

CHAPTER 1

**THE GOVERNMENT OF THE
HONG KONG SPECIAL ADMINISTRATIVE REGION**

**OFFICE OF THE TELECOMMUNICATIONS AUTHORITY
TRADING FUND**

GOVERNMENT DEPARTMENT

Office of the Telecommunications Authority

Liberalisation of the local fixed telecommunications market

**Audit Commission
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LIBERALISATION OF THE LOCAL FIXED TELECOMMUNICATIONS MARKET

Contents

	Paragraphs
SUMMARY AND KEY FINDINGS	
PART 1: INTRODUCTION	1.1
Background	1.2 – 1.3
The regulatory framework	1.4 – 1.7
Introduction of competition to the local fixed telecommunications network services market	1.8 – 1.13
Strong competition in the external telecommunications market compared with the local FTNS market	1.14 – 1.15
Audit review	1.16 – 1.18
PART 2: GOVERNMENT'S MEASUREMENT AND REPORTING OF THE PROGRESS OF COMPETITION IN THE LOCAL FTNS MARKET	2.1
Performance indicators used by the Government	2.2 – 2.3
Measurement and reporting of the progress of competition by regulatory authorities abroad	2.4 – 2.6
<i>Audit observations on the need to improve the Government's measurement and reporting of the progress of competition</i>	2.7 – 2.8
<i>Audit recommendations on the Government's measurement and reporting of the progress of competition</i>	2.9
<i>Response from the Administration</i>	2.10 – 2.12
PART 3: MARKET SHARE AND AVAILABILITY OF CONSUMER CHOICE	3.1
New operators' market share	3.2 – 3.5
OFTA's comments on new operators' market share	3.6
Availability of consumer choice	3.7 – 3.8
Audit's survey of service areas served by co-located exchanges	3.9 – 3.12

	Paragraphs
<i>Audit observations on availability of consumer choice</i>	3.13 – 3.14
<i>Audit recommendations on availability of consumer choice</i>	3.15
<i>Response from the Administration</i>	3.16
PART 4: DIFFICULTIES RELATING TO INTERCONNECTIONS	4.1
The importance of interconnections	4.2
Types of interconnection	4.3
Principles and Code of Practice for interconnections	4.4
Common problems encountered by other countries on interconnections	4.5
Audit’s case studies of interconnection issues in Hong Kong	4.6
<i>Audit observations on the long time taken to resolve interconnection problems</i>	4.7 – 4.9
<i>Audit recommendations on measures to facilitate resolution of interconnection problems</i>	4.10
<i>Response from the Administration</i>	4.11
Interconnection charging	4.12 – 4.13
<i>Audit observations on interconnection charging</i>	4.14
<i>Audit recommendations on interconnection charging</i>	4.15
<i>Response from the Administration</i>	4.16
PART 5: OFTA’S PROCEDURES FOR MAKING DETERMINATIONS ON INTERCONNECTION-RELATED ISSUES	5.1
TA’s power of making determinations	5.2 – 5.6
Procedures for determination	5.7
Improvements in the determination procedures	5.8
Time taken for determination in four completed cases	5.9
Cases in progress	5.10
<i>Audit observations on the long time taken to make a determination</i>	5.11 – 5.14
<i>Audit recommendations on the determination process</i>	5.15
<i>Response from the Administration</i>	5.16

	Paragraphs
PART 6: OPENING UP OF THE INCUMBENT'S EXCHANGES TO NEW OPERATORS	6.1
Government's requirements regarding the opening up of the incumbent's exchanges	6.2 – 6.3
<i>Audit observations on the implementation of the Framework Agreement</i>	6.4 – 6.7
<i>Audit recommendations on the implementation of the Framework Agreement</i>	6.8
<i>Response from the Administration</i>	6.9 – 6.10
PART 7: OFTA'S MONITORING OF FULFILMENT OF COMMITMENTS BY NEW OPERATORS	7.1
Extension of moratorium	7.2
Commitments on network roll-out and capital investment	7.3
OFTA's monitoring procedures relating to the achievement of interim milestones	7.4 – 7.6
<i>Audit observations on the need for timely verification of interim results</i>	7.7 – 7.8
<i>Audit recommendation on the need for timely verification of interim results</i>	7.9
<i>Response from the Administration</i>	7.10
Appendix A: OFTA's comparison of the progress of competition in Hong Kong with other countries	
Appendix B: Audit's visits to a co-located exchange of the incumbent and the TBE rooms of three commercial/residential buildings	
Appendix C: Audit analysis of the time taken for TA's determination in four local FTNS cases in Table 4	
Appendix D: Requirements to be met before the incumbent could apply for a rental increase under the 1998 Framework Agreement	
Appendix E: Chronology of key events in opening up the incumbent's exchanges	
Appendix F: Chronology of key events established by OFTA regarding the incumbent's fulfilment of obligations under sub-clause 6.6(a) of the 1998 Framework Agreement	
Appendix G: Acronyms and abbreviations	

LIBERALISATION OF THE LOCAL FIXED TELECOMMUNICATIONS MARKET

Summary and key findings

A. **Introduction.** The telecommunications industry in Hong Kong is governed by the Telecommunications Ordinance, the Telecommunications Regulations (subsidiary legislation) and the operator licences. The Telecommunications Authority (TA) is empowered by law to administer the licensing regime and monitor the telecommunications market. The Office of the Telecommunications Authority (OFTA) is the TA's executive arm (paras. 1.4 and 1.5).

B. Competition was first introduced to the local fixed telecommunications network services (FTNS) market in July 1995 with the issue of local wireline-based FTNS licences to three new operators. The then existing operator (the incumbent), whose exclusive local telephone franchise expired in the same month, was granted a non-exclusive licence. In order to allow time for the new operators to construct and operate their networks, the Government granted a 3-year moratorium (i.e. up to June 1998) during which further local FTNS licences would not be issued (paras. 1.8 and 1.9).

C. In the Government's negotiations with the incumbent to open up the external telecommunications market, the Government endeavoured to further liberalise the local FTNS market. Under the Framework Agreement executed in January 1998 between the incumbent and the Government, the incumbent was required to enter into negotiations with the three new operators with a view to giving access of the exchanges, which served at least 50% of the residential exchange lines, to the new operators by 1 January 1999 (para. 1.10).

D. In May 1999, the Government extended the moratorium to the end of 2002. In return, the Government secured additional capital expenditure and network coverage commitments from the three new operators. In January 2002, the Government announced its decision to proceed with the full liberalisation of the FTNS market from January 2003 (paras. 1.11 and 1.13).

E. **Audit review.** Audit has conducted a review to examine the Government's efforts to liberalise the local FTNS market and to identify whether there are areas for improvement in the Government's performance (para. 1.16). The major audit findings are summarised in paragraphs F to J below.

F. **Need to improve measurement of the progress of competition.** Compared with OFTA, the regulatory authorities of some advanced countries provide much more information for gauging whether competition is working effectively. Notably, the regulatory authorities in Canada and the United Kingdom (UK) conduct periodic effective competition reviews based on a set of effective competition indicators and criteria. Audit considers that there is a need for OFTA to make continued

improvements in its measurement and reporting of the progress of competition in the local FTNS market, by drawing on the experiences of advanced countries (paras. 2.7 and 2.8).

G. Need to closely monitor the availability of consumer choice. It is OFTA's assumption that, once a new operator has co-located his equipment at an exchange of the incumbent, all customers served by that exchange will have a choice of switching to the service provided by that new operator. However, a survey conducted by Audit in November 2001 has revealed that this is not the case. In fact, for 30% of the residential addresses selected for the survey, Audit received a "no service" response from all the three new operators. OFTA has undertaken to follow up the audit findings. Furthermore, even if a new operator tells a customer that service is available, the success of the customer's switching to the service of the new operator depends on the incumbent's acceptance of the new operator's application for interconnection for the residential line concerned. Audit considers that, for management information purposes, there is a need for OFTA to collect, analyse and report on a regular basis, statistics of the incumbent's rejections of the new operators' applications for interconnections (paras. 3.9 to 3.14).

H. Need to reduce the time taken for interconnection negotiations. Interconnection is a prerequisite for opening up the local telecommunications market to competition. Audit's case studies indicate that interconnection problems in Hong Kong, like those in other countries, often took a long time to resolve. In the interest of promoting effective competition, Audit considers it necessary for OFTA to find ways of shortening the time taken to conclude the interconnection negotiations. Audit's research indicates that many countries publish relevant particulars of interconnection, in the form of reference interconnection offers (RIOs), which facilitate interconnection negotiations and promote transparency. Some countries also require the operators to publish their interconnection agreements (paras. 4.2, 4.3, 4.5 and 4.7 to 4.9).

I. Need to speed up the process of determination. The TA is empowered under the Telecommunications Ordinance to determine the terms and conditions of interconnection. Audit's analysis of some completed cases indicates that the process of determination took, on average, about 15 months to complete. Audit considers that there is a need for OFTA to closely monitor the progress of all determination cases to ensure that they are completed as soon as possible. Audit also considers it necessary for OFTA to carry out a detailed post-determination review of the completed cases to ascertain the reasons for the long processing time. Audit notes that, for cases received in or after September 2001, time limits have been set for their completion (i.e. 4¾ months for normal cases and 6½ months for complex cases). Audit welcomes this improvement. Audit considers that, for those in-progress cases received before September 2001, time limits should also be set to ensure that they are completed as soon as possible (paras. 5.2, 5.5, 5.11 and 5.13).

J. Need to closely monitor compliance with the 1998 Framework Agreement. According to the 1998 Framework Agreement, the incumbent should not increase the monthly rental charge for his residential lines until exchanges that served at least 50% of the residential lines were made ready for access to the new operators by 1 January 1999. The Framework Agreement also specified certain circumstances under which the incumbent would be deemed to have fulfilled this "50% requirement". However, Audit could not find documentary evidence in OFTA's records indicating that OFTA had

verified that the incumbent had fulfilled this requirement, before the TA approved the increases of monthly rental charge in August 1999 and December 2000. Audit also noted that there was evidence of delay in the co-location of the exchanges in question. In response to OFTA's enquiry, in January 2002 the incumbent indicated that he had discharged the obligations under the Framework Agreement, and that he was not responsible for the delay. Audit considers that there is a need for OFTA to conduct a thorough post-implementation review of the Framework Agreement, in consultation with the parties concerned, so as to establish whether the incumbent had fulfilled his obligations and to identify lessons for future reference (paras. 6.4 to 6.7).

