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STATE OF TELECOMMUNICATION / INFOCOMM STATISTICS COLLECTION & DISSEMINATION IN SINGAPORE

1. INTRODUCTION

The infocomm sector[1] is an important part of Singapore's economy. In 2005, the sector generated S$37.89 billion[2] (or about USD22.7 billion) in revenue, contributing 6.5%[3] to Singapore's Gross Domestic Product (GDP). Infocomm manpower in Singapore grew 3.1% from 2004 to reach 111,400 in 2005[4], or 4.9% of the total employed labour force[5].

The Infocomm Development Authority of Singapore (IDA) is the national regulator for the telecommunication industry in Singapore and has fully liberalised the industry since April 2000. The IDA is also the promoter and developer of the infocomm sector. In this respect, IDA has put in place various schemes and plans to further the growth and development of the infocomm sector in Singapore, including a national framework to develop globally competitive infocomm manpower and an infocomm-savvy general workforce.

The IDA also works closely with industry and other government agencies to help transform other economic sectors in Singapore by leveraging on infocomm to improve their overall operational efficiencies as well as explore new business opportunities.

In June 2006, the IDA launched its latest ten-year infocomm masterplan, Intelligent Nation 2015 (iN2015)[6] which was developed in close consultation with the private, public and people sectors. iN2015 acknowledges and takes into account the strategic role of infocomm as a critical enabler to transform various economic sectors, through the development of a next-generation infocomm infrastructure, the growth of the infocomm sector and the enhancement of infocomm competency of the general workforce and

[1] The infocomm (information and communications) sector in Singapore includes the following primary categories of activities:
- Wholesale of infocomm products such as telecommunication equipment; computer equipment,
  hardware and software; office equipment etc;
- Retail sale of infocomm products;
- Telecommunication services;
- Computer and IT services; and
- Content services.

Activities pertaining to infocomm manufacturing activities are not included.

[2] Source: IDA Annual Survey on Infocomm Sector for 2005. Revenue of the infocomm sector is defined as Export sales and End-User sales in Singapore i.e. revenue excludes OEM/Other Resellers' sales.

[3] Source: Singapore Department of Statistics

[4] Source: IDA Annual Survey on Infocomm Manpower for 2005.

[5] Singapore's 2005 employed labour force was obtained from the Singapore Ministry of Trade & Industry publication, "Economic Survey of Singapore 2005."

[6] More details on the iN2015 masterplan, including soft copies of the full masterplan report are available on the website: www.iN2015.sg

capabilities of the infocomm manpower. The four strategic thrusts under iN2015 are to:

- Spearhead the transformation of key economic sectors, government and society through more sophisticated and innovative use of infocomm;
- Establish an ultra-high speed, pervasive, intelligent and trusted infocomm infrastructure;
- Develop a globally competitive infocomm industry; and
- Develop an infocomm-savvy workforce and globally competitive infocomm manpower.

2. TELECOMMUNICATION / INFOCOMM STATISTICS AND INDICATORS

The IDA has been collecting various infocomm statistics and indicators for the purposes of:

i. Planning, policy formulation and review;
ii. Monitoring and tracking progress in meeting set goals and targets; and
iii. Benchmarking the state of Singapore's infocomm development to assess gaps and identify areas for improvement.

Regular reviews are also conducted to evaluate the relevance of such infocomm statistics and indicators to ensure that they are updated and can reflect the trends and developments in the ever-changing infocomm landscape. The reviews also seek to ensure that the statistics and indicators collected are aligned to international standards and best practices in order to ensure that they are comparable for international benchmarking purposes.

Annex A presents the state of telecommunication industry and infocomm landscape in Singapore.

Annex B sets out the latest statistics and indicators subject to availability of data (as at the end of fiscal year 2005) for some of the ITU indicators.

2.1 Collection and Dissemination

IDA obtains the relevant statistics of the infocomm sector through a combination of surveys and administrative means. These mechanisms are reviewed on a regular basis to ensure that the means of collection continue to be effective in providing the necessary information on a timely basis.

