

## Broadcasting

### 5.1 An Overview of Developments in the Broadcasting Market

#### 5.1.1 Number of Licensees and Channels

##### Television Programme Services

As at March 2013, the total number of domestic free, domestic pay and non-domestic television programme service licensees was 23. They provided 647 television channels,<sup>1</sup> of which 429 were receivable in Hong Kong, representing an increase of 6.6% and 5.1% respectively since March 2012. An overview of channels provided by the television programme service licensees is shown in [Figure 1](#).

As at March 2013, there were two **domestic free television programme service licensees**, viz. ATV and TVB. They provided a total of 15 channels. Four channels (ATV Home, ATV World, TVB Jade and TVB Pearl) were simulcast in both analogue and digital formats and seven were digital channels. ATV's digital channels comprised one HDTV channel "Asia" and three standard definition television (SDTV) channels, namely "ATV Classic", "CCTV 1" and "Shenzhen Satellite".<sup>2</sup> TVB's digital channels comprised three HDTV channels, namely "HD Jade", "iNews" and "J2".

As at March 2013, there were three **domestic pay television programme service licensees**, viz. Hong Kong Cable Television Limited (HKCTV), PCCW Media and TVB Network Vision Limited (TVBNV) (formerly TVB Pay Vision Limited). The three domestic pay television programme service licensees provided a total of 372 pay television channels, representing an increase of 3.9% since March 2012. The total number of HDTV channels provided by the three licensees also increased by 52% from 23 to 35.

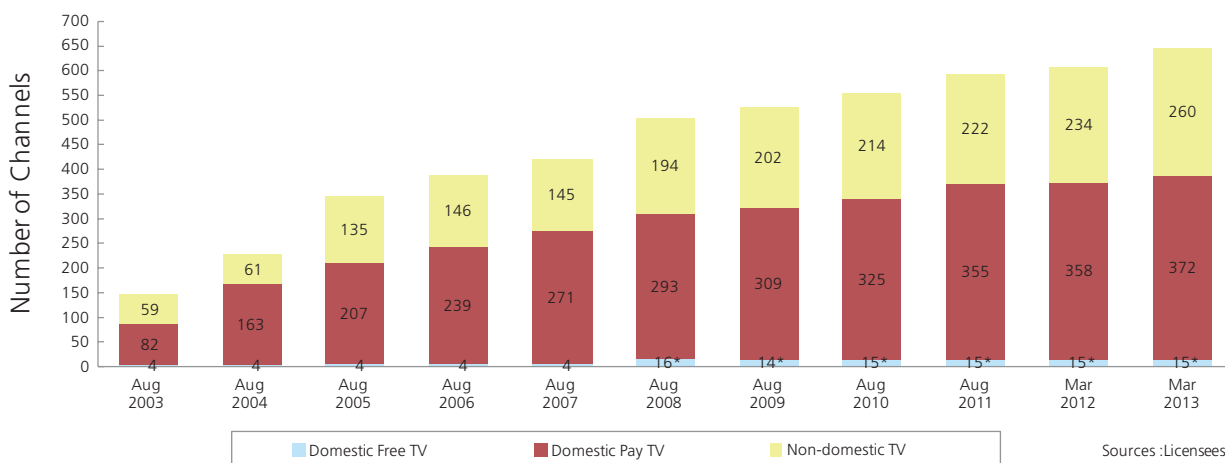
From April 2012 to March 2013, the number of **non-domestic television programme service licensees** increased by one to 18, providing a total of 260 television channels, representing an increase of 11% since March 2012. Of them, 42 channels were available to Hong Kong viewers.

During the period under review, the number of **other licensable television programme service licensees** providing television programme services in hotels in Hong Kong decreased by two to 26. Altogether they provided services to 76 hotels.

<sup>1</sup> Some channels were provided by more than one licensee at the same time.

<sup>2</sup> ATV formerly provided three SDTV channels, namely "CCTV 1", "CTI Asia" and "TVS". In December 2012, ATV launched the SDTV channel "ATV Classic" in place of "TVS" which ceased to broadcast in October 2012.

**Figure 1: Television Channels Provided by Television Programme Service Licensees in Hong Kong**



\* The four simulcast channels of ATV and TVB are counted for both the analogue and digital platforms.

In addition to the television channels provided by television programme service licensees, Hong Kong viewers are free to receive unencrypted satellite television programme channels uplinked from outside Hong Kong. As at March 2013, there were more than 500 such free-to-air satellite television channels available for reception in Hong Kong via the Satellite Master Antenna Television (SMATV) systems. The list of channels currently available can be downloaded at – [http://www.ofca.gov.hk/filemanager/ofca/en/content\\_295/st\\_smatv.pdf](http://www.ofca.gov.hk/filemanager/ofca/en/content_295/st_smatv.pdf).

### Sound Broadcasting Services

The number of **sound broadcasting licensees** remained at four during the period under review, namely Hong Kong Commercial Broadcasting Company Limited (CRHK), DBC, Metro<sup>3</sup> and Phoenix U Radio. RTHK is the public service broadcaster in Hong Kong.

As at March 2013, the number of analogue radio channels remained at 13 (three by CRHK, three by Metro and seven by RTHK). On DAB services, DBC, Metro and Phoenix U Radio formally launched their DAB services in 2012 in accordance with the licence requirements. As at March 2013, the three DAB licensees and RTHK provided a total of 15 DAB channels (seven by DBC, one by Metro, two by Phoenix U Radio and five by RTHK).

All analogue and DAB channels provided by the three licensees and RTHK were broadcast round-the-clock.

In addition to radio broadcasting, RTHK also produces television programmes for broadcast by the domestic free and domestic pay television programme service licensees.

<sup>3</sup> Metro held two sound broadcasting licences, one for providing AM and FM services and one for providing DAB service.

## 5.1.2 Transmission Modes

### Television

The regulatory regime for television programme services in Hong Kong as enshrined in the BO is technology-neutral.<sup>4</sup> Licensees are free to choose their transmission arrangements for delivery of television services. Broadcasters can build their own transmission networks to deliver their services and, in such cases, they need to apply for a carrier licence from the Authority to cover the transmission network. Alternatively, they can engage any of the existing carrier licensees to provide the transmission service. Licensees can also provide their television programme services via multiple transmission platforms so as to maximise the coverage.

The transmission modes employed by the television programme service licensees are set out in [Figure 2](#).

**Figure 2: Transmission Modes Employed by the Television Licensees**

Licensee	Transmission Mode	Network Coverage as at March 2013
<b>Domestic Free Television</b>		
ATV and TVB	(a) Terrestrial UHF <sup>5</sup> , including Analogue PAL-I format; and	(a) 99% of population
	(b) Digital National Standard format	(b) 98% of population (as at Dec 2012)
<b>Domestic Pay Television</b>		
HKCTV	HFC <sup>6</sup> , MMDS <sup>7</sup> and satellite (Digital)	97% of total households (about 2.3 million households)
PCCW Media	PON and DSL <sup>8</sup> Broadband network (Digital)	Near 100% of total households
TVBNV	Satellite and broadband network (Digital)	Near 100% of total households
<b>Non-domestic Television</b>		
All the 18 licensees	Satellite (Digital)	35% of total households (839 514 households)

<sup>4</sup> An exception is that a service consists only of a service provided on the Internet is exempted from the regulatory regime under the BO.