K. **Audit recommendations.** Audit has made the following main recommendations that the Director-General of Telecommunications should:

Measurement of the progress of competition

- (a) develop more effective indicators of competition along the lines of those used by regulatory authorities abroad (para. 2.9(a));
- (b) consider the need to conduct periodic effective competition reviews similar to those conducted by the regulatory authorities in Canada and the UK (para. 2.9(c));

Availability of consumer choice

- (c) conduct periodic surveys similar to that conducted by Audit to ascertain the extent to which residential customers can really choose their preferred operators (para. 3.15(a));
- (d) in cases where a "no service" response is given by the new operators, ascertain whether or not they have breached the licence conditions and, if a breach is established, take appropriate action to enforce the licence conditions (para. 3.15(b));
- (e) for management information purposes, consider the need to regularly collect, analyse and report statistics of the incumbent's rejections of the new operators' applications for interconnections (para. 3.15(c));

Time taken for interconnection negotiations

- (f) monitor the time taken for conducting major interconnection negotiations between the incumbent and the new operators (para. 4.10(a));

- (g) take appropriate measures to facilitate the early resolution of interconnection disputes (para. 4.10(b));
- (h) in line with best international practices, request the incumbent to develop and publish RIOs to facilitate the conduct of interconnection negotiations and the reaching of interconnection agreements (para. 4.10(d));
- (i) maintain a public register of all interconnection agreements, or request operators to publish these agreements (para. 4.10(e));

Process of determination

- (j) closely monitor the progress of all determination cases to ensure that they are completed as soon as possible and within the time limits specified (para. 5.15(a));
- (k) carry out a detailed post-determination review on the completed cases to ascertain the factors that have contributed to the long processing time (para. 5.15(b));
- (l) document the lessons learnt from the post-determination review for future reference (para. 5.15(c));
- (m) for those in-progress cases received before September 2001, set time limits for their completion and ensure that they are completed as soon as possible (para. 5.15(d));

Monitoring of compliance with the 1998 Framework Agreement

- (n) conduct a post-implementation review of the 1998 Framework Agreement to establish whether the incumbent had fulfilled the “made ready for access” requirement under the Framework Agreement (para. 6.8(a)); and
- (o) identify areas for improvement and document the lessons learnt for future reference (para. 6.8(b)).

L. **Response from the Administration.** The Administration generally agrees with the audit recommendations (paras. 2.10 to 2.12, 3.16, 4.11, 4.16, 5.16, 6.9, 6.10 and 7.10).

PART 1: INTRODUCTION

1.1 This PART describes the background to the audit and outlines the objectives and scope of the audit.

Background

1.2 In Hong Kong, almost every business and household has a telephone. As at October 2001, there were 3.9 million telephone lines, made up of 2.2 million residential lines and 1.7 million business lines.

1.3 In line with global developments, Hong Kong is committed to progressively liberalising the telecommunications sector. The Government considers that the telecommunications industry underpins the services sector of Hong Kong. It is the Government's policy to promote fair and effective competition in the telecommunications market. The Government believes that competition is the best vehicle to protect and enhance consumer interests.

The regulatory framework

1.4 The telecommunications industry in Hong Kong is governed by the Telecommunications Ordinance (Cap. 106), the Telecommunications Regulations (subsidiary legislation) and the operator licences.

1.5 Telecommunications service providers require licences to operate in Hong Kong. Under the Telecommunications Ordinance, the Telecommunications Authority (TA) is responsible for administering the licensing regime and monitoring the market. Under section 5 of the Ordinance, the Director-General of Telecommunications is appointed by the Chief Executive as the TA. The Office of the Telecommunications Authority (OFTA) is the TA's executive arm.

1.6 OFTA was established as an independent government department in July 1993 to oversee the development of the regulatory regime and the introduction of competition to the telecommunications sector. Since June 1995, OFTA has been operating as a trading fund. OFTA has some 300 staff members and its responsibilities include economic regulation, technical regulation, enforcing fair competition rules, setting technical standards, coordinating the development of the telecommunications infrastructure, investigating consumer and industry complaints, managing the radio spectrum and providing advice to the Government on telecommunications matters.

1.7 The Information Technology and Broadcasting Bureau (ITBB) is the policy bureau of OFTA. The Secretary for Information Technology and Broadcasting is responsible for formulating telecommunications policies and the TA, through OFTA, is responsible for implementing these policies.

Introduction of competition to the local fixed telecommunications network services market

1.8 ***Introduction of competition in 1995.*** In 1992, following a comprehensive review of the telecommunications policy, the Government announced its intention to introduce competition to the local fixed network market. Competition was first introduced in July 1995 upon the expiry of the exclusive local telephone franchise held by the incumbent (Note 1) and with the issue of local wireline-based fixed telecommunications network services (FTNS) licences to three new entrant operators (hereinafter called the “new operators”). The incumbent was automatically granted a non-exclusive licence.

1.9 ***The 3-year moratorium.*** The three new operators started providing local telephone services in July 1995 in competition with the incumbent. In order to allow time for them to construct and operate their networks, the Government granted, as a condition of the licences, a 3-year moratorium during which the Government would not issue further local FTNS licences. The moratorium would end in June 1998.

1.10 ***The 1998 Framework Agreement.*** The incumbent also held another licence under the Telecommunications Ordinance, which provided him with exclusive rights for certain **external** telecommunications circuits and telephone services (Note 2). In January 1998, the Government agreed with the incumbent the terms for the early surrender of this licence. In the negotiations with the incumbent to open up the external telecommunications market, the Government endeavoured to further liberalise the local FTNS market. Under the Framework Agreement executed in January 1998 between the Government and the incumbent covering the terms and conditions for the surrender of the exclusive licence, the incumbent was required to enter into negotiations with the three new operators with a view to giving access of the exchanges, which served at least 50% of the residential exchange lines, to the new operators by 1 January 1999.

Note 1: *The term “incumbent” refers to the group of companies which operated the local wireline public telephone service by an exclusive concession under the Telephone Ordinance (Cap. 269) before July 1995.*

Note 2: *The licence was granted to the incumbent in 1981 and was originally due to expire in 2006.*

1.11 **Extension of the moratorium.** In May 1999, the Government extended the moratorium to the end of 2002. In return, the Government secured additional capital expenditure and network coverage commitments from the three new operators.

1.12 **Additional licences for wireless and wireline-based FTNS networks.** In early 2000, the Government issued five licences to operate local FTNS using wireless networks (wireless FTNS licences). At the same time, a television company was also issued with an FTNS licence to provide local telecommunications services over its hybrid fibre coaxial cable network, thereby becoming the fifth wireline-based network operator. Therefore, as at November 2001, there were ten local FTNS licences, comprising five wireline-based licences and five wireless licences. Although the five wireless FTNS licensees and the television company may provide voice telephone services under the licence conditions, they had not done so as at November 2001.

1.13 **Full liberalisation of local FTNS market from 2003 onwards.** In the 2000 and 2001 Policy Addresses, the Government pledged to invite applications by the end of 2001 for new local wireline-based FTNS licences with a view to fully liberalising the local FTNS market from **January 2003**. In January 2002, the Government announced that, having considered the comments of the public and the industry (made in response to OFTA's consultation paper), it had decided to proceed with the full liberalisation of the FTNS market.

Strong competition in the external telecommunications market compared with the local FTNS market

1.14 With the early surrender of the incumbent's licence under the Telecommunications Ordinance, the external services-based telecommunications market was open for competition in January 1999, followed by the facilities-based market (Note 3) in January 2000. Although the external telecommunications market was liberalised three years after the liberalisation of the local market, competition was much stronger in the external market. As at November 2001, the incumbent's overall market share in international telephone calls had dropped to 30% (from about 65% in early 1998). As a result of the strong competition, the call rates for international direct dialling (IDD) have continued to drop. In 1999 and 2000, the reductions in IDD charges were 30% and 44% respectively. The Government has estimated that, since the liberalisation of the external telecommunications market, consumer savings in 1999 and 2000 amounted to \$9.4 billion.

Note 3: *In external services-based competition, other operators can provide competitive telecommunications services over the facilities (cables, satellite links etc.) of a licensee permitted to own and operate such facilities. In external facilities-based competition, licensed providers can provide external facilities, or external public services over their own facilities.*

1.15 By comparison, competition in the local FTNS market has been less encouraging. Although competition was introduced into the local FTNS market in 1995, as at September 2001 the new operators had an overall market share of only 10%. The incumbent still retained a market share of 90%.

Audit review

1.16 Against the above background, Audit has conducted a review to examine the Government's efforts to liberalise the local FTNS market and to identify whether there are areas for improvement in the Government's performance.

1.17 The audit has focused on the following areas:

- (a) the Government's measurement and reporting of the progress of competition in the local FTNS market (see PART 2 below);
- (b) market share and availability of consumer choice (see PART 3 below);
- (c) difficulties relating to interconnections (see PART 4 below);
- (d) OFTA's procedures for making determinations on interconnection-related issues (see PART 5 below);
- (e) opening up of the incumbent's exchanges to the new operators (see PART 6 below); and
- (f) OFTA's monitoring of fulfilment of commitments by the new operators (see PART 7 below).

1.18 In a separate review, Audit has also examined the Government's management, as a user, of the use of telecommunications services. The findings of that review are reported in Chapter 2 of Report No. 38 of the Director of Audit of March 2002.

PART 2: GOVERNMENT'S MEASUREMENT AND REPORTING OF THE PROGRESS OF COMPETITION IN THE LOCAL FTNS MARKET

2.1 This PART examines the Government's performance in measuring and reporting of the progress of competition in the local FTNS market.