2.1.1) Surveys

Surveys are one of IDA's primary means of obtaining information in order to assess the general health and performance of the infocomm sector in Singapore. The IDA conducts a number of surveys to gauge the level of infocomm adoption and usage by businesses and in households and by individuals. Other surveys collect information on the infocomm sector and manpower. The key findings from these surveys are made publicly available on the IDA website www.ida.gov.sg.

The Annual e-Government Customer Perception Survey is jointly conducted by the IDA and the Singapore Ministry of Finance. This survey assesses the

general public's level of receptivity towards e-government initiatives. The main findings of this survey are also available on the IDA website.

The IDA also conducts other surveys on a semi-regular or ad-hoc basis for specific purposes. For example, the IDA Consumer Awareness and Satisfaction Survey is conducted every two years and aims to measure consumers' usage, awareness of, and satisfaction with selected telecommunication services in Singapore.

2.1.2) Administrative Means

Besides the various surveys, the IDA collects a basket of telecommunication statistics and indicators to monitor the development of the telecommunication industry. Telecommunication service providers licensed by the IDA are required to provide information on their services and operations, mostly on a monthly basis. Aggregated figures (such as total fixed line subscriptions, total mobile subscriptions, mobile penetration, total broadband subscriptions) are available on the IDA website.

2.2) Challenges Faced and Approaches Adopted to Address These

In the collection of relevant telecommunication / infocomm statistics, IDA faces the primary challenge of managing respondent fatigue and survey burden.

To address this challenge, IDA has adopted several measures so as to obtain quality and timely submissions and returns:

- Regular review of the scope and coverage of surveys and administrative data forms. Where appropriate, the survey questionnaires and data forms have been simplified, streamlined and consolidated so as to provide better focus for respondents;
- The timing for the various surveys has been revised wherever possible so as to have a more even phasing of the conduct of the surveys throughout the year;
- Work closely with industry associations and groups to improve the overall procedures and processes and incorporate their suggestions for improvements where appropriate; and
- Judicious use of IDA's regulatory powers to ensure that the licensed telecommunication service providers submit the information requested.

3. SUMMARY

Telecommunication / infocomm statistics and indicators serve as necessary inputs for planning, policy review and formulation. It is therefore important to have a rigorous process in place that ensures the collection of relevant statistics and indicators, and their dissemination, on a timely basis. It is also important to regularly review these statistics and indicators and the collection mechanisms to ensure their relevance and effectiveness in tracking and monitoring of developments and emerging activities in the infocomm landscape.

Annex A
State of Singapore Telecommunication Industry / Infocomm Landscape

Table 1: Overview

Category	Indicators	Status
A) Infocomm Sector[7]		
1) Infocomm Revenue[8], 2005 (S$b)	• Total Revenue • Domestic Revenue • Export Revenues	37.89 15.83 (43%) 22.06 (58%)
	• Note: o Total revenue increased for the 5th consecutive year. o The 8.9% total revenue growth from 2004 to 2005 represented the highest percentage increase since 2001.	
2) Infocomm Value-Added, 2005	• Infocomm Value-Added Contribution to GDP	6.5%
	• Note: o Between 2000 and 2005, the Compound Annual Growth Rate (CAGR) of the infocomm sector value-added (7.8%) was almost double the CAGR of Singapore's GDP (4.0%).	
3) Infocomm Manpower, 2005	• Total infocomm manpower • Total infocomm job vacancies • % with tertiary[9] qualifications • Infocomm Manpower in Infocomm Organisations • Infocomm Manpower in End-User Organisations	111,400 (4.9% of total employed workforce) 5,700 83% 55,600 55,800
	• Note: o Infocomm manpower grew for the 4th consecutive year. Total infocomm job vacancies more than doubled from 2004 to 2005.	
4) Research & Development (R&D)	• As part of Singapore's S$13.5b national Science & Technology 2010 Plan, the National Research Foundation intends to pump in S$5b into R&D over the five years from 2006, with S$2b earmarked for two areas, including Interactive and Digital Media.	
B) Business Environment		
5) International accolades	• WEF Global IT Report, 2005-2006 • World Bank Group, Ease of Doing Business 2006 Top 30 Economies • IMD World Competitiveness Yearbook, 2006 • EIU e-Readiness Rankings, 2006 • Accenture Annual e-Government Rankings	2nd 2nd in Corporate Governance 3rd 2nd in Asia Top 3 for 5 years running (2000-2005)