<sup>5</sup> Ultra High Frequency.

<sup>6</sup> Hybrid Fibre Coaxial Cable.

<sup>7</sup> Microwave Multipoint Distribution System.

<sup>8</sup> Passive Optical Network and Digital Subscriber Line.

### Penetration of Different Broadcasting Services

In March 2013, out of a total of 2.39 million households in Hong Kong,<sup>9</sup> 2.38 million television households<sup>10</sup> or 6.4 million viewers (aged 4 or above)<sup>11</sup> were receiving analogue broadcasting of free-to-air television, representing a penetration rate of about 99%. As regards DTT services, the take-up rate was about 82% of all households in April 2013.<sup>12</sup>

The penetration of licensed domestic pay television services was nearly 100%<sup>13</sup> of the total households as at end of March 2013. The total number of subscribers to licensed pay television services decreased slightly from 2 440 000 in March 2012 to 2 431 000 in March 2013 (a decrease of 0.4%).<sup>14</sup> The changes in total number of subscribers from 2004 to 2013 are shown in [Figure 3](#).

<sup>9</sup> Source: Census and Statistics Department.

<sup>10</sup> "Television households" means households with at least one TV set currently in working order; or with one not in working order but will repair or renew in near future. Data Source: Television Broadcasts Limited.

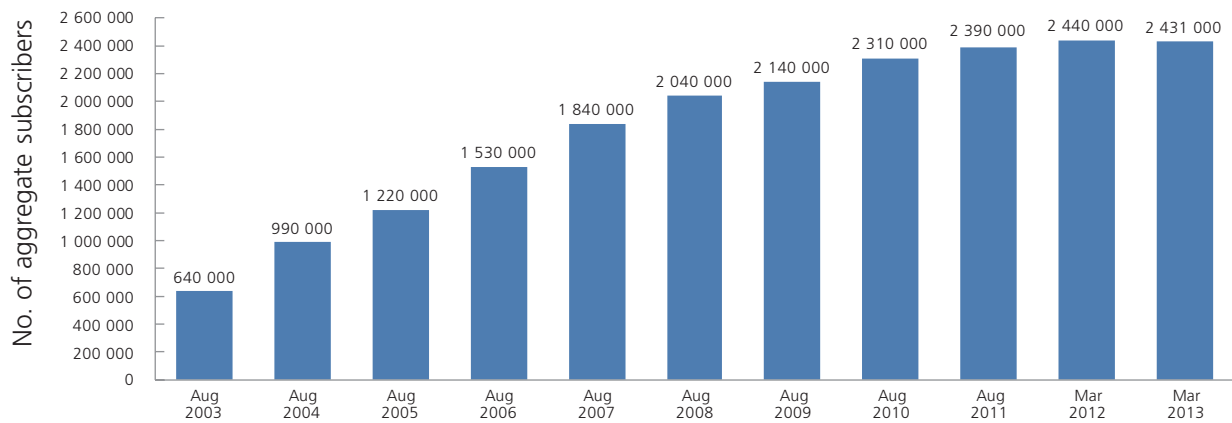
<sup>11</sup> Data Source: Television Broadcasts Limited.

<sup>12</sup> According to a public survey conducted in April 2013, about 82% of households in Hong Kong were receiving DTT services.

<sup>13</sup> Penetration of licensed domestic pay television services is calculated by dividing the total number of subscribers of licensed domestic pay television services by the total number of households. Some subscribers were counted more than once if they subscribed to more than one pay television service.

<sup>14</sup> Some subscribers were counted more than once if they subscribed to more than one service.

**Figure 3: Subscribers to Licensed Pay Television Services in Hong Kong**



Sources : Licensees

### Sound Broadcasting

During the period under review, the analogue radio broadcasters provided their services in FM and AM modes. Seven FM programme services were provided through seven hilltop sites. In addition, six AM programme services were broadcast from two other hilltop sites, supplemented by six low-power AM/FM gap-fillers to improve the AM programme services. The services practically covered the whole territory of Hong Kong.

The DAB broadcasters adopted DAB+ standard for transmission of DAB services. The DAB transmission network comprising seven principal transmitting<sup>15</sup> stations was officially launched in June 2012. As at March 2013, the network coverage of the DAB service stood at around 70%.

### 5.1.3 Broadcasting Revenues and Investment

Licensed broadcasting services contributed an estimated \$8 billion<sup>16</sup> to the Hong Kong economy, which represented about 0.4% of the gross domestic product (GDP) in 2012. There are two main sources of revenues for the provision of broadcasting services, viz. advertising and subscription. The income of domestic free television programme service licensees and sound broadcasting licensees mainly come from sales of advertising spots within programme breaks. Domestic pay television programme service licensees, on the other hand, derive their incomes mainly from subscription fees while sales of advertising spots remains a secondary income source.

<sup>15</sup> Beacon Hill, Castle Peak, Cloudy Hill, Golden Hill, Kowloon Peak, Lamma Island and Mount Gough.

<sup>16</sup> Source : Company reports of major broadcasting licensees.

### Advertising Revenue

According to the estimate of AdmanGo Limited, the advertising expenditures on television and radio<sup>17</sup> accounted for 31.4% (\$32 billion) and 3.5% (\$3.56 billion) respectively of the estimated \$101.7 billion total advertising expenditure in the media in 2012.

In 2012, the actual advertising revenue of TVB was around \$3.2 billion.<sup>18</sup> The actual advertising revenues of the other licensees were not publicly available.

Changes in the estimated advertising expenditure from 2003 to 2012 on television and radio are shown in Figure 4.

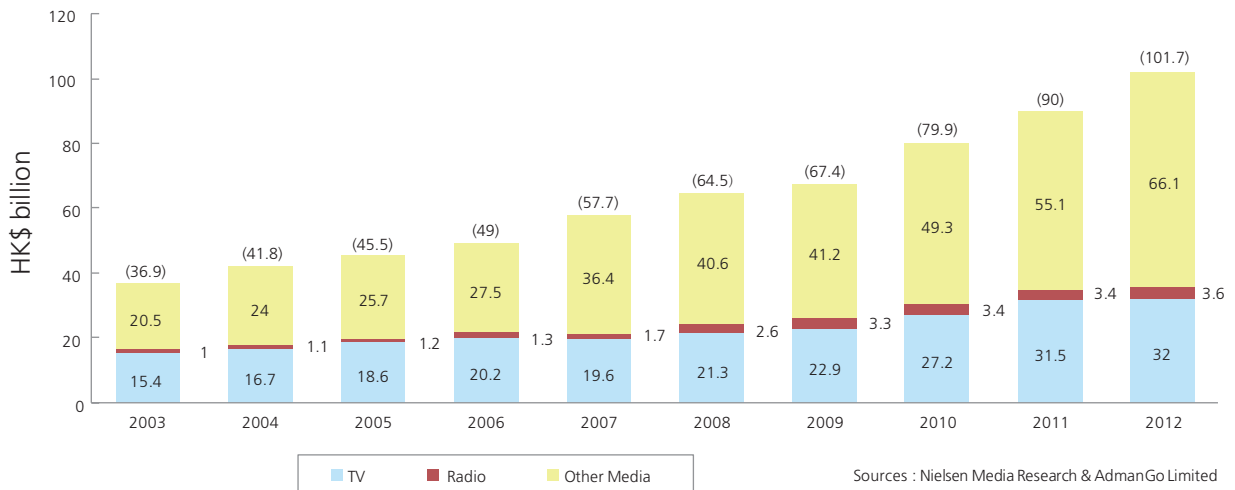
### Subscription Revenue

According to the annual report of i-Cable Communications Limited (i-Cable), the parent company of HKCTV, HKCTV's turnover (including mainly subscription revenue and also some advertising revenue) increased from \$1.75 billion in 2011 to \$1.76 billion in 2012.