Performance indicators used by the Government

2.2 The creation of an open and competitive telecommunications market is a Key Result Area under the Government's Telecommunications Policy. Each year, through the ITBB Policy Objective Booklet and the OFTA Trading Fund Annual Report (Note 4), the Government reports the number of local FTNS licences issued and the number of local licensed operators, as a performance indicator for measuring competition in the local FTNS market.

2.3 In addition, through various other documents such as Executive Council (ExCo) memoranda and Legislative Council (LegCo) Panel papers, the Government has, on an ad hoc basis, reported other indicators such as the market share of the new operators, the percentage of consumers who have a choice of alternative operators and the price range (in terms of monthly rental) offered by various operators.

Measurement and reporting of the progress of competition by regulatory authorities abroad

2.4 Audit's research into the practices of the regulatory authorities of some advanced countries indicates that they publish a wide variety of information to help stakeholders gain a better understanding of the nature, extent and impact of competition. Apart from market share, such information typically includes the quality of service provided by the operators, consumer satisfaction and consumer benefits obtained as a result of competition.

2.5 Notably, the Office of Telecommunications (OFTEL) of the United Kingdom (UK) has set "effective competition — benefiting consumers" as its prime objective. This objective focuses on the outcomes of competition which benefit consumers in terms of lower prices, higher quality, greater choice of services, and consumers being able to exercise choice effectively. OFTEL has published a set of indicators and criteria for assessing the extent to which there is effective competition. These are shown in Table 1 below.

Note 4: *OFTA publishes a Trading Fund Annual Report which includes the financial results of the OFTA Trading Fund and an account of OFTA's activities and achievements for the year.*

Table 1

UK OFTEL's effective competition indicators

Indicator	Criteria
(A) Consumer outcome	<ul style="list-style-type: none">• Consumers enjoying “best or near best deal” in comparison with consumers in similar economies• A wide range of services available to consumers• Consumers satisfied with quality of service they receive• Sets of prices which broadly reflect underlying costs (i.e. absence of persistent excessive profits)
(B) Consumer behaviour	<ul style="list-style-type: none">• Consumers able to access information to help make effective choices• Consumers confident/knowledgeable in using information and in taking advantage of market opportunities• Absence of barriers for consumers to switch suppliers
(C) Supplier behaviour	<ul style="list-style-type: none">• Active competition in price and quality and innovation• Absence of anti-competitive behaviour• Absence of collusion• Meeting consumer needs• Efficient provision of services• Recent entry of new competitors
(D) Market structure	<ul style="list-style-type: none">• Limited entry barriers for potential competitors• Absence of inefficient suppliers• Limited ability of operators with market power in related markets to lever this market power into the particular market segment• Changes in market structure over time, especially a tendency to reduce concentration

Source: UK OFTEL, Implementing OFTEL's Strategy: Effective Competition Review Guidelines, August 2000

2.6 The UK OFTEL plans to conduct, once every two years, effective competition reviews based on the above indicators and criteria. Similarly, the Canadian Radio-television and Telecommunications Commission also conducts effective competition reviews in Canada.

Audit observations on the need to improve the Government's measurement and reporting of the progress of competition

2.7 Compared with OFTA in Hong Kong, the regulatory authorities of some advanced countries provide much more information for gauging whether competition is working effectively. For example, in Canada and the UK, the regulatory authorities place great emphasis on collecting and publishing information to facilitate the assessment of effective competition. They also conduct periodic effective competition reviews. **Audit considers that these are good practices.**

2.8 Audit notes that OFTA is already using a number of useful indicators to help assess the progress of effective competition in the telecommunications market in Hong Kong. However, measurement of effective competition is both an evolving and complex process and there is always room for further improvement. **Audit considers that there is a need for OFTA to make continued improvements by drawing on the experiences of advanced countries. This will facilitate the stakeholders' understanding and assessment of the extent to which effective competition has been achieved in Hong Kong.**

Audit recommendations on the Government's measurement and reporting of the progress of competition

2.9 Audit has *recommended* that the Director-General of Telecommunications should, building on the existing performance measures, make continued efforts to improve the Government's measurement and reporting of the progress of competition in the telecommunications market. In particular, he should:

- (a) develop more effective indicators of competition along the lines of those used by the regulatory authorities of advanced countries;
- (b) report to stakeholders (say at least annually) on these indicators of competition in documents such as the ITBB Policy Objective Booklet, the OFTA Trading Fund Annual Report and relevant LegCo Panel papers, and on a more frequent basis through OFTA's website; and
- (c) consider the need to conduct periodic effective competition reviews similar to those conducted by the regulatory authorities in Canada and the UK.

Response from the Administration

2.10 The **Director-General of Telecommunications** has accepted the audit recommendations mentioned in paragraph 2.9 above. He has said that:

- (a) he accepts that more effective indicators to demonstrate the degree and benefits of competition should be developed. However, competition in the local fixed telecommunications market should not be judged by the extent of competition in the provision of telephone line services alone. The effectiveness of competition in other sectors of the local fixed telecommunications market (e.g. leased circuits and broadband lines) should also be included. He will consider the indicators used by regulatory authorities abroad and adopt those or introduce new ones that are appropriate to the local environment;
- (b) he accepts that the indicators should be updated and published regularly. The relevant indicators will be included in public documents, such as the ITBB Policy Objective Booklet, the OFTA Trading Fund Annual Report and papers to the relevant LegCo Panel, as appropriate. More detailed and updated indicators will be published at the OFTA website; and
- (c) he will consider the need to conduct regular reviews on the effectiveness of competition in the local fixed telecommunications services market. An opportune time for the first review will be 2003 when the market will be fully open.

2.11 The **Secretary for Information Technology and Broadcasting** has said that:

- (a) she accepts Audit's recommendation that the Government should continue to develop more effective and objective indicators. The ITBB will make reference to work done by other regulatory authorities. The ITBB believes that there should be multiple indicators to give a more educated assessment of the degree and benefits of competition, in the context of a comprehensive in-depth analysis. The ITBB shares OFTA's caution on the reference made to market share of new entrants to assess the state of competition (Note 5), and in the local voice telephony services only. The work on development of indicators should cover other segments in the local fixed telecommunications market such as leased circuits and broadband services which meet the needs of an Information Society; and

Note 5: *While market share is a relevant and useful indicator, Audit has not suggested that it should be the sole indicator. Audit considers that effective competition should be assessed by using more effective indicators such as those used by the UK OFTEL as shown in Table 1 in para. 2.5 above.*

- (b) she also accepts Audit's recommendation to publish such indicators and relevant information in public documents as appropriate. More up-to-date information may be uploaded regularly in OFTA's website for public information.

2.12 The **Secretary for Economic Services** has said that:

- (a) the objective of the Government's competition policy is to enhance economic efficiency and the free flow of trade, thereby benefiting consumer welfare. The Government is committed to promoting competition as a means of achieving this objective, not as an end in itself. As a general principle, the Government considers that competition is best nurtured and sustained by allowing free play of market forces and keeping intervention to the minimum. The Government will strike the right balance between competition policy considerations on the one hand, and other policy considerations (such as prudential supervision, service reliability, social service commitments, safety etc.) on the other; and
- (b) the Government adopts a sector-specific approach in the pursuit of its competition policy, which means that, guided by an overarching competition policy framework, bureaux and departments would consider the need to introduce specific measures to promote competition in sectors under their purview. Regarding the telecommunications sector, the specific measures to promote competition include putting in place statutory competition safeguards.

PART 3: MARKET SHARE AND AVAILABILITY OF CONSUMER CHOICE

3.1 As mentioned in paragraph 2.3 above, through various documents, the Government has reported indicators such as the market share of the new operators and the percentage of consumers having a choice of alternative operators. This PART examines the trend of market share and the extent to which consumers have a choice of alternative operators in the local FTNS market.

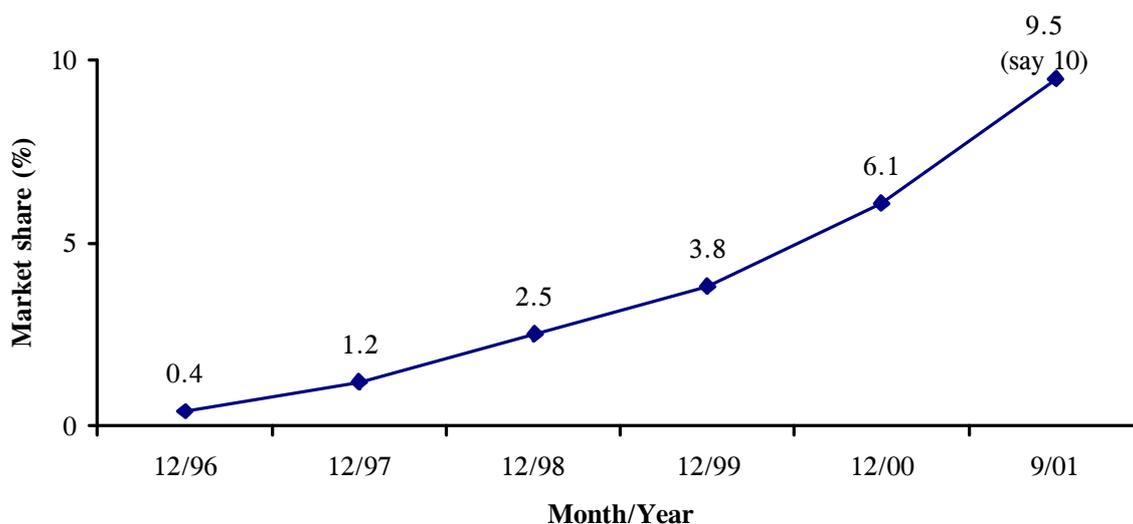
New operators' market share

3.2 In a LegCo Brief in May 1999, the Government informed LegCo that, since the three new operators obtained their licences in June 1995, they had achieved in total less than 3% of the local fixed line market. In order to enhance competition and encourage the rolling out of telecommunications facilities, the Government would extend the moratorium on the issue of further local FTNS licences to 31 December 2002, subject to satisfactory commitments from the three new operators on further network roll-out during the moratorium (see para. 1.11 above).