[7] Please refer to the definition of the infocomm sector stated in footnote 1.
[8] Revenue of the infocomm sector is defined as Export sales and End-User sales in Singapore i.e. revenue excludes OEM/Other Resellers' sales. Domestic revenue is defined by End-User sales in Singapore and export revenue is defined by Export sales.
[9] Tertiary educated persons include diploma and degree holders.

<table>
<tr><td rowspan="2">6) Connectivity</td><td>• International Internet Connectivity, 2005
• Total Submarine Cable Capacity, 2005
• Public Wireless Hotspots, 2006</td><td>30.62 Gbps

27.98 Tbps

970 (about 1.4 per sq. km.)</td></tr>
<tr><td colspan="2">• Note:
o Singapore has the 3rd highest submarine cable capacity in the world.[10]</td></tr>
<tr><td>7) Telecommunication</td><td colspan="2">Singapore has fully liberalised its telecommunication market since April 2000. With full liberalisation, there are no foreign equity limits for players entering the market. There is also no limit to the number of licences issued except where there are resource constraints such as spectrum frequency. Service providers are free to decide on the types of networks, systems, services and technologies to deploy.

<u>Regulatory Framework</u>
A regulatory framework is in place to ensure a level playing field and effective and sustainable competition in the telecommunication sector, including:
• A sector-specific competition management framework (Telecommunication Competition Code) which sets out the regulatory principles and approach in managing competition in the market. The framework covers major aspects such as
(i) dominant licensee classification and obligations;
(ii) fair competition rules;
(iii) interconnection and infrastructure sharing framework, including obligation for the dominant licensee to offer a Reference Interconnection Offer (RIO);
(iv) competition enforcement framework;
(v) end-user/consumer protection rules; and
(vi) merger and acquisition rules in the telecommunication market.
• A commitment to open, consultative and transparent decision-making processes. There is a regular process of industry and public consultation before any major regulatory policies or decisions are taken. Regulatory decisions taken are made publicly available and published on the IDA website.

<u>Benefits from Full Telecommunication Liberalisation</u>
• 39 facilities-based licensees and 801 service-based licensees as of Sep 2006, with a mix of various infrastructure, technologies and services launched in the market.
• Wide range of service offerings at competitive pricing.
• Telecommunication services was the 2nd highest contributor to total infocomm sector revenue, accounting for 19% of the S$37.89 billion revenue in 2005.[11]
• More than 4300 jobs created in the telecommunication industry since 2000.</td></tr>
<tr><td colspan="3">C) Infocomm Adoption</td></tr>
<tr><td>8) Telecommunica-tion & Internet</td><td>• Fixed Lines Household Penetration, Jul 2006
• Mobile Phone Penetration, Jul 2006</td><td>98.1%

98.4%</td></tr>
</table>

[10] Source: TeleGeography Research, © PriMetrica, Inc. 2006
[11] Source: IDA Annual Survey on Infocomm Sector 2005.
[12] For businesses with 10 or more employees.

	• Broadband Coverage, 2005 • Home Broadband Penetration, Jul 2006 • Home Internet Access, 2005 • Home Computer Access, 2005 • Business Broadband[12], 2005	99% 57.4% 66% 74% 77%
	• Note: o As at Jul 2006, there were 534,600 3G subscribers (or 12.5% of total mobile subscriber base).	