According to the annual report of PCCW Limited (PCCW), the holding company of PCCW Media, the turnover of its television and content segment was \$2.81 billion in 2012, representing an increase of 4% over the figure in 2011. The increase is mainly attributable to growth of subscribers and advertising revenue.

The subscription revenue of TVBNV is not publicly available.

**Figure 4: Estimated Media Advertising Expenditure from 2003 to 2012**



<sup>17</sup> The advertising expenditure was measured based on published rate cards. Actual expenditure might differ because the discounted rates were not taken into account. Advertising expenditure on television includes the advertising expenditure on domestic free television programme services and the domestic pay television programme services provided by HKCTV and PCCW Media. Advertising expenditure on radio included the advertising expenditure on the sound broadcasting services provided by CRHK and Metro.

<sup>18</sup> According to TVB's annual report 2012, the turnover from the Hong Kong television broadcasting business segment was \$3,167 million, which comprised advertising revenue from the Group's free and pay television channels.



## Investment in Broadcasting Industry

Key investment projects in the television industry in recent years include digitisation of the terrestrial broadcasting network, HDTV content and production technology, interactive television services, and regular network upgrades and maintenance that are required to maintain or expand the ever-advancing scope of services. In addition, with the increasingly competitive television industry, the exclusive rights to broadcast premium contents such as sports events become a major attraction to viewers.

The two domestic free television programme service licensees, ATV and TVB, have committed to investing a total of \$2.4 billion and \$6.3 billion respectively for the six-year period from 2010 to 2015. Specifically, TVB will upgrade its digital production and broadcasting equipment to cater for HDTV productions. ATV will focus on installation of HDTV production equipment. In addition, during the mid-term review in 2010, ATV has committed to providing a minimum of 60 hours of HDTV programming per week for 2010-2015, while TVB has committed to increasing, on an incremental basis, the amount of HDTV programming to 120 hours per week by 2015. As at March 2013, ATV and TVB provided a total of 62 hours and 586 hours respectively of HDTV programmes per week.

As regards the domestic pay television programme service market, i-Cable, the parent company of HKCTV, reported in its 2012 Final Results Announcement that the capital expenditure of the group for the year had increased from \$199 million in 2011 to \$209 million in 2012. Its major items of investment included HDTV set-top-boxes, broadband network upgrade and television production and broadcast facilities for HDTV channels. i-Cable also invested in in-house production of news, entertainment and variety programmes. According to the 2012 Annual Results of PCCW, the parent company of PCCW Media, the capital expenditure for the year on its television and content business was \$113 million, representing a decrease of 30.2% over the figure in previous year.

TVBNV has committed to investing a total of \$2.003 billion for the six-year period from 2013 to 2019. The investment commitment of TVBNV covers HDTV programming, set-top-boxes and broadcast facilities upgrading.

CRHK and Metro have committed to investing a total of \$827 million and \$677 million respectively for the period from 2010-2016 for the provision of analogue sound broadcasting services. The investment commitment of CRHK and Metro covers staff developments, facilities upgrading, programming improvement and other development brought by technological advancement to further enhance their service quality. The three DAB licensees, namely DBC, Metro and Phoenix U Radio, have committed to investing a total of \$391 million, \$96.1 million and \$107.3 million respectively for the period from 2011-2017. Their investment commitment mainly covers construction of DAB network and studio facilities and production of DAB programmes.

### 5.1.4 Programme Variety and Positive Programme Requirements

#### (a) Programme Variety and Diversity

##### Number of Broadcast Hours and Hours of Station Productions

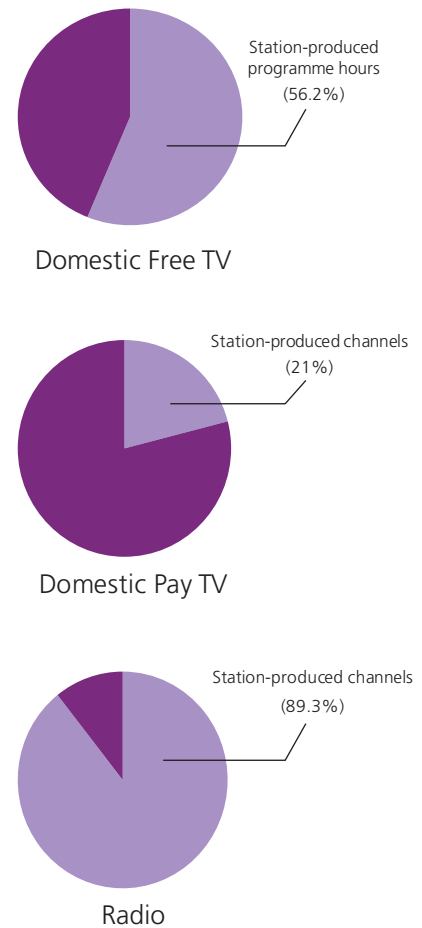
As at March 2013, the licensees broadcast about 66 121 hours of television programmes a week.<sup>19</sup> Among them, ATV and TVB provided a total of 671 broadcast hours per week on the four analogue channels and 1 845 broadcast hours per week on the 11 digital channels, while the 372 channels of domestic pay television programme service licensees provided a total of 56 549 broadcast hours per week. As at 31 March 2013, the 42 channels of non-domestic television programme service licensees receivable in Hong Kong provided a total of 7 056 hours per week.

With the launch of 15 DAB channels, the weekly number of broadcast hours for sound broadcasting services (including RTHK) as at March 2013 was 4 704. The 13 analogue channels of sound broadcasting operators provided a total of 2 184 broadcast hours per week while the 15 digital channels provided a total of 2 520 broadcast hours per week.

For the period under review, there were a total of 63 710 hours of station productions broadcast on ATV and TVB, of which 18 592 hours were on analogue channels and 45 118 on digital channels.<sup>20</sup> Of the 372 channels provided by the domestic pay television programme service licensees, 79 channels (21%) were produced by the licensees themselves.

As for sound broadcasting services, with the exception of RTHK’s relay of BBC World Service on Radio 6 and its digital radio services, and programmes of “China National Radio” on its digital radio services, the other 12 analogue radio channels and 13 digital radio channels (89.3%) were produced by the broadcasters themselves.

**Figure 5: Proportion of Station Production in March 2013**



Sources : Licensees

<sup>19</sup> The weekly number is based on a sample week in March 2013.