3.3 As at September 2001, according to the market information collected by OFTA, the new operators had achieved a market share of 10%. Figure 1 below shows the market share of the three new operators for the years 1996 to 2001.

Figure 1

Market share of new operators
in the local FTNS market (%)



Source: Audit's analysis of OFTA's records

3.4 A further analysis indicated that the overall market share (as at September 2001) achieved by the new operators was made up of 5% in the residential sector and 15% in the business sector, as shown in Table 2 below.

Table 2

**Market share achieved by new operators
in the local FTNS market (as at September 2001)**

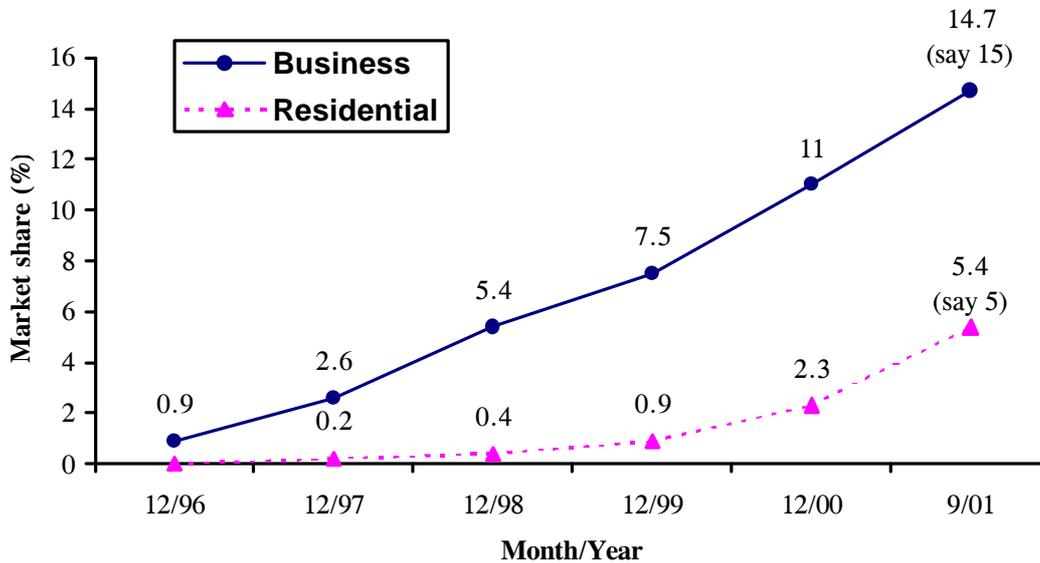
Type of fixed telephone exchange line	Total number	Number served by new operators	New operators' market share
	(in 000's)	(in 000's)	(%)
Residential	2,171	116	5%
Business	1,755	257	15%
Total	3,926	373	10%

Source: OFTA's records

3.5 The new operators have gained a larger market share in the business sector. This is apparently because they have focused more on the business sector which is relatively more profitable. Figure 2 below indicates that, although the new operators enjoy a larger market share in the business sector, the growth rate of market share in the residential market has accelerated in recent years, and has exceeded that in the business market.

Figure 2

Market share of new operators
in business and residential sectors



Source: Audit's analysis of OFTA's records

OFTA's comments on new operators' market share

3.6 Noting that the new operators have achieved a market share of only 10%, six years after the introduction of competition, Audit has sought OFTA's comments on whether the market share situation warrants attention and reinforces the need for periodic effective competition reviews in Hong Kong. In response, OFTA has said that:

- (a) competition at the local fixed telecommunications network level normally takes longer time to develop, compared with other sectors of the telecommunications market. This is because of the need to construct customer access networks to the customers' premises, or lay optical fibre cables to the incumbents' exchanges for interconnection to reach the customers;
- (b) before September 1999, the tariff of local residential telephone line service was \$68.9 per month which was significantly below cost and subsidised by IDD services. There was not much incentive for the new operators to offer local residential telephone line services at that time. Meaningful competition actually started in 1999 (not 1995) when the tariff was raised to \$90 per month; and
- (c) the progress of development in competition in local fixed telecommunications services in Hong Kong is comparable to, or even better than, other countries where similar market liberalisation has been implemented (see Appendix A for details).

Availability of consumer choice

3.7 In 1999, the Government informed ExCo that, in return for extending the moratorium to 31 December 2002, the three new operators had committed to certain capital and network investment (see para. 7.3 below). They were expected to have their networks connected to 50% of the incumbent's residential lines by the end of 2002. This involved the co-location of the new operators' equipment at 27 exchanges of the incumbent (Note 6), and the connection of the new operators' networks with the incumbent's network served by these exchanges. **The Government estimated that, with the operators' commitments, by the end of 2002, over 50% of the residential customers would have the choice of an alternative service provided by one of the three new FTNS operators.** In February 2001, the Panel on Information Technology and Broadcasting (ITB Panel) of the LegCo was also informed of this 50% target.

3.8 As at November 2001, the new operators had co-located their equipment at 24 exchanges which together served 47% of the residential customers.

Audit's survey of service areas served by co-located exchanges

3.9 **Audit objective.** It is OFTA's assumption that, once a new operator has co-located his equipment at an exchange of the incumbent, **all** customers served by that exchange will have a choice of switching to the service provided by the new operator. In November 2001, Audit conducted a telephone survey to find out whether this assumption was valid.

3.10 **Audit methodology.** Audit selected the service areas of six co-located exchanges for survey, including three on Hong Kong Island, two in Kowloon and one in the New Territories. The six exchanges were chosen among those that had been co-located for more than one year. For each co-located exchange chosen, Audit staff selected 15 residential addresses and made telephone enquiries with all the new operators about service availability.

3.11 **Audit results.** The results of the telephone survey indicated that for 30% of the residential addresses selected for survey, Audit received a "no service" response from all three new operators (Note 7). The standard response was that "the network has not yet been connected to the building". Table 3 below shows the details.

Note 6: *A co-located exchange is a telephone exchange owned by the incumbent where new operators can install their equipment for accessing the incumbent's local network covered by the telephone exchange. In order to understand how co-location arrangements are made and how cables and equipment are installed in buildings, Audit visited one co-located exchange and a number of residential and commercial buildings in October 2001 (see Appendix B for details).*

Note 7: *The objective of the telephone survey was to test the validity of OFTA's assumption of the availability of consumer choice in areas covered by co-located exchanges. A judgmental audit sample was selected to achieve this objective. While the audit sample served its purpose, it was not intended to be a representative sample and the sampling result should not be used to make any projection or deduction.*

Table 3

Results of Audit's survey in November 2001

Co-located exchange selected for survey	Number of residential addresses surveyed	Number of addresses with "no service" response from all three new operators (with %)	Number of addresses for which at least one new operator indicated service was available (with %)
Hong Kong			
Shau Kei Wan	15	0 (0%)	15 (100%)
Wan Chai	15	8 (53%)	7 (47%)
Queen's Road	15	5 (33%)	10 (67%)
Kowloon			
Jordan	15	9 (60%)	6 (40%)
Ngau Tau Kok	15	1 (7%)	14 (93%)
New Territories			
Kwai Chung	15	4 (27%)	11 (73%)
Total	90	27 (30%)	63 (70%)

Source: Audit's survey conducted in November 2001

3.12 **Customers' applications have to go through another procedure.** Under the existing arrangement, even if a new operator tells a customer that the service is available (i.e. he can switch to the service provided by the new operator), the customer's application has to go through another procedure, before the customer can switch to the new operator. This is because the success of the switching depends on the incumbent's acceptance of the new operator's application for Type II interconnections (see para. 4.3 below) for the residential line concerned. Furthermore, Audit notes that OFTA does not require the operators to keep, and report to OFTA, statistics of the incumbent's rejections of the new operators' applications for Type II interconnections. Without such statistics, it is not clear what the rejection rate is and why the applications were rejected.

Audit observations on availability of consumer choice

3.13 It is OFTA's assumption that all customers served by a co-located exchange will have a choice of switching to the service provided by the new operators. **However, Audit's telephone survey has revealed that this is not the case. In response to the audit findings, OFTA informed Audit in January 2002 that it had carried out a similar telephone survey in November 2001 in parallel with Audit's survey, that similar findings were noted in its own survey, and that it was taking follow-up action on the findings.** OFTA also informed Audit that failure by the new operators to provide services to customers served by the co-located exchanges could constitute a breach of the licence conditions. It undertook to follow up the cases identified by Audit.

3.14 With regard to the Type II interconnection procedure mentioned in paragraph 3.12 above, Audit considers that there is a need for OFTA to collect statistics on a regular basis in order to ascertain the rejection rates and the reasons thereof. This will help OFTA monitor effectively the availability of consumer choice and take timely follow-up action. In response to the audit findings, OFTA informed Audit in January 2002 that regular meetings with the operators had been held (through a forum known as the Forum to develop and coordinate the implementation of the Code of Practice for Interconnection to Local Access Links — the COP Forum) to address interconnection problems encountered at particular exchanges, and that relevant statistics were presented at those meetings as and when required to facilitate discussions. Nevertheless, OFTA would consider the need to collect, analyse and report on a regular basis, statistics of rejections for management information purposes.