Table 2: Some Cluster-based Information

Cluster	Status
Education (Primary schools, Secondary schools and Junior Colleges)	
1) Availability of computers (All schools)	100%
2) Broadband Penetration (All schools)	100%
3) Ratio of teachers to computers or laptops (All schools)	1:1
4) a) Ratio of students to computers (Primary school) b) Ratio of students to computers (Secondary school and JC)	6.5 students : 1 computer 4 students : 1 computer
Healthcare (Public Hospitals, Polyclinics and Private Hospitals)	
1) Adoption of Hospital Information System (All hospitals and polyclinics)	100%

Note:

National Health Information Infrastructure:

- Medinet, a central health information backbone linking all hospitals and polyclinics in Singapore. Medinet also hosts key national health applications.
- Since Apr 2005, the National Healthcare Group and Singapore Health Services have implemented a system, Electronic Medical Records (EMR) Exchange, to enable exchange medical records between all public sector hospitals and institutions, which account for 80% of Singapore's hospital providers.
- A central claims processing system (MediClaim) to process medical claims from patients' Medisave and Medisave approved insurance plans.
- A central information store on allergies and medical alerts of all Singapore residents is available.
- The Health Promotion Board has implemented the Integrated Dental Electronic Assessment for Students (IDEAS) system to support the school health and dental services. IDEAS is the first dental clinical system in Asia that enabled real time sharing of student records island-wide via WAN and 3G technology from 230 clinics and mobile clinics on buses.

Award-winning Innovations:

- The National University Hospital developed a doctor-centred, patient-based Computerised Patient Support System (CPSS) to enable an integrated view of patient data from multiple source systems such as X-rays, laboratory results, surgical operating notes, discharge summaries, clinical results and reports. CPSS won the Asian Hospital Management Awards 2003, IT category, in Asia Pacific.
- The Interactive Patient Guide (IPG) developed by Changi General Hospital (CGH), allows a patient to obtain information on treatments, surgical procedures and aftercare of 25 common medical conditions through videos and printable text online in the comfort of his home. CGH's IPG won the Most Outstanding Project in the IT category of the 2004 Asian Hospital Management Awards.

Manufacturing, Logistics & Retail	
% of trade permits applied and issued online	100%
Number of forms required for trade permit application	1 single electronic form to all controlling agencies
Amount of time to get approval for trade permits	Within 10 minutes
% of paperless clearance for containerised cargo	100%
Online air cargo bookings	More than 2 million electronic bookings are carried out each year for air cargo
Gate clearance process[13] to provide container delivery location to drivers	Maximum of 25 seconds
Note: • A significant proportion of transactions between manufacturers and their suppliers and partners takes place over B2B networks. Most of these networks are based on RosettaNet standards. For example, Chartered Semiconductor, one of the world's top semiconductor foundries, embarked on a supply chain transparency initiative 2 years ago. This enabled its global customers and partners to have B2B connectivity with Chartered, thereby accessing real-time information on work-in-process, product orders, product shipping and testing status. Such connectivity has enabled Chartered and its partners to reap benefits, such as productivity gains of up to 40% in streamlining labour operations. • The Port of Singapore is the busiest port in the world, handling more than 23 million TEUs every year, PSA Corp (the operator of the largest port in Singapore) makes extensive use of technology to ensure highly efficient operations. One example is the use of intelligent software to unload containers from one vessel and load them to another vessel in the most optimal and shortest time. PSA's Computer Integrated Terminal Operations System (CITOS) ensures that though some 60 vessels of different sizes call on the port on any given day, expecting to be berthed immediately despite the fact that usually 90% of them arrive out of schedule, their expectations are met. • For the air cargo community, the Cargo Community Network (CCN) provides online connectivity to more than 20 major cargo airlines and 1,000 freight forwarders in Asia Pacific for online bookings, customs declarations, issuance of airway bill, track and trace, and electronic payment & invoicing. Through CCN's integrated portal, some 2 million electronic bookings are carried out yearly, with over S$1.2 billion of invoicing amount transacted yearly.	
e-Government	
1) % of respondents who had transacted electronically with the government[14]	86%
2) % of respondents who are satisfied with overall quality of e-Service	85%
3) Availability of online services	1,600 services available online (>98% of all public services)
4) Adoption rate of key e-Services	73% of population filed income tax returns electronically in 2006