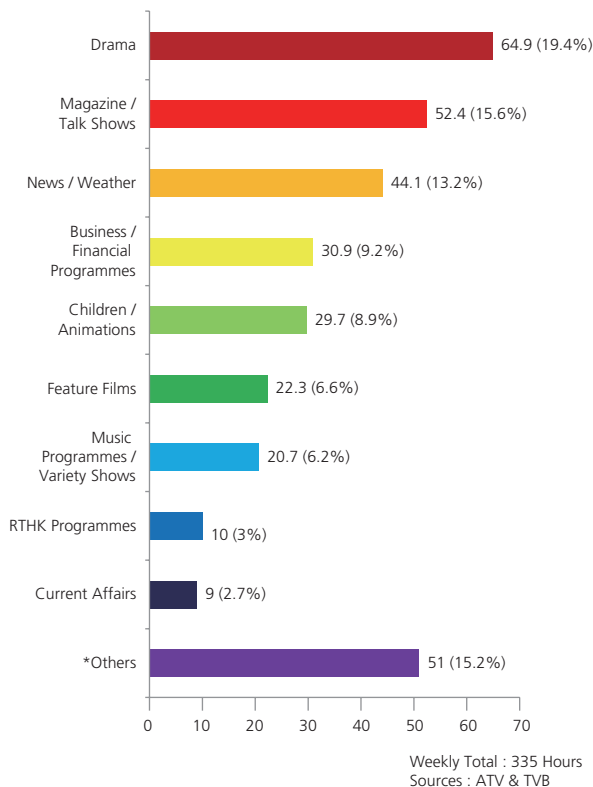
<sup>20</sup> This excludes ATV’s CCTV 1 and Shenzhen Satellite SDTV channels which were direct re-transmission channels.

### Domestic Free Television Programme Services

#### Analogue Channels and Digital Simulcast Channels

During the period under review, drama series remained the dominating programme genre during prime time on the Cantonese channels. Generally speaking, drama series on ATV were mainly imported from the Mainland and Korea, while those on TVB were mostly in-house productions. Both licensees broadcast Korean and Japanese drama series. Apart from drama series, magazine/talk shows, news/weather programmes, business/financial programmes, feature films and music programmes, etc. were also broadcast during prime time on the Cantonese channels.

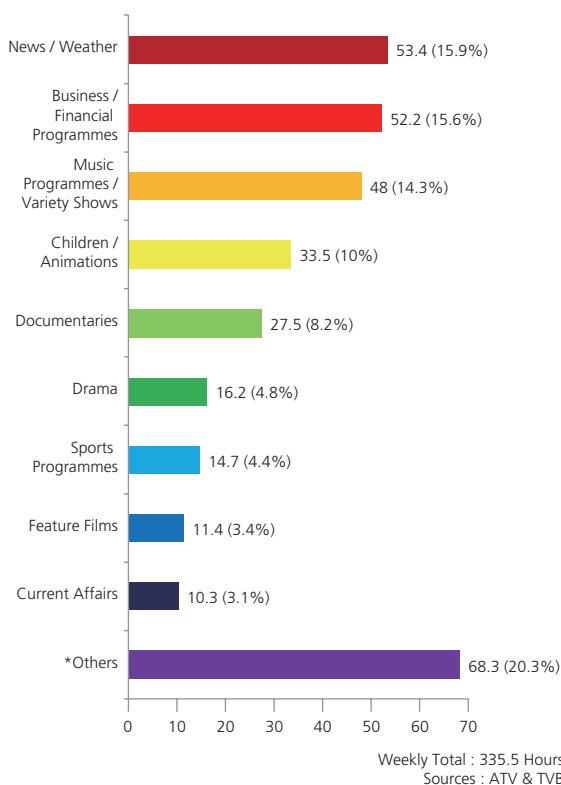
**Figure 6: Weekly Hours of Different Programme Types Broadcast on ATV Home and TVB Jade as at March 2013**



\* Other programmes include horse-racing, documentary and cooking programmes

The two English channels broadcast a wide range of programmes, including business/financial programmes, news/weather programmes, music programmes/variety shows, children’s animations, imported popular drama series, documentaries, sports programmes, feature films and current affairs programmes.

**Figure 7: Weekly Hours of Different Programme Types Broadcast on ATV World and TVB Pearl as at March 2013**



\* Other programmes include arts & culture programmes, travelogues and talk shows, etc.



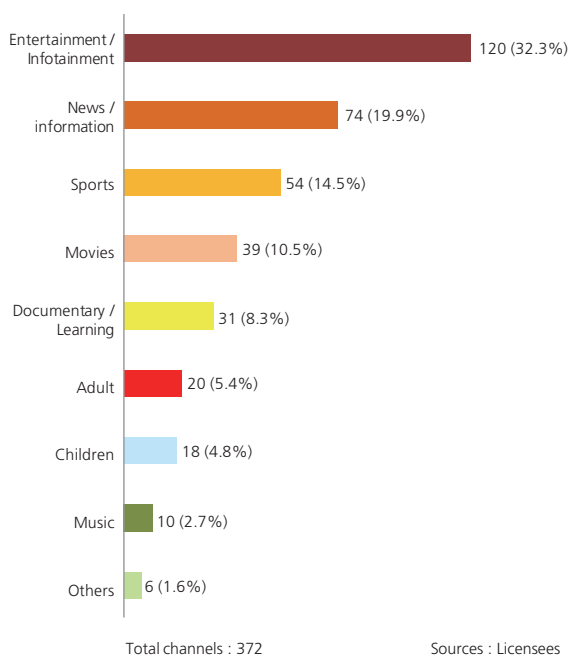
### Digital Channels

Since the launch of DTT services, ATV and TVB have been introducing new varieties of programmes to Hong Kong viewers. As at March 2013, ATV provided HDTV Asia channel, ATV Classic, CCTV 1 and Shenzhen Satellite, all of which were general entertainment channels providing different programme genres such as news, documentaries, current affairs, dramas and infotainment programmes, etc. On the other hand, TVB provided dramas, variety shows, news, talk shows and game shows, etc. via HD Jade, i-News and J2 (a general entertainment channel targeting young audience).

### Domestic Pay Television Programme Services

During the period under review, a wide variety of channels were offered on domestic pay television programme services, including entertainment and infotainment channels (32.3%), news and information channels (19.9%), sports channels (14.5%), movie channels (10.5%), and documentaries/learning channels (8.3%).

**Figure 8: Nature of Domestic Pay Television Channels as at March 2013**



As at March 2013, HKCTV offered a basic package consisting of 77 basic channels and 43 other premium channels (including 12 HDTV channels) in more than 10 languages. PCCW Media’s “now TV” service offered 170 channels (including 24 HDTV channels) and 37 video-on-demand services, while TVBNV’s service comprised 45 channels, of which 19 were also carried on PCCW Media’s platform.

### Sound Broadcasting

#### Analogue Channels

As at March 2013, CRHK operated two FM Cantonese language services, viz. CR1 and CR2, and one AM English language service, AM 864. CR1 provided mainly news, current affairs, financial and personal view programmes. CR2 was mainly an entertainment channel featuring pop culture and music targeting young listeners. AM864 was primarily a music channel.