Audit recommendations on availability of consumer choice

3.15 **Audit has recommended that the Director-General of Telecommunications should, for those areas already covered by co-located exchanges:**

- (a) **conduct periodic surveys similar to that conducted by Audit to ascertain the extent to which residential customers can really choose their preferred operators;**
- (b) **in cases where a "no service" response is given by the new operators, ascertain whether or not they have breached the licence conditions and, if a breach is established, take appropriate action to enforce the licence conditions; and**
- (c) **for management information purposes, consider the need to regularly collect, analyse and report statistics of the incumbent's rejections of the new operators' applications for Type II interconnections.**

Response from the Administration

3.16 The **Director-General of Telecommunications** has accepted the audit recommendations mentioned in paragraph 3.15 above. He has said that:

- (a) OFTA conducted its first survey on 6 November 2001 to ascertain whether residential customers had alternative choice of suppliers of telephone lines. Since November 2001, the surveys have been conducted once a month. OFTA agrees that these periodic surveys should be continued. OFTA has also published the network coverage of the new operators on OFTA's website since September 2001 to let the public have a clearer picture of the coverage of the services of the new operators;
- (b) OFTA has sought the new operators' explanations on the "no service" responses recorded in the telephone surveys (including the responses received by Audit). OFTA has obtained their assurances that there is no intention of refusing service where the network coverage has already reached the customers concerned. OFTA has also stated that refusal to provide service to customers at locations where an operator's network has coverage is in breach of a licence condition and the TA will take appropriate actions to enforce it; and
- (c) as noted in paragraph 3.14 above, OFTA has been using the COP Forum, which comprises representatives of the local fixed network operators, to monitor the rejection rate of the applications for Type II interconnections. In fact, upon detection of an unduly high rejection rate as reported in the COP Forum in December 1999, actions were taken to amend the inter-operator coordination procedures to lower the rejection rate. The COP Forum meetings are currently held on a weekly basis. OFTA will continue to monitor the process of Type II interconnections through the COP Forum. OFTA will also ask the operators to submit regularly rejection statistics and analyse the reasons for rejections of Type II interconnections.

PART 4: DIFFICULTIES RELATING TO INTERCONNECTIONS

4.1 This PART examines the difficulties relating to interconnections encountered by the local FTNS operators.

The importance of interconnections

4.2 Interconnection is a prerequisite for opening up the local market to competition. In a multi-network environment, it is essential that all networks interconnect with each other so that the customers of a network can directly communicate with the customers of all other networks efficiently and conveniently. Without such interconnections, it would be extremely difficult for new entrants to compete effectively with the incumbent. Interconnection problems have posed significant challenges to regulators.

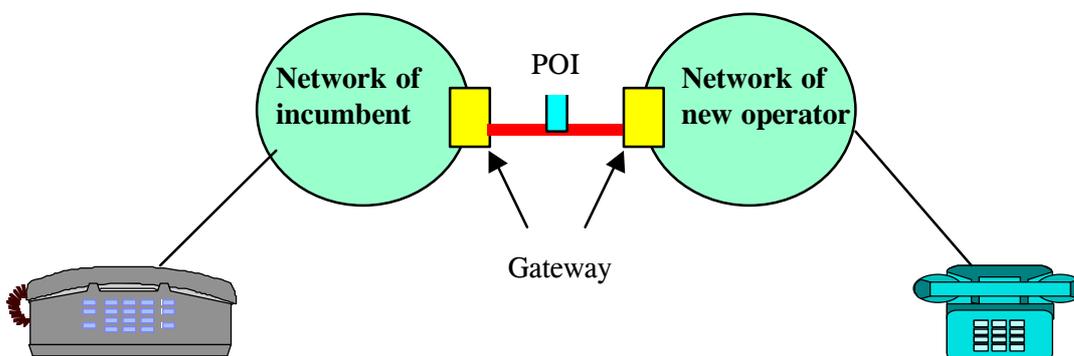
Types of interconnection

4.3 There are two types of interconnection, namely Type I interconnection and Type II interconnection. Type I interconnection refers to the interconnection between network gateways via points of interconnection (POIs). Type II interconnection (or commonly known as “local loop unbundling” in European countries) is the interconnection of a new operator’s network with the incumbent’s network at the local loop level (Note 8). Figures 3 and 4 below show the two types of interconnection.

Note 8: *A local loop is the wired connection from a telephone company’s central office in a locality (e.g. an exchange) to its customers’ telephones at homes and business premises. This connection is usually on a pair of copper wires.*

Figure 3

Type I interconnection

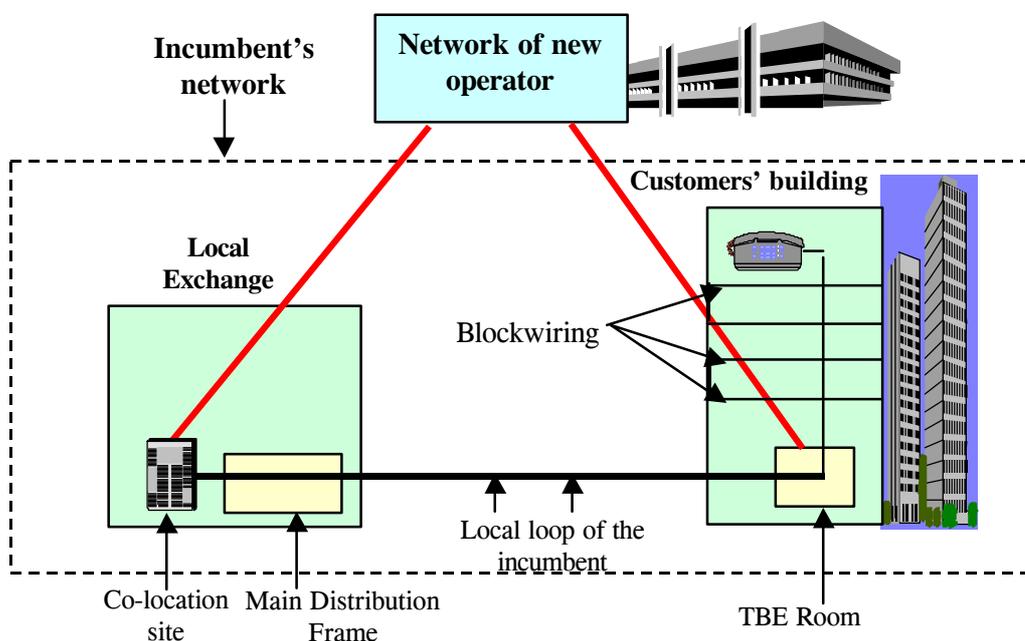


Source: OFTA's records

Note: Without Type I interconnection, consumers would be reluctant to be connected to the network of a new operator because most of the phone numbers they want to call would still be kept in the incumbent's network.

Figure 4

Type II interconnection



Source: OFTA's records

Note: Type II interconnection can be made in two ways: (a) by connecting the new operator's network to the incumbent's local loop at an exchange of the incumbent; or (b) by providing interconnection at the telecommunications and broadcasting equipment (TBE) room of a building to the existing blockwiring owned by the incumbent. Without Type II interconnection, the new operators would have to duplicate the customer access networks first (e.g. laying of another set of telephone cables) before they can deliver their services to the customers.

Principles and Code of Practice for interconnections

4.4 In consultation with the industry, OFTA has issued guidelines in the form of the TA's Statements setting out the principles relating to interconnection and related competition issues. It has also issued an Industry Code of Practice (COP) for interconnections. The COP sets out the technical procedures and relevant implementation details for network interconnection, and the provision of related supporting facilities. OFTA has adopted a light-handed and market-driven approach to regulating the telecommunications market. It expects the operators to follow the TA's Statements and the COP in negotiating their commercial arrangements.

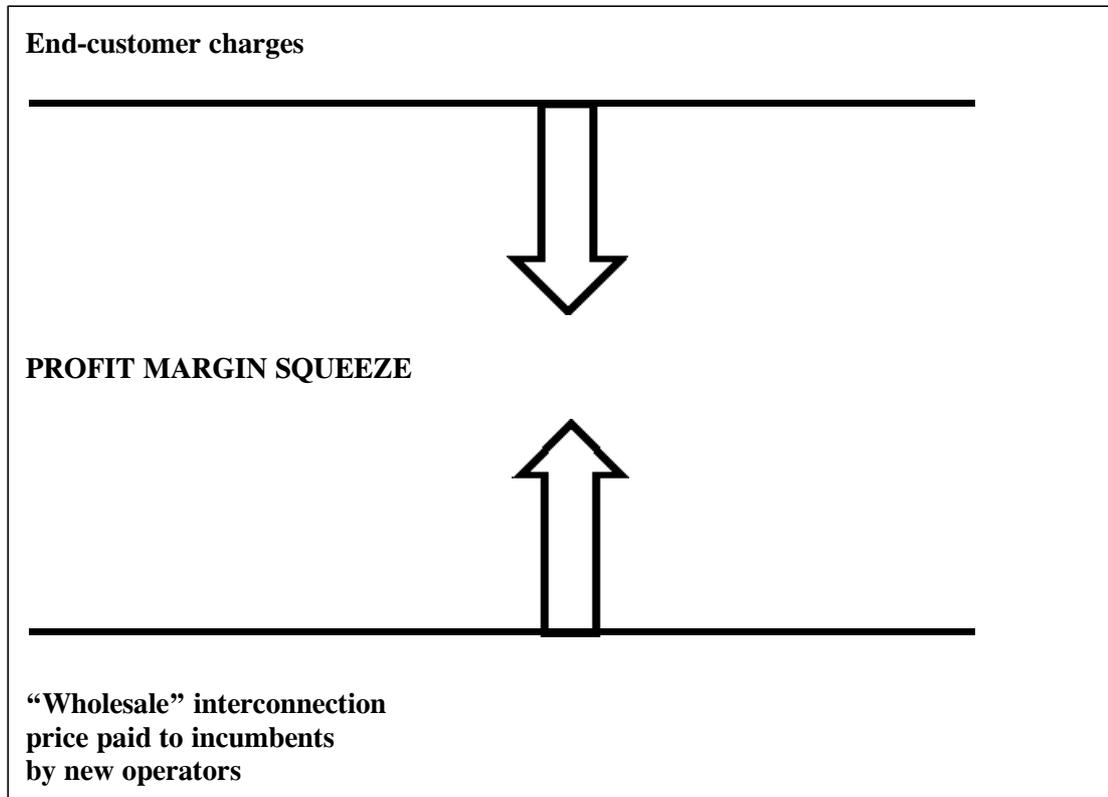
Common problems encountered by other countries on interconnections

4.5 Audit's research on the experiences of other countries indicates that, in opening up the telecommunications market to competition, there are common problems relating to interconnections. Examples of such problems are:

- (a) **Non-pricing issues.** Network interconnection can be a problematic and protracted process. The bargaining power during negotiations usually lies with the incumbents and new operators are usually in a weaker position; and
- (b) **Pricing issues.** Successful and sustainable competition by new operators in the market depends on the profit margin attainable in that market. When the profit margin is thin, new operators may find it difficult to earn sufficient profits for the business to be commercially viable and may eventually be forced to leave the market. The profit margin depends on the level of local telephone charges set for the end-customers and the "wholesale" interconnection prices (Note 9) charged to the new operators by the incumbents. A reasonable wholesale interconnection price is an important prerequisite to enable competition to develop. In some countries, the incumbents have adopted a strategy of deliberately lowering or keeping the end-customer charges low while increasing the wholesale interconnection prices they charge the new operators. This "squeezes" the new operators' profit margin for sustainable competitive entry. This is commonly known as "vertical price squeezing", as illustrated in Figure 5 below.