[13] Information from PORTNET and planning instructions from CITOS are closely integrated with PSA's Flow-Through-Gate System. This innovation clears container trucks at PSA gates in world record time of 25 seconds in one paperless process. It uses automated Container Number Recognition System and auto-notification of hauliers to optimise the movement of containers and their clearance.

[14] Amongst those with a need to transact.

Note:

- Online Business Licensing System (OBLS):
  - Allows businesses to apply, update, renew or terminate any combination from a suite of 82 online business licences issued by 18 government agencies, in one online transaction.
  - Saves businesses from having to make separate trips to different counters, completing many online forms at various agencies' websites or providing duplicate information to multiple parties.
  - Licence process review also led to a 10% reduction in the licences issued.
  - Since its launch in Jan 2004, more than 55,000 transactions have been made.
  - Examples of benefits to businesses include[15]:
    - To incorporate a new company, cost has been reduced from S$1,200 (~US$736) and up, to a flat fee of S$300 (~US$184). Processing time has been reduced from 5 days to 2 hours.
    - To obtain a public entertainment licence, processing time has been reduced from 8 weeks to 2 weeks. Also, the number of counter visits has been decreased from visits to 7 government agencies to none.
  - Awarded the United Nations Public Services Award in the category of "Application of Information and Communication Technology (ICT) in Government: e-Government" in May 2005.
- Integrated Work Permit Online Services (WPOL):
  - Developed by the Ministry of Manpower, the WPOL is a one-stop portal for employers to perform Work Permit transactions (application, issuance, renewal and cancellation) online for their foreign workers.
  - Examples of benefits include:
    - Reduction of processing time for applications for work permits from as long as 14 working days to the next working day.
  - Awarded the United Nations Public Service Award in the category of "Improving Transparency, Accountability and Responsiveness in the Public Service) in Jun 2006.

Community	
1) Availability of computers in public libraries	100%
2) Average no. of computers in each library	30 per library
3) Internet penetration (All libraries)	100%
4) Broadband penetration (All libraries)	100%
5) Internet connection speed (All libraries)	6Mbps

Note:

- CitizenConnect:
  - Aims to help citizens or resident who do not have access to, or need help with using computer or Internet, to transact online with the Government in their neighbourhoods.
  - Offers two conveniences: free access to the Internet; and staff present to help citizens and residents access the Singapore Government Online portal and perform online transactions with government agencies.
  - As of May 2006, 5 CitizenConnect Centres have been set up at community clubs, with plans to expand to a network of 25 Centres island-wide by mid-2007.

[15] More details can be found from the OBLS Factsheet jointly issued by Singapore's Ministry of Trade and Industry and IDA, released 4 Mar 2005.