Metro operated two FM Cantonese language services, viz. Metro Finance and Metro Info, and one AM English language service, viz. Metro Plus. Metro Finance provided real-time, market-moving news and information about financial markets around the world. Metro Info provided music and entertainment programmes as well as programmes on lifestyle, health, market news and other information of interest to the public. Metro Plus was a music channel which also provided programmes for ethnic groups including the Filipino, Indian and Indonesian communities in Hong Kong.

RTHK operated seven radio channels, providing Cantonese, English and Putonghua services. It offered a variety of thematic channels ranging from information to general entertainment and culture. A list of channels of RTHK is in [Figure 9](#).

### Figure 9: RTHK's Radio Services

- Radio 1 Chinese news, information and general programming
- Radio 2 Chinese youth, entertainment and popular music programmes
- Radio 3 English news, information and general programming
- Radio 4 Bilingual programmes on classical music and fine arts
- Radio 5 Chinese elderly, cultural and education programmes
- Radio 6 BBC World Service relay
- Radio 7 Putonghua general programming, news and finance

#### Digital Channels

DBC formally launched DAB service in September 2012. As at end March 2013, it operated seven channels comprising one Talk Radio channel, one Ethnic Minorities channel and five Music channels. The Talk Radio channel offered current affairs and commentary programmes, news, talk shows, music programmes, etc. while the Ethnic Minorities channel provided programmes in Tagalog, Indonesian, Hindi, Nepali, Thai and Urdu. The five music channels provided Chinese oldies, English oldies, foreign music, classical music and Chinese opera.

Metro commenced DAB service in September 2012, providing one DAB channel "Metro Finance Digital". The channel primarily offered finance programmes, talk shows and music shows principally in Cantonese.

Phoenix U Radio formally commenced DAB service in January 2012. As at end March 2013, it operated two channels called "U Radio 22" and "U Radio 26", offering a variety of programmes, including news, current affairs programmes, financial programmes, music programmes, health programmes and cultural programmes, mainly in Putonghua.

RTHK formally launched DAB service in September 2012. As at end March 2013, it operated five channels, four of which principally simulcast existing AM channels and the remaining one was a dedicated channel produced by "China National Radio" for RTHK.

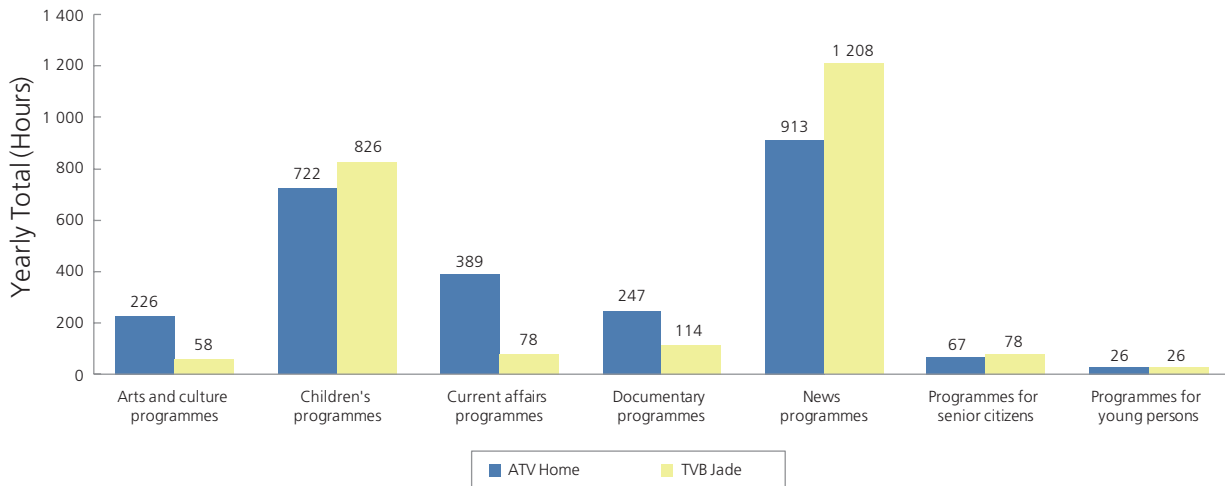
### (b) Positive Programme Requirements

During the period under review, domestic free television programme service licensees were required to broadcast at least 41.5 hours of positive programmes<sup>21</sup> per week. Both ATV and TVB met the requirements during the period under review. In aggregate, ATV and TVB each broadcast a weekly average of 110.3 hours of positive programmes.

The reports of the licensees submitted to the Authority on the four types of positive programmes, i.e. children's programmes, programmes for young persons, programmes for senior citizens and arts and culture programmes, are available at [http://www.ofca.gov.hk/en/pub\\_report/compliance\\_reports/index.html](http://www.ofca.gov.hk/en/pub_report/compliance_reports/index.html).

<sup>21</sup> The "positive programmes" that ATV and TVB were required to broadcast were news, current affairs programmes, documentary, art and culture programmes, children's programmes and programmes for senior citizens and young persons.

**Figure 10: Broadcast of Positive Programmes on Cantonese Television Channels as at March 2013**



ATV and TVB were required to provide Chinese subtitles for all news, current affairs, weather reports and emergency announcements as well as programmes during prime time (7:00p.m.-11:00 p.m.) on Cantonese channels, and English subtitles for all news, current affairs, weather programmes, emergency announcements and educational programmes for teenagers (two hours per week) on English channels. Overall, both ATV and TVB complied with the requirements on provision of subtitles.

Pursuant to licence requirements, both licensees were required to broadcast one minute of Announcements in Public Interest (APIs) in each hour and two minutes of publicity material for the Authority each week. During the period under review, the licensees broadcast a total of 2 028 hours of the two types of materials.

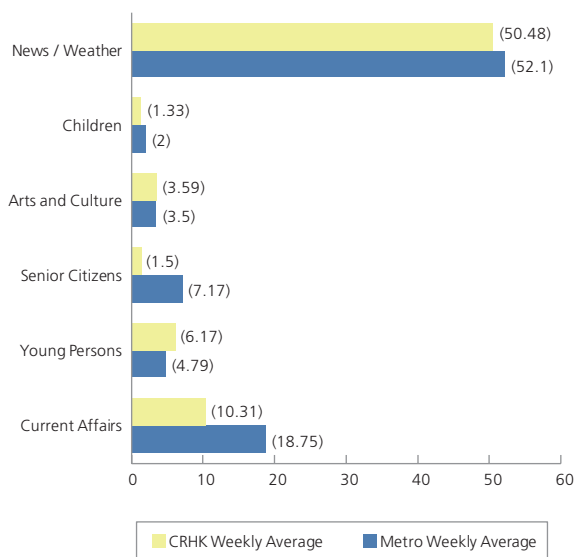
Following the mid-term review in 2010, ATV and TVB were required to provide an additional 120 minutes per week of programmes for senior citizens and programmes on arts and culture, or an additional 90 minutes of government (RTHK) programmes per week. In addition, ATV and TVB were required to broadcast an additional 60 minutes of RTHK programmes during weekends. For the hearing impaired, ATV and TVB were also required to provide Chinese subtitling for all drama programmes on Cantonese channels starting 31 December 2010 and English subtitling for all programmes broadcast on English channels between 8:00p.m. and 11:30p.m. starting 31 December 2012.