Note 9: *"Wholesale" interconnection prices refer to the charges levied by the incumbents on new operators for connecting their networks with the incumbents'.*

Figure 5
Vertical price squeezing



Source: Audit’s research

Audit’s case studies of interconnection issues in Hong Kong

4.6 To ascertain if there are common interconnection problems in Hong Kong, Audit selected from OFTA’s records a number of cases for study. The case studies indicate that interconnection problems in Hong Kong, like those in other countries, often take a long time to resolve. Examples of Audit’s findings are given below.

Case Study A

Quota restriction on daily cut-overs per exchange per operator

Case particulars

Under the current operational arrangements, the incumbent allows a quota of 9 local access link (LAL) cut-overs (Note 10) per every two hours (subject to a maximum of 36 cut-overs per new operator per day) during normal working hours at each exchange for each of the new operators. Additional payments to the incumbent are required to meet requests for extra cut-overs during non-working hours.

In February 2001, OFTA requested the incumbent to combine the daily quota (i.e. during normal working hours) of 36 cut-overs for each of the three new operators to form a single pool of 108 cut-overs per exchange. The incumbent rejected this request on the grounds that it was neither practical nor useful to do so due to physical constraints which prevented the connection of a large number of customers for a single new operator at the same time.

In April 2001, a new operator complained to OFTA that the incumbent's productivity for LAL cut-overs was too low, and this had seriously affected his market penetration. For example, the new operator complained that he had received a lot of enquiries and complaints about the long installation waiting time from his customers at one of the big housing estates in Hong Kong. In May 2001, the new operator demonstrated to OFTA that it was possible to carry out 30 cut-overs (instead of 9) in two hours.

In June 2001, the incumbent commissioned a consultant to provide an independent assessment of the time needed to carry out the cut-overs. The study concluded that the scope for performance improvement was small.

In November 2001, the incumbent finally agreed to increase the number of cut-overs from 9 to 16 per two hours per new operator per exchange. The revised quota would be applied for a trial period of six months, effective from January 2002.

In December 2001, the incumbent made a commercial proposal to the three new operators demanding an additional one-off charge for every LAL cut-over during the trial period. In view of this proposed additional charge, two new operators indicated that they would not participate in the trial scheme and one new operator asked for a postponement of the commencement date of the trial scheme. As at 31 December 2001, the matter was still under discussion.

Note 10: *An LAL is the link provided by a 2-wire copper line connecting the premises of the customer and the Main Distribution Frame of the incumbent's exchange. The term "cut-over" refers to the switching of a telephone line from one operator's network to that of another operator.*

Case Study A (Cont'd)

Quota restriction on daily cut-overs per exchange per operator

Audit comments

The interconnection issue was problematic. It had taken nine months (February 2001 to November 2001) for the parties to agree on a revised daily quota of LAL cut-overs. However, the additional charge proposed by the incumbent raised yet another dispute. It is not known how much time it will take for the parties to resolve the problem.

Source: OFTA's records

Case Study B

Prolonged time to conclude commercial agreement on Type II interconnection

Case particulars

In May 1998, a new operator filed a request seeking the TA's determination on the terms and conditions of interconnection between his and the incumbent's fixed networks under the Type II interconnection arrangement.

The TA accepted the request for determination but, at the same time, acted as a mediator in the dispute. Through the TA's mediation, in December 1998 the incumbent and the new operator agreed to a periodic service charge of \$42 a month per line. In April 1999 they concluded the commercial agreement.

Audit comments

It took 7 months for the parties concerned to agree on the Type II interconnection prices and another 4 months to conclude the agreement.

Source: OFTA's records

Case Study C

Provisioning of POI facility for Type I interconnection

Case particulars

In May 1999, a new operator sought OFTA's assistance in his negotiations with the incumbent on the provisioning of POI facility for Type I interconnection. He said that in the last two months, there was a great demand for connections from his customers which meant that there would be a sharp growth of POI capacity demand in the coming two years. The incumbent informed him that the majority of the POI capacity demand could not be met within the timeframe required by the new operator.

In November 1999, the incumbent asked the new operator to provide a breakdown of the forecasted links to the various routes and sought the new operator's unequivocal confirmation of his commitment, in order to fairly compensate the incumbent's additional costs. The new operator declined the incumbent's request, indicating that he did not believe such details were necessary at that stage for forecasting or implementation purposes.

In February 2000, the new operator submitted a request to the TA for a determination on the terms and conditions for the provision of POI capacity for interconnection between his fixed telecommunications network and that of the incumbent. **The TA made his determination in March 2001.** According to the determination, the incumbent was required to enter into a POI Capacity Supply Agreement with the new operator on the terms and conditions determined. The new operator was required to make commitments on the level of utilisation of POI circuits, which exceeded the "normal" level of POI capacity. **In November 2001, the TA issued a supplementary determination on the method for calculating the "normal" level of POI capacity.**

Audit comments

The issue had been under dispute for months before the TA's determination was sought in February 2000. It then took more than one year for the TA to make his determination. Even after the determination, disputes continued. In November 2001, the TA had to make a supplementary determination.

Source: OFTA's records

Audit observations on the long time taken to resolve interconnection problems

4.7 ***The need to shorten the negotiation process.*** In Audit's view, the long time taken in the negotiations of interconnection matters could have adverse effects on the business planning and operation of the parties concerned, particularly for the new operators whose market position was relatively weak. **In the interest of promoting effective competition, Audit considers it necessary for OFTA to find ways of shortening the time taken to conduct the interconnection negotiations. It is also necessary for OFTA to draw on the experiences of other advanced countries in devising improvement measures (see paragraphs 4.8 and 4.9 below).**

4.8 ***Reference interconnection offers.*** Audit's research indicates that many countries publish the relevant particulars of interconnection, in the form of reference interconnection offers (RIOs — Note 11), which facilitate and reduce the time taken to conclude interconnection negotiations. Some countries have found that publishing RIOs, under the supervisory control of a regulatory authority, enhances transparency and promotes non-discriminatory behaviour. The key features of RIOs include the following:

- (a) locations and POIs at which new operators may interconnect with the incumbents' networks;
- (b) physical and logical interfaces to the incumbents' networks that allow physical interconnection and access to the incumbents' infrastructure;
- (c) description of service provisioning timeframes provided by the incumbents and remedies for delays;
- (d) price, terms and conditions for new operators to lease the incumbents' local loop, ducts, manholes and other infrastructure that is necessary for providing competing telecommunications services;
- (e) the means by which new operators can physically co-locate equipment within the incumbents' networks; and
- (f) the dispute resolution process.

Note 11: *Many countries have now adopted the use of RIOs, including Austria, Finland, France, Germany, Ireland, Italy, Spain, Singapore and the UK.*

4.9 **Interconnection agreements.** Apart from publishing RIOs, Audit's research indicates that, in order to further promote transparency, some regulatory authorities maintain public registers of interconnection agreements, or require the publication of such agreements by operators. In some countries, interconnection agreements are available on the regulator's website.

Audit recommendations on measures to facilitate resolution of interconnection problems

4.10 **Audit has *recommended* that the Director-General of Telecommunications should:**

- (a) **monitor the time taken for conducting major interconnection negotiations between the incumbent and the new operators;**
- (b) **take appropriate measures to facilitate the early resolution of interconnection disputes;**
- (c) **keep in view developments and practices relating to interconnection matters in advanced countries and, where appropriate, draw on their experiences in devising improvement measures;**
- (d) **in line with best international practices, request the incumbent to develop and publish RIOs to facilitate the conduct of interconnection negotiations and the reaching of interconnection agreements; and**
- (e) **maintain a public register of all interconnection agreements, or request operators to publish these agreements.**

Response from the Administration

4.11 **The Director-General of Telecommunications has said that:**

On the audit recommendations in paragraphs 4.10(a) and (b)

- (a) the audit recommendations are noted. The TA appreciates that the aim of Audit's recommendations is to facilitate the early resolution of interconnection problems. This is also the goal of the TA. In fact, the TA has been making his best endeavour to achieve this goal since the introduction of competition in the local FTNS market;

- (b) the TA is at present using a light-handed and market-driven approach to regulate network interconnection. The merit of this approach is that it allows network operators, through commercial negotiations, to strive for their maximum benefits and make deals in the most efficient and fairest manner. Through dialogues with the industry, OFTA has been aware of the progress of negotiations of major interconnection agreements. Where necessary, OFTA has been giving guidance on various aspects of the regulation (e.g. the interpretation of certain TA Statements) to facilitate the progress of the negotiations. Mediation meetings have also been conducted to deal with genuine deadlocks. OFTA considers that it is not necessary to extend its monitoring function beyond this level. OFTA accepts that, only in very exceptional circumstances where public interest so justifies, OFTA would intervene without receiving requests from the negotiating parties;

On the audit recommendation in paragraph 4.10(c)