Annex B
Key indicators of the telecommunication/ICT sector

	ITU code[16]	Indicator	2005 (as at Mar 2006 unless stated otherwise)
Fixed Telephone network			
1	112	Main (fixed) telephone lines in operation	1'844'400
2	117	Total capacity of local public switching exchanges	-
3	1142	Percent of main lines connected to digital exchanges	100.0%
4	116	Percent of main lines which are residential	58.9%
5	1162	Percent of main lines in urban areas	100%
6	1163	Number of localities with telephone service	-
7	1112	Public payphones	10'900[17]
Mobile network			
8	271	Mobile cellular telephone subscribers (post-paid + prepaid)	4'384'600
8.1	271p	Mobile cellular subscribers: prepaid	1'609'700
9	2712	Digital mobile cellular subscribers	4'384'600
9.1	271h	Total number of subscribers to mobile networks	2'180'500
9.1.1	271L	Number of subscribers to low and medium speed mobile networks	1'862'900
9.1.2	271G	Number of subscribers to IMT-2000 (3G) high-speed mobile networks	317'600
10	271land	Percent coverage of mobile cellular network (land area)	99.9%
11	271pop	Percent coverage of mobile cellular network (population)	99.9%
Text/data network			
12	311	Telex subscriber lines	-
13	412	Private leased circuits	-
14	413	Total subscribers to public data networks	-
15	4213	Internet subscribers	2'255'100
15.1	4213d	Dial-up Internet subscribers	1'589'500
15.2	4213tb	Broadband Internet subscribers	665'600
15.2.1	4213cab	Cable modem Internet subscribers	302'600
15.2.2	4213dsl	DSL Internet subscribers	355'700
15.2.3	4213ob	Other broadband Internet subscribers	7'400[18]
16	4212	Estimated Internet users	1'749'930[19]
16.1	4212f	Percent female Internet users	51.5%
16.2	4212f%f	Female Internet users as percent of female population	59.2%

[16] Code used by the International Telecommunication Union (ITU) to identify the indicator. This code appears in ITU questionnaires.
[17] Excludes coinafones operated by private premise owners.
[18] Includes leased line Internet subscribers.
[19] The figure reflects the total resident Internet users aged 15 years and above. Source: IDA Annual Survey on Infocomm Usage in Households and by Individuals for 2005

	ITU code[16]	Indicator	2005 (as at Mar 2006 unless stated otherwise)
17	424	PWLAN locations	Approximately 970
18	28	ISDN subscribers	25'200 lines[20]
18.1	281	Basic rate ISDN subscribers	18'100 lines
18.2	282	Primary rate ISDN subscribers	7'100 lines
18.3	28c	ISDN voice channel equivalents	-
19	4214	International Internet bandwidth	30'620 Mbps[21]
19.1	4214og	Outgoing	-
19.2	4214ic	Incoming	-
Quality of service			
20	123	Waiting list for main lines	-
21	143	Faults per 100 main lines per year	0.3%[22]
22	141	Percent of telephone faults cleared by next working day	98.0%[23]
Traffic			
23	1311m	Local telephone traffic (minutes)	13'060 million
23.1	1313wm	Fixed to mobile traffic (minutes)	-
23.2	1311im	Internet Dial-up traffic (minutes)	-
24	1312m	National trunk telephone traffic (minutes)	N.A.
25	132mb	International incoming and outgoing telephone traffic (minutes)	4'539 million
25.1	132m	International outgoing telephone traffic (minutes)	2'994 million
25.2	132mi	International incoming telephone traffic (minutes)	1'545 million
26		Public data traffic (non-Internet)	-
27	133wm	Outgoing mobile minutes	-
27.1.1	1331wm	Outgoing/originating mobile minutes to same mobile network	-
27.1.2	1332wm	Outgoing/originating mobile minutes to other mobile networks	-
27.1.3	1333wm	Outgoing/originating mobile minutes to international	-
27.1.4	1334wm	Roaming minutes out (own subscribers)	-
27.1.5	1332wmf	Outgoing mobile minutes to fixed networks	-
27.2.1	1335wm	Incoming international minutes to mobile network	-
27.2.2	1336wm	Roaming minutes in (foreign subscribers)	-
27.3	133sms	SMS sent	9'051 million
27.4	133mms	MMS sent	-
28		International outgoing telegrams	-

[20] The figure reflects the number of ISDN lines, and not subscribers; likewise for indicators 18.1 and 18.2.
[21] As at Dec 2005.
[22] Weighted average of fixed line operators for the month of Mar 2006.
[23] Weighted average of fixed line operators for the month of Mar 2006.

