computer Services | ibcs : Business/Consumer Services | itech : Technology

NS c133 : Patents | ccat : Corporate/Industrial News | c32 : Advertising | c31 : Marketing | cgymtr : Intellectual Property | cinprp : Industrial Property Rights (Patents/Trademarks) | ncat : Content Types | nfact : Factiva Filters | nfcpin : FC&E Industry News Filter

RE asiaz : Asia | austr : Australia | jap : Japan | skorea : South Korea | apacz : Asia Pacific | ausnz : Australia/Oceania | easiaz : Eastern Asia

IPD IT & High Technology

PUB Mergent, Inc.

AN Document MIRAUS0020140915ea7100005