- (c) the TA agrees with Audit's observation that keeping in view of the developments on interconnection arrangements in advanced countries is helpful. In fact, the TA has been doing so for many years. However, it should be noted that as the legislation, licence conditions and environment of different jurisdictions are very different, the regulatory decisions in other jurisdictions on interconnection would only be useful as references and, more often than not, could not be directly followed in making the regulatory decisions in Hong Kong. Apart from closely monitoring the developments of interconnection arrangements in advanced countries, the TA also has close contact with the regulatory agencies in countries with similar liberalisation policies to share with them the experiences in regulating the telecommunications industry;

On the audit recommendation in paragraph 4.10(d)

- (d) the audit recommendation is accepted in principle. However, the existing legislation and licence conditions in Hong Kong have not explicitly provided for the publication of RIOs of the dominant operator. The same objectives have been largely accomplished through other alternative means, as follows:
- (i) publication of the terms and conditions of interconnection determined by the TA which would form the benchmark for the industry. Through this means, the levels of interconnection charges for Type I interconnection between networks have been published for the industry's reference since August 1998;
 - (ii) regular reviews and publication by the TA of certain critical interconnection rates (e.g. the interconnection charges for mobile services, external gateway prices and Local Access Charges); and

- (iii) discretion by the TA to publish the interconnection agreements filed with the TA under section 36A(5C) of the Telecommunications Ordinance;

- (e) OFTA agrees that in certain cases it is desirable to require the dominant operators to submit RIOs for the TA's approval and publish the approved offers. In the carrier licences issued in October 2001 for the third-generation mobile services, OFTA has already included a licence condition requiring the network operators to publish RIOs and the charges under the RIOs may be reviewed and determined by the TA. In the consultation paper published in September 2001, OFTA has also raised the issue of requiring the dominant operator to publish RIOs. OFTA will continue to review the powers of the TA to implement this requirement; and

On the audit recommendation in paragraph 4.10(e)

- (f) the audit recommendation is accepted in principle. It should be noted that the TA has been maintaining a register of all interconnection agreements concluded by network operators since 30 June 2000. The TA has no power to direct the operators to publish the interconnection agreements, but has power to publish the agreements filed with him if public interest so justifies. Before making the register public or publishing the interconnection agreements filed with the TA, the TA is required by law to consider whether it is in the interest of the public for him to do so and to give the relevant parties an opportunity to make representations on which parts of the interconnection agreement should not be disclosed. These are requirements under section 36A(5C) of the Telecommunications Ordinance.

Interconnection charging

4.12 ***Current charging rates.*** With regard to the common problem mentioned in paragraph 4.5(b) above, at present the incumbent is charging the new operators for Type II interconnections at the rate of \$42 per line per month (i.e. the periodic usage charge). In addition, there is a one-off installation (i.e. cut-over) charge of \$475 for a Basic Grade line, and \$875 for a Premium Grade line (Note 12). The rates were fixed by commercial negotiations with the TA's mediation in 1998 (see Case Study B in para. 4.6 above).

4.13 ***Review of charging principles.*** In April 2001, the incumbent made a request to OFTA for a review of the charging principles. He considered that the current methodology for deriving interconnection charges on the basis of the lower of the "current or replacement costs" or the

Note 12: *A Premium Grade connection can provide a faster transmission rate with better quality than a Basic Grade connection.*

“historical costs” of his network involved an implicit subsidy to the new operators. The incumbent considered that the low interconnection charges so derived might lead to the deferral of plans by the new operators to build their own networks and infrastructure, resulting in an over-reliance on the incumbent’s network. OFTA accepted the incumbent’s request for a review on the charging principles for interconnections. As at November 2001, the review was in progress.

Audit observations on interconnection charging

4.14 The review of charging principles for interconnections may lead to an increase in interconnection charges. This will increase the risk of “vertical price squeezing” which could jeopardise effective competition (see para. 4.5(b) above).

Audit recommendations on interconnection charging

4.15 Audit has *recommended* that the Director-General of Telecommunications should:

- (a) critically assess the risk of “vertical price squeezing” and its likely effect on effective competition in the local FTNS market; and
- (b) take due account of the results of the assessment in OFTA’s review of the charging principles for interconnections.

Response from the Administration

4.16 The Director-General of Telecommunications has said that:

- (a) the TA agrees with Audit’s view that the risk of “vertical price squeezing” is a relevant issue in the determination of interconnection prices. As the FTNS operators are allowed to offer both wholesale and retail services, there is always a risk that they would commit the malpractice of “vertical price squeezing”; and
- (b) the TA has always considered such a risk and its likely effect on effective competition in his past decisions in the regulation of the telecommunications market. In the review of the charging principles for interconnections and guidelines for abuse of dominant position, the risk of “vertical price squeezing” will also be an important factor for consideration by the TA.

PART 5: OFTA's PROCEDURES FOR MAKING DETERMINATIONS ON INTERCONNECTION-RELATED ISSUES

5.1 This PART examines OFTA's procedures for making determinations on interconnection-related issues.

TA's power of making determinations

5.2 Section 36A of the Telecommunications Ordinance empowers the TA to determine the terms and conditions of interconnection, including financial and technical terms and conditions, that the TA considers fair and reasonable. Section 36B empowers the TA to issue directions to operators to secure interconnection between networks.

5.3 According to the FTNS licences, operators should use all reasonable endeavours to ensure that interconnection is completed promptly and efficiently, and that the charges are based on reasonable relevant costs. Normally, the TA would prefer the operators to agree among themselves the terms and conditions of interconnection on a commercial basis. If a commercial agreement cannot be reached within a reasonable time, either party may request the TA to make a determination on the relevant terms and conditions. The TA is also empowered under section 36A of the Telecommunications Ordinance to make an interconnection determination in the absence of a request, if he considers it in the public interest to do so.

5.4 Very often, OFTA prefers to carry out an informal mediation to resolve interconnection-related disputes between operators, instead of resorting to the more formal process of determination under section 36A.

5.5 The principles upon which the TA will make a determination under section 36A are elaborated in Statements issued by the TA, which are subject to periodic reviews in consultation with the industry. The procedures for making a determination on the terms and conditions of interconnection were first promulgated in October 1995 and later revised in September 2001.

5.6 OFTA keeps a register of the determinations made by the TA. OFTA also publishes on its website details of the determinations.

Procedures for determination

5.7 The procedures for determination (as revised in September 2001) consist of three stages. Each stage is further divided into several steps, as follows:

(a) **Stage 1: Consideration of request for determination**

- the party seeking a determination has to make a written request to the TA. The request should provide the necessary details and copies of the relevant documents;
- the TA informs the requesting party whether the request for determination will be processed as a normal case or a complex case, or whether a different set of time limits will apply;
- the TA then asks the other party concerned whether he would like to make a representation;
- the TA considers whether to accept or decline the request for determination;

(b) **Stage 2: The proceedings**

- if the TA decides to accept the request, both the requesting party and the other party will be invited to make written submissions before a stated deadline. Both parties will copy their submissions to the other party for comments. The TA may require either party to provide additional information;
- both parties comment on the other party's submissions;
- the TA may appoint an Interconnection Determination Committee (IDC — Note 13) or engage consultants to assist him;
- the TA issues a preliminary analysis;
- the TA invites both parties to comment on the preliminary analysis; and

Note 13: *The IDC is composed of members from OFTA and, where necessary, other government departments or outside experts/consultants. It assists the TA in performing his statutory functions under section 36A of the Telecommunications Ordinance.*

(c) **Stage 3: Promulgation of the TA's determination**

- the TA makes a determination on the terms and conditions of the proposed interconnection.

Improvements in the determination procedures

5.8 Compared with the procedures for determination which existed before September 2001, OFTA has made the following improvements in the revised procedures:

- (a) time limits (to which the parties concerned are required to adhere) have been specified for each stage of the procedures. It is expected that a normal case will take 4¾ months to complete (or 3¼ months if a preliminary analysis is not required) and a complex case will take 6½ months (or 4½ months if a preliminary analysis is not required);
- (b) the TA may, at his discretion, shorten the time limits in inset (a) above to deal with urgent or straightforward cases. In circumstances where a complex analysis or study is required, the TA may at his discretion apply a different set of time limits to process the case; and
- (c) the parties concerned are required to copy their submissions to the TA directly to other parties. Any information or comments received after the deadline mentioned in paragraph 5.7(b) above will be disregarded.

The revised procedures will apply to those requests for determination received in and after September 2001.

Time taken for determination in four completed cases

5.9 Up to November 2001, the TA had made determinations in 14 cases, four of which were related to the local FTNS. As shown in Table 4 below, Audit's analysis of these four cases indicates that, on average, the process of determination took about 15 months to complete.

Table 4**Time taken for TA's determination in four local FTNS cases**

	Subject matter for determination	Date of request	Date of TA's determination	Time taken (Note 1)
		(a)	(b)	(c) = (b) - (a)
				(Months)
Case 1	The terms and conditions for Type I interconnection between the fixed networks of the incumbent and a new operator	16 January 1997	21 August 1998	19 (Note 2)
Case 2	The interconnection charges to be paid by FTNS operators providing the service chosen by the payphone users and to be received by the FTNS operator operating the payphone	11 February 1999	10 December 1999	10 (Note 3)
Case 3	The level of operator number portability charges between the networks of the incumbent and a new operator	13 July 1999	3 March 2001	19½ (Note 4)
Case 4	The terms and conditions for the provision of POI capacity for interconnection between the networks of the incumbent and a new operator	2 February 2000	16 March 2001	13½ (Note 5)
	Average			15½ (say 15)

Source: OFTA's records

Note 1: A more detailed analysis of the time taken, by stages, is at Appendix C.

Note 2: The proceedings were suspended for nine months (from March to November 1997) pending completion of a review of the TA's Statement No. 7. The determination process was also lengthened due to the need to construct a cost model and obtain data to input into the model.

Note 3: During the process of determination, OFTA mediated an interim arrangement whereby access from the payphones to the IDD services would be provided with charges to be determined with retrospective effect.