	ITU code[16]	Indicator	2005 (as at Mar 2006 unless stated otherwise)
Tariffs Because most countries now have some form of competition in at least one market segment, there may not be a standard tariff. In addition, tariffs within services may not be uniform (e.g., telephone subscription charges may vary across the nation). The following guidelines may be useful. It is preferable to use the tariffs of the operator with the largest market share (measured by subscribers or minutes). It is preferable to use the tariffs that the majority of consumers pay (e.g., if most of the customers are in urban areas, use urban tariffs). It is preferable to include taxes and provide a note specifying whether taxes are included and what the rate is. It is preferable to use the same operator each year to enhance chronological comparability. It is preferable to report tariffs in national currency. If this is not the case, it should be specified in a note.			
31.1			
31.1.1	151	Installation fee for residential telephone service	S$42.00 to S$52.50[24]
31.1.2	152	Monthly subscription for residential telephone service	S$8.75 to S$10.29[25]
31.1.3	153	Price of a 3-minute fixed telephone local call (peak rate)	S$0.00 to S$0.0444[26]
31.1.4	153o	Price of a 3-minute fixed telephone local call (off-peak rate)	S$0.00 to S$0.0222[27]
31.2			
31.2.1	151b	Installation fee for business telephone service	S$52.50[28]
31.2.2	152b	Monthly subscription for business telephone service	S$13.13[29]
32		National telephone call prices	-
33		International telephone call prices	U.S. – S$0.33 for 3 min[30] Malaysia – S$0.27 for 3 min Canada – S$0.39 for 3 min Australia – S$0.39 for 3 min U.K – S$0.42 for 3 min Hong Kong – S$0.48 for 3 min China – S$0.57 for 3 min
34.1.1	151c	Mobile cellular connection charge	S$8.00 to S$18.00[31]
34.1.2	152c	Mobile cellular monthly subscription	S$0.00[32]
34.1.3	153c	Mobile cellular - price of 3 minute local call (peak)	S$0.52 to S$0.66[33]
34.1.4	153co	Mobile cellular - price of 3 minute local call (off-peak)	S$0.52 to S$0.66[34]
34.1.5	153sms	Mobile cellular – price of SMS	S$0.05[35]

[24] Source: Operator websites. This is an indicative range and is valid as of 26 Sep 2006. Taxes are included.
[25] Please see footnote 24.
[26] Please see footnote 24. Local calls are charged on a caller-pay basis.
[27] Please see footnote 24. Local calls are charged on a caller-pay basis.
[28] Source: Operator website. Figure is valid as of 26 Sep 2006. Taxes are included.
[29] Please see footnote 29.
[30] Rates for each country were obtained by taking the average of rates by selected operators, taken as at Aug 2006.
[31] This is an indicative range of connection charges for prepaid services (as recommended by ITU) and is valid as of 26 Sep 2006. Taxes are included.
[32] Reflects prepaid tariffs (as recommended by ITU for inter-country comparability).
[33] Reflects prepaid tariffs (as recommended by ITU for inter-country comparability). Taxes are included.
[34] Please see footnote 33.

	ITU code[16]	Indicator	2005 (as at Mar 2006 unless stated otherwise)
34.2	153m	Mobile termination rate	N.A.[36]
Other data tariffs			
35		Leased line charges	-
36		Data communication charges	-
37	**Internet tariffs** Connection, monthly rental and usage charges for Internet access service. The tariff chosen for a particular country would be the package that is the cheapest, that is widely available (or, in the case of regional service providers, is available in the capital city) and is available to the general public without restriction (e.g., excluding in-company or limited time offers, and excluding offers that are bundled with some other service). If additional charges are payable for telephone usage for dial-up use, this and the amount should be specified in a note. A note should indicate whether the subscription includes free hours and/or is flat-rate.		
37.1	4213c	Internet connection charge	S$41.95[37]
37.2	4213s	Internet monthly subscription	S$121.80[38]
37.3	4213p	Internet - price of per minute (peak) connection	N.A. (Unlimited broadband)
	4213po	Internet - price of per minute (off-peak) connection	N.A. (Unlimited broadband)
37.4	4213_t20	Internet access tariff (20 hours per month)	N.A. (Unlimited broadband)
STAFF			
38	51	Total full-time telecommunication staff	-
38.1	51f	Female telecommunication staff	-
38.2	51w	Mobile communications staff	-
REVENUE			
39	75	Total revenue from all telecommunication services	S$7.2 billion[39]
40	71	Revenue from telephone service	-
40.1	711	Income from telephone connection charges	-
40.2	712	Income from telephone subscription charges	-
40.3	7131	Income from local calls	-
40.4	7132	Income from national long distance calls	-
40.5	7133	Income from international calls	-
41	731	Revenue from data transmission	-
42	732	Revenue from leased circuits	-