As regards sound broadcasting services, analogue sound broadcasting licensees were required to broadcast at least 28.5 hours of positive programmes<sup>22</sup> per week. Overall, both CRHK and Metro complied with the licence conditions on broadcast of positive programmes.

<sup>22</sup> The "positive programmes" that CRHK and Metro were required to broadcast were news and weather programmes, current affairs programmes, art and culture programmes and advisory programmes, viz. programmes for young persons, senior citizens and children.

All sound broadcasting licensees (including DAB licensees) were required to broadcast one minute of APIs in each hour and not more than five minutes of publicity material for the Authority each week. Overall, all licensees complied with the requirements.

**Figure 11: Provision of Positive Programmes on Sound Broadcasting Services as at March 2013**



### 5.1.5 Hong Kong as a Regional Broadcasting Hub

Hong Kong is a broadcasting hub in the Asia-Pacific region with 18 non-domestic television programme service licensees operating in and broadcasting from Hong Kong. Altogether they offered a total of 260 satellite television channels serving over 300 million viewers in the Asia-Pacific region, Europe and Africa, of which 42 channels were receivable in Hong Kong. A summary of non-domestic television programme services as at March 2013 is at Annex 1.

## Telecommunications

### 5.2 An Overview of the Telecommunications Market

Hong Kong has one of the most sophisticated and successful telecommunications markets in the world. This has been an important factor in Hong Kong’s development as a leading business and financial centre. In 2011, the total telecommunications services revenue of the telecommunications sector amounted to HK\$63.4 billion and around 18 000 persons were employed.

All sectors of Hong Kong’s telecommunications market have been liberalised with no foreign ownership restrictions. The government’s objectives are to maintain a level playing field in the open and competitive telecommunications market and ensure that consumers get the best services available in terms of capacity, quality and price.

#### 5.2.1 The Telecommunications Regulatory Regime

##### Carrier Licences

The Authority issues carrier licences for facility-based operators. Facility-based operators are authorised to establish and maintain telecommunications networks and facilities, which may cross unleased Government land and public streets, for the provision of public telecommunications services.

The unified carrier licensing regime has been implemented since 1 August 2008 as the single licensing vehicle for the provision of facility-based fixed, mobile and/or converged telecommunications services in Hong Kong.

A Unified Carrier Licence (UCL) for the provision of local fixed service authorises the licensee to establish and maintain fixed network, wireline-based or wireless-based or a combination of both where applicable, to provide all local telecommunications services between fixed points within Hong Kong. A UCL for the provision of external fixed service authorises the licensee to provide external facilities as well as external services operated over external facilities. A UCL for the provision of mobile service enables the licensee to provide two-way communications between moving locations or between a moving location and a fixed location in Hong Kong. The issue of new UCL for the provision of mobile service is subject to the availability of radio spectrum for assignment.

Fixed Carrier Licences (FCLs) and Mobile Carrier Licences (MCLs) which were issued before the introduction of the UCL remain valid until their expiry dates. The holders of FCL and MCL may apply to the Authority for UCL to replace their licences.

As at March 2013, there were a total of 58 carrier licensees, providing fixed internal services, cable-based fixed external services, non cable-based fixed external services, mobile services and other services.

#### **Public Radiocommunications Service Licences**

For the provision of public radiocommunications services (PRS), an operator has to apply for a PRS Licence. As radiocommunications services require the assignment of operating frequencies, PRS Licences are granted only when the required radio spectrum is available.

Services which may be authorised under the PRS Licence include radio paging, community repeater (trunked radio) services, vehicle location information services, one-way data message services and public mobile radio data services.

As at March 2013, there were a total of 10 PRS licensees.

#### **Services-based Operator Licences**

Services-based Operators (SBO) may provide public telecommunications services by using the transmission facilities provided by licensed facility-based carriers or establishing or maintaining their own transmission facilities which do not cross public streets or unleased Government lands.

SBO licence covers three types of services, namely, Class 1 and Class 2 local voice telephony services, and Class 3 services which may include external telecommunications services, Internet access service, international value-added network service, mobile virtual network operator service, private payphone service, public radio communications relay service, security and fire alarm signals transmission service, teleconferencing service, mobile communications service on board an aircraft, etc.

As at March 2013, there were a total of 540 SBO licensees.



### Class Licences

The class licensing regime does not require any licence application. Parties meeting the specified eligibility criteria and conditions would automatically become the class licensees, and are required to fulfil the conditions set out in the relevant Class Licence as well as the TO. Currently, seven types of Class Licences are under the purview of the Authority:

- Class Licence for Citizens Band Radio Station
- Class Licence for In-building Telecommunications Systems
- Class Licence for Medical Implant Communication System Device
- Class Licence for Short Range Device
- Class Licence for Taxi Mobile Station
- Class Licence for Offer of Telecommunications Services
- Class Licence for Provision of Public Wireless Local Area Network Services

### Other Licences

Apart from the licences mentioned above, there are a number of miscellaneous licences under the purview of the Authority.

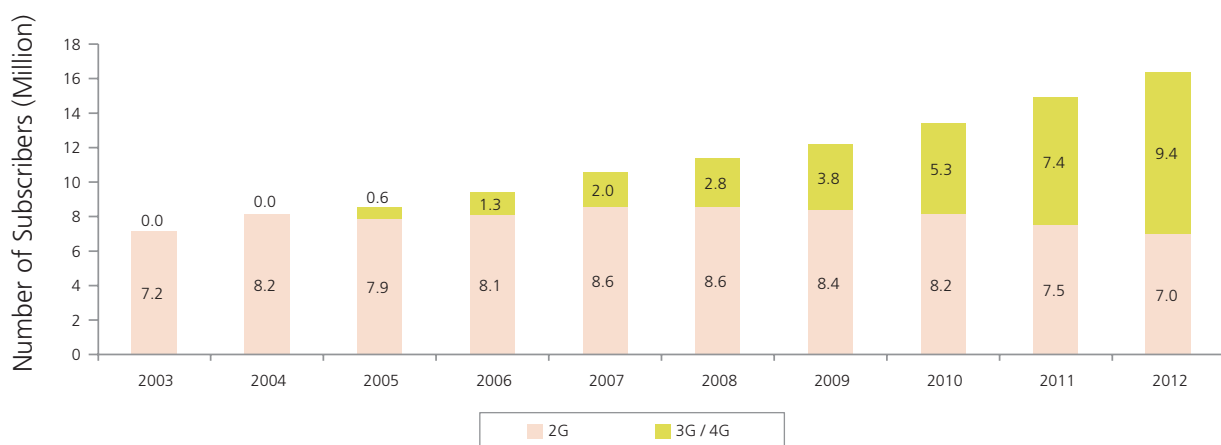
A breakdown of the type and number of all telecommunications licences can be found at Annex 2.