[35] Applies to prepaid mobile subscription accounts and includes taxes. For postpaid mobile subscriptions, the sending of SMS is usually bundled with a basic mobile package and is therefore considered free.
[36] Mobile operators in Singapore operate on a Mobile-Party-Pays system so no such termination rate is applicable.
[37] Taxes are included.
[38] Flat rate for an unlimited broadband subscription with download speeds of up to 30 Mbps. This rate is the cheapest in terms of cost per 100 kbits/s, and is available to the general public without restriction. Taxes are included.
[39] Source: IDA Annual Survey on Infocomm Sector 2005. Telecommunication Services comprises the following business activities: Fixed line services; Mobile and radio paging services; Satellite uplink and downlink services; Internet service providers; Third party telecommunication/value-added network services; Data communication services not elsewhere classified; Television and/or radio broadcasting (including cable, satellite & terrestrial TV); Telecommunication services not elsewhere classified; Web hosting services; and Cyber 'cafes'.

	ITU code[16]	Indicator	2005 (as at Mar 2006 unless stated otherwise)
43	741	Revenue from mobile communications	-
43.1	741d	Mobile data revenues	-
43.1.1	741m	Text and multimedia messaging revenues	-
44	74	Other revenues	-
45		Value-added from telecommunication sector	-
46	81	Total annual investment in telecom	-
46.1	83	Fixed telephone service investment	-
46.2	841m	Mobile communication investment	-
46.3	841f	Foreign investment	-
47	PIAC1	Percentage of localities with PIACs	99%
48	PIAC2	Percentage of the population with access to a PIAC	99%
49	PIAC3	Number of localities with PIAC	-
50	PIAC4	Target population for DCC services	-
51	PIAC5	Total number of PIACs	76[40]
51.1	PIAC6	Total number of DCCs	-
51.2	PIAC7	Total number of other PIACs	-
52	PIAC8	Total number of computers in DCCs	-
53	PIAC9	Actual DCC usage percentage	-
OTHER INDICATORS			
54	955	Number of radio sets	549'300[41]
55	965	Number of TV sets	895'900[42]
56	965m	Total number of multi-channel TV subscribers	476'400
56.1	965c	Number of terrestrial multi-channel TV subscribers	476'400[43]
56.2	965s	Direct to Home satellite antennas	0
57	965cp	Homes passed by multi-channel TV	-
58	422	Number of Personal Computers	-

Note:
Singapore total population (2005): 4'351'400
Singapore resident population (2005): 3'553'500
Total number of resident households (2005): 1'049'000
Source: Singapore Department of Statistics

[40] 39 public libraries and 37 community clubs offering public computer and Internet access.
[41] Refers to total number of vehicle radio licences. Source: Media Development Authority of Singapore.
[42] Refers to total number of residential TV licences. A TV licence is required if an individual operates or has, on any premise owned or occupied by him/her, TV sets or any equipment that is capable of receiving broadcasting services. Source: Media Development Authority of Singapore.
[43] Refers to total number of residential cable TV subscribers. Source: Media Development Authority of Singapore.