## 5.2.2 Developments in the Telecommunications Market and Technology Trends

### Mobile Communications Services

Competition in public mobile services is keen. As at March 2013, there were five mobile network operators, namely, China Mobile Hong Kong Company Limited (CMHK), CSL Limited (CSL), Hong Kong Telecommunications (HKT) Limited, Hutchison

**Figure 12: 2G, 3G and 4G subscriber trends from 2003 to 2012**

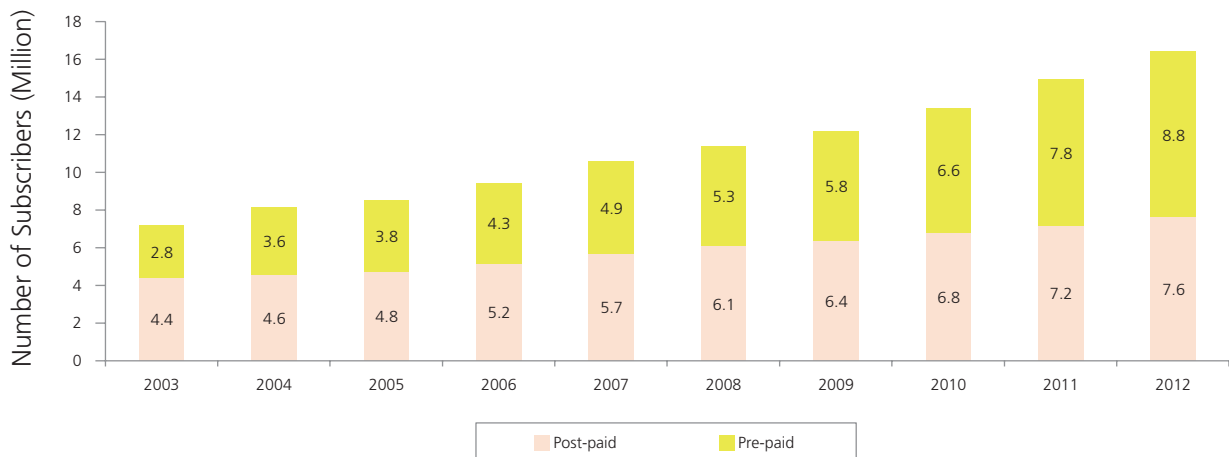


Telephone Company Limited and SmarTone Mobile Communications Limited (SmarTone), providing a wide range of public mobile services. The availability of mobile number portability service since March 1999 has contributed to promoting effective competition among the mobile network operators as it allows customers to retain their telephone numbers when they switch to another mobile network operator.

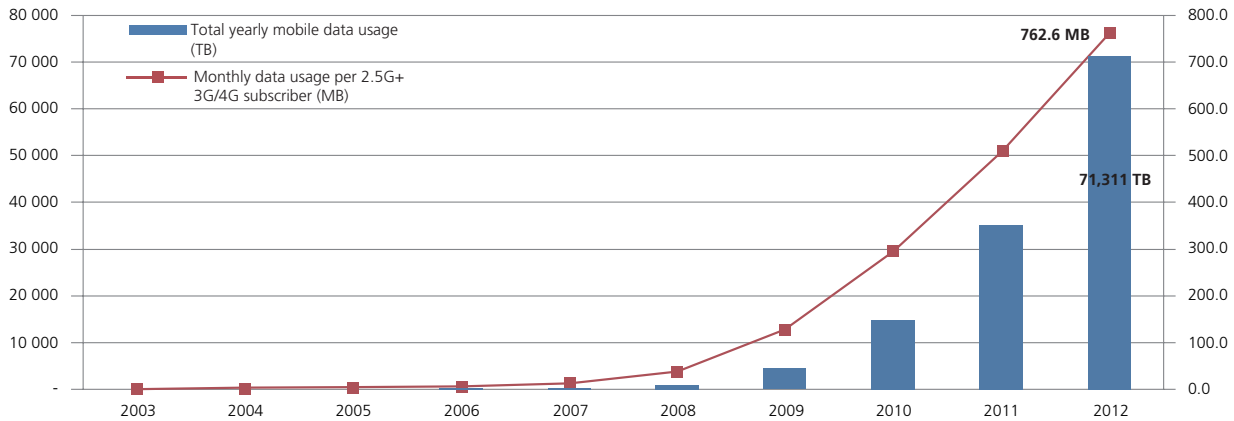
The five mobile network operators provide second generation (2G), 3G and 4G services in the city. As at March 2013, there were over 16.3 million subscribers to mobile communications services. This represents a population penetration of 228.4%, one of the highest in the world. The number of 3G/4G users also continued to rise and reached 10.27 million in March 2013.

During the period under review, the development of 4G mobile services has accelerated. All five mobile network operators have been offering 4G services with affordable prices. Operating in 1800 MHz and/or 2.5/2.6 GHz frequency bands, mobile data services are available at downlink speeds of up to 100 Mbps using LTE technology. With the increasing popularity of smart phones, particularly 4G mobile handsets, which were readily available in the market, the monthly mobile data usage surged to 8 983 Terabytes in March 2013, representing 1.8 times and 3.8 times the monthly usage over the same period in 2012 and 2011 respectively. On average, each 2.5G/3G/4G mobile user used 840 Mbytes per month, compared with 588 Mbytes in March 2012 and 343 Mbytes in March 2011. It is believed that the proliferation of 4G mobile services has further boosted the mobile data usage.

**Figure 13: Mobile customers using postpaid and prepaid SIM from 2003 to 2012**



**Figure 14: Monthly mobile usage trend per customer from 2003 to 2012**



### Fixed Communications Services

The local fixed communications services market was fully liberalised in 2003. There is no preset limit on the number of licences to be issued for fixed services, or any deadline for the submission of licence applications. Furthermore, there is no specific requirement on network rollout or investment, which are determined by the market.

As of March 2013, there were 18 local fixed carriers, providing around 103 fixed lines per 100 households, one of the highest in the world. They are:

- PCCW-HKT Telephone Limited and Hong Kong Telecommunications (HKT) Limited
- New World Telecommunications Limited
- Wharf T&T Limited
- Hutchison Global Communications Limited
- Hong Kong Broadband Network Limited
- Towngas Telecommunications Fixed Network Limited
- ComNet Telecom (HK) Limited
- TraxComm Limited
- HKC Network Limited
- Hong Kong Cable Television Limited
- Reach Networks Hong Kong Limited and Reach Cable Networks Limited
- Telstra International HK Limited and Telstra International Limited
- Verizon Hong Kong Limited
- SmarTone Communications Limited
- Cable and Wireless Global Network (Hong Kong) Limited
- CSL Limited
- China Mobile Hong Kong Company Limited
- 21 ViaNet Group Limited

As a result of full liberalisation in the local fixed carrier services market, the active network rollout by fixed carriers since 1995 and the Authority’s initiative to encourage further network rollout by the withdrawal of mandatory Type II interconnection policy at the end of June 2008, 86.7% and 76.3% of households were able to enjoy a choice of at least two and three self-built customer access networks respectively as at March 2013. It is expected that the figure will keep growing as the operators continue to roll out their networks.

Local fixed carriers are required to facilitate fixed number portability which enables consumers to switch to another local fixed operator without having to change their telephone numbers.

**Fixed broadband services**

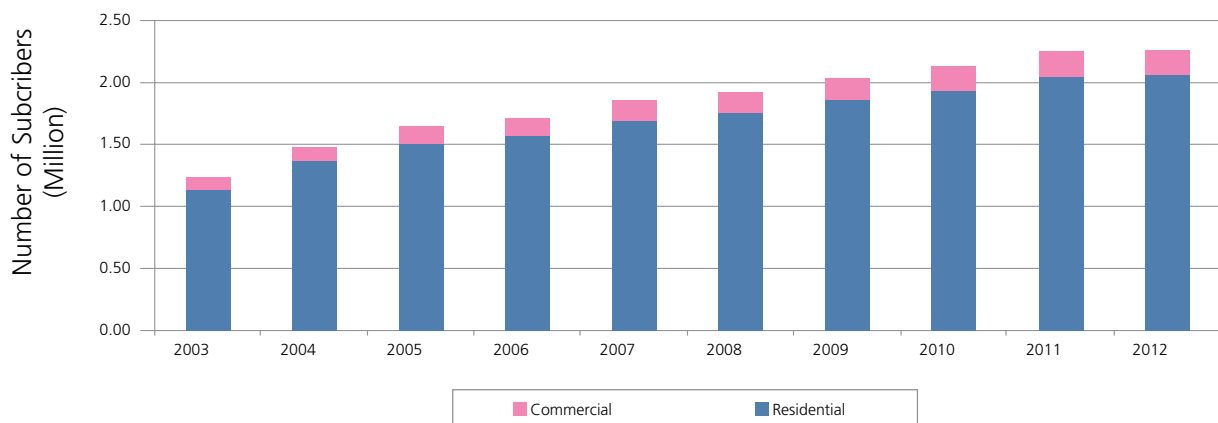
As at March 2013, there were 18 facility-based operators and 173 service-based operators authorised to provide broadband Internet access services in Hong Kong. With the ubiquitous availability of broadband services whether using asymmetric digital subscriber line (ADSL), fibre-

to-the-building (FTTB), fibre-to-the-home (FTTH), hybrid fibre coaxial cable and other technologies, the Hong Kong community is able to enjoy broadband access almost everywhere at home, in the office or outdoors. Broadband access to various applications and content services has become an integral part of the life of people in Hong Kong. As at March 2013, there were around 2.3 million residential and commercial fixed broadband subscribers, with a household penetration rate of 86%. Broadband services are available at speeds up to 1 Gbps. About 90% broadband subscribers are using service plans with speeds at 10Mbps or above. The statistics of fixed broadband subscribers as at March 2013 and the statistics for the past 10 years are shown in [Figure 15](#) and [Figure 16](#) respectively.

**Figure 15: Statistics of fixed broadband subscribers as at March 2013**

	No. of subscribers	%
Total No. of broadband subscribers	2 255 039	
Broadband speed of 10 Mbps or above	2 040 060	90.5%
Broadband speed below 10 Mbps	214 979	9.5%
Residential	2 039 980	90.5%
Commercial	215 059	9.5%

**Figure 16: Fixed Broadband Subscribers Trend from 2003 to 2012**



### Development of Next Generation Networks

Traditional telecommunications networks are built around circuit-switched technologies and are primarily designed for the conveyance and provision of standalone services. With the advent of new technologies, it is now possible to build a single network for the conveyance and provision of a variety of services, including fixed voice telephony service, data service, mobile service and television service. Such new networks are commonly referred to as next generation networks (NGNs).

In Hong Kong, the development of NGNs has always been driven by commercial considerations of carriers, without any government funding. Some carriers have already launched their NGNs, while others are in the process of migrating their existing networks to NGNs. With the advent of NGN, it is necessary for the Authority to remain vigilant about the challenges to be brought about by NGN and ensure that the regulatory framework remains updated and appropriate in the NGN era. After the completion of a consultancy study commissioned to study the implication of NGN development on the regulatory framework in Hong Kong, the NGN working group set up under OFCA, with members coming from the industry as well as various professional associations, has been deliberating on various issues pertinent to NGN, including NGN interconnection trial among operators, migration of number portability from existing networks to an IP-based NGN environment, the provision of in-building horizontal fibres by operators for NGN services, etc.

### Public Wi-Fi Services

Operators have been vigorously rolling out Wi-Fi networks. There are 5 fixed network operators and 35 class licensees authorised to provide public Wi-Fi services. As at March 2013, there were more than 18 800 public Wi-Fi hotspots in the city and the number continued to grow. As at March 2013, free Wi-Fi services were available to the public in about 400 government premises.

### External Telecommunications Services

The external telecommunications facilities market was fully liberalised in 2000. As of March 2013, 41 fixed carriers were authorised to provide cable-based and/or non-cable-based external telecommunications facilities. During the year, one new submarine cable system namely Asia Submarine-Cable Express and one new cable landing station located in Tseung Kwan O commenced operation. As at March 2013, Hong Kong had a total of seven cable landing stations: two in Tong Fuk, two in Tseung Kwan O and one each in Deep Water Bay, Chung Hom Kok and Cape D'Aguiar, making it a major telecommunications and internet hub in the region.





In March 2013, Hong Kong was connected to eight regional and trans-Pacific submarine cable systems. They are Asia-America Gateway Cable System (AAG), Asia Pacific Cable Network 2 (APCN-2), Asia Submarine-Cable Express (ASE), EAC-C2C, FLAG Europe Asia (FEA), FLAG North Asia Loop (FNAL), REACH North Asia Loop (RNAL), Sea-Me-We 3 (SMW3) and TGN-Intra Asia Cable System (TGN-IA). Among them, the ASE system started its operation in Hong Kong in February 2013. It was also connected to the Mainland's three overland cable networks. As at March 2013, the total equipped external capacity exceeded 10 300 Gbps. Total external telephone traffic was 10 453 456 000 minutes for the period from 1 April 2012 to 31 March 2013.

### Satellite Services

Hong Kong adopts the open sky policy in regulating the provision of satellite services. Satellite-based telecommunications and television broadcasting services are provided via a multitude of satellites in the region with 185 satellite earth station antennas operated by a number of fixed carriers and broadcasters.

For operation of satellites and associated facilities, however, licences are required. As at March 2013, two Hong Kong companies were licensed to operate and provide satellite communication services, namely Asia Satellite Telecommunications Company Limited (AsiaSat) and APT Satellite Holdings Limited (APT).

AsiaSat and APT now operate nine satellites while some of the existing satellites will soon reach the end of their designed operation lives. The two companies have entered into a new investment cycle of launching new satellites for replacement and provision of new business. It is anticipated that two new satellites will be launched in 2014.

### Broadcast-type Mobile TV Services

To enable the use of broadcast-type technologies which deliver audio-visual content to a much larger number of consumers, the radio spectrum in the 678-686 MHz band was auctioned in June 2010 for the provision of broadcast-type mobile television (mobile TV) services. The services were launched by CMHK in February 2012. Both local residents and tourists are able to enjoy the broadcast-type mobile TV programmes by the use of suitable receiving devices.

According to the relevant regulatory framework for the development of broadcast-type mobile TV services, the content of mobile TV, either local broadcast-type or streaming-type, is not subject to regulations by the BO but the general laws. As a self-regulation initiative, the industry issued a code of practice for the provision of mobile TV services in August 2012. The code of practice includes the requirement of access control with a view to protecting public morals and children.