Note 4: The scope of the determination was expanded on two occasions (one in October 1999 and another in January 2000) at the requests of the incumbent and the new operator. The progress of determination was affected by the scope revisions.

Note 5: With the agreement of all parties, the determination process was suspended for two months during October to December 2000 to examine the technical configuration proposed by one party to cover the shortage of POI capacity. After the TA made his determination on 16 March 2001, both the incumbent and the new operator sought further clarification from OFTA and made additional submissions to the TA. The TA made a supplementary determination on 30 November 2001.

Cases in progress

5.10 As at end of November 2001, another three cases relating to the local FTNS were in progress. Table 5 below shows an analysis of the time taken for determination (up to 30 November 2001) on these cases in progress.

Table 5
Analysis of time taken for determination
on three cases in progress (as at November 2001)

Case	Date of request	Time spent up to end of November 2001 (Months)	Position as at end of November 2001
A	8 April 2000	19¾ (Note 1)	Stage 3 (i.e. parties awaiting promulgation of the TA's determination)
B	27 February 2001	9 (Note 2)	Stage 1 (i.e. TA considering the request for determination)
C	9 March 2001	8¾ (Note 3)	Stage 2 (i.e. proceedings in progress)

Source: OFTA's records

Note 1: This case concerns the determination of charges for the porting of numbers used for special applications (e.g. hotline numbers for phone-in programmes) from one network to another. The proceedings were suspended for eight months (from mid-July 2000 to March 2001) pending an industry consultation on the general charging principles and the issuance of the relevant TA's Statement. Pending the TA's determination, OFTA had made special arrangements with the two operators for the work to be carried out first, so as not to affect the portability of the numbers.

Note 2: This case concerns the determination of charges for Type I interconnection between the networks of two parties. The case had been suspended since April 2001 pending the completion of a review of the TA's Statements on Interconnection. Up to end of November 2001, the review of the Statements was still in progress.

Note 3: This case concerns the determination of charges for the provision of "Tie Cables" in a Type II interconnection. The TA only accepted part of the request for determination by one party. This party requested the TA to reconsider the scope of the determination. This disrupted the process by 2½ months.

Audit observations on the long time taken to make a determination

5.11 ***Need to monitor progress closely.*** Audit's analyses in Tables 4 and 5 above indicate that the process of determination could take many months to complete. In the fast moving telecommunications industry, any delay in the determination process could have adverse effects on the operators' business. **Audit considers that there is a need for OFTA to closely monitor the progress of all determination cases to ensure that they are completed as soon as possible.**

5.12 ***Need for post-determination review.*** With regard to the four completed cases which took on average 15 months to complete, Audit considers it necessary for OFTA to carry out a detailed post-determination review to ascertain the reasons for the long processing time. **This will help OFTA focus on the relevant issues in devising future improvement measures.**

5.13 ***Need to set time limits for cases in progress.*** The revised procedures for determination have specified time limits for the completion of the determination process, i.e. 4¾ months for normal cases and 6½ months for complex cases (see para. 5.8(a) above). **Audit welcomes this improvement because it will help OFTA monitor the determination process more effectively.** However, Audit notes that the revised procedures will only apply to those cases received in or after September 2001. This means that there are no time limits for the three cases currently in progress (see Table 5 in para. 5.10 above) for which many months have already elapsed without a determination being made. **To ensure that these cases are completed as soon as possible, Audit considers that there is a need for OFTA to set time limits for them and expedite action for their completion.**

5.14 ***Challenges ahead.*** With the full liberalisation of the local FTNS market in January 2003 (see para. 1.13 above) and with the expectation that more new players may enter the market, problems arising from interconnection, and thus determination cases, are likely to increase in both quantity and complexity. **To meet the challenges ahead, Audit considers that there is a need for OFTA to keep in view its staff profile, so as to ensure that sufficient staff resources and expertise are available to deal effectively with the increasing number and complexity of determination cases.** In this connection, Audit's research on experiences of advanced countries indicates that, as the industry moves from a monopoly to an increasingly competitive environment and with the rapid developments of telecommunications technology, a crucial question regulatory authorities often have to address is whether their staff have the relevant expertise to deal effectively with the complex and multi-facet issues thus arising. Staff re-profiling is often necessary to ensure that adequate expertise in all relevant fields (e.g. legal, accounting, commercial and telecommunications engineering) is available.

Audit recommendations on the determination process

5.15 **Audit has *recommended* that the Director-General of Telecommunications should:**

- (a) **closely monitor the progress of all determination cases to ensure that they are completed as soon as possible and within the time limits specified;**
- (b) **carry out a detailed post-determination review on the completed cases to ascertain the factors that have contributed to the long processing time;**
- (c) **document the lessons learnt from the post-determination review for future reference;**
- (d) **for those in-progress cases received before September 2001, set time limits for their completion and ensure that they are completed as soon as possible; and**
- (e) **to meet the challenges ahead, keep in view OFTA's staff profile so as to ensure that sufficient staff resources and expertise are available to deal effectively with the increasing number and complexity of determination cases.**

Response from the Administration

5.16 The **Director-General of Telecommunications** has accepted the audit recommendations mentioned in paragraph 5.15 above. He has said that:

On the audit recommendation in paragraph 5.15(a)

- (a) a determination process comprises many steps, some of which are not taken by OFTA, but by the parties to the determination themselves. Thus, despite the length of time for the entire determination process for the cases cited in the audit report, OFTA only used part of the time;
- (b) in cases where the interconnection or associated work would affect communications between networks or development of competition in the market, OFTA would make special arrangements for the interconnection and the associated work to be carried out first, pending further commercial negotiations or determination by the TA. The

determination was merely to establish the charges payable with retrospective effect. Thus, in these cases, the length of time for determination did not affect the flow of traffic between the networks or the progress of competition development;

(c) even before the revised procedures were put in place in September 2001, OFTA had been imposing internal and external deadlines with a view to completing the process within the shortest time possible. However, certain events could lengthen the determination process, such as:

(i) **Further commercial negotiation.** At all stages during the determination proceedings, OFTA may offer to mediate between the parties if there is a chance for them to reach a satisfactory commercial agreement, or the parties may request to be given more time for negotiation (e.g. Case 4 of Table 4);

(ii) **Study or industry consultation on complex issues.** Complex technical and costing issues may arise that require extensive time to study (e.g. Case 1 and Case 4 of Table 4). Physical inspection may be required (e.g. Case 3 of Table 4 and Case C of Table 5), advice from consultants may be needed (e.g. Case 1 of Table 4), or the issues may be of such general importance that the industry as a whole has to be consulted (e.g. Case 1 of Table 4 and Cases A and B of Table 5); and

(iii) **Request for extension of time or confidentiality of information.** It is not uncommon for the parties concerned to apply for an extension of time. It is also not uncommon for the parties to adopt a very rigid view regarding confidentiality and to argue all the way through in order to prevent the disclosure of information which they consider as confidential. The TA has to deal with them as they arise. This has led to the lengthening of process for the determination of the real significant issues;

(d) nonetheless, with the promulgation of the revised procedures in September 2001, the industry is now aware of the time limits set for each stage of the determination and the TA will have a yardstick for progress monitoring. However, the early completion of determination cases under the forceful hand of the TA holding a tight grip on time limits may not always be beneficial to the parties involved or to the industry in general. The parties may be deprived of the opportunities to reach an amicable commercial agreement because of this, or the complex issues may not be thoroughly sorted out. At the end of the day, each case has to be handled taking into account its particular circumstances. But OFTA will strive to ensure that the time limits set in the revised procedures will not be lightly extended without good reason;

On the audit recommendations in paragraphs 5.15(b) and (c)

- (e) the factors that have caused the long processing time are stated in insets (a) to (d) above. Nevertheless, for reference and documentary purposes, it may be useful for OFTA to carry out a systematic post-determination review on the completed cases;

On the audit recommendation in paragraph 5.15(d)

- (f) although the cases which commenced before September 2001 are not governed by the revised procedures, the time limits specified therein will serve as the guidelines for the activities after September 2001 for these cases. OFTA will ensure that the time limits are adhered to as far as possible;

On the audit recommendation in paragraph 5.15(e)

- (g) OFTA has been keeping a close eye on the staff profile since the liberalisation of the telecommunications market. In recognition of the need to diversify the background and expertise of OFTA staff, OFTA has created a category of contract staff known as Regulatory Affairs Managers. Recruitment of qualified personnel from overseas regulatory authorities has also been made to fill some senior consultant or management positions for which the particular expertise is lacking in the local market; and
- (h) at present, there is already a team of staff possessing different expertise (financial, economic, legal, business and engineering) to handle regulatory issues. OFTA will continue to monitor the staff profile and market development and ensure that sufficient staff resources and expertise are available to deal effectively with the increasing number and complexity of determination cases.

PART 6: OPENING UP OF THE INCUMBENT'S EXCHANGES TO NEW OPERATORS

6.1 This PART examines the implementation of the requirements of the 1998 Framework Agreement concerning the opening up of residential exchange lines by the incumbent to the new operators.

Government's requirements regarding the opening up of the incumbent's exchanges

6.2 As mentioned in paragraph 1.10 above, in the negotiations with the incumbent to open up the external telecommunications market, the Government endeavoured to further liberalise the local FTNS market. According to the Framework Agreement, the incumbent should not increase the monthly rental charge for his residential lines until the exchanges that served at least 50% of the residential lines were made ready for access to the new operators by 1 January 1999. (Appendix D shows, in the form of a flowchart, the requirements to be met by the incumbent under the Framework Agreement before he could apply for a rental increase.) The Framework Agreement also specified the following circumstances under which the incumbent would be **deemed** to have fulfilled this "50% requirement":

- (a) the incumbent had made a "Schedule 2 Offer" to the new operators, but the Offer was not accepted by any of them (see items (l), (m), (p) and (q) in Appendix D);
- (b) the "Schedule 2 Offer" made by the incumbent was accepted by one or more of the new operators, and the incumbent had made ready for access the exchanges accepted even though the exchanges accepted served less than 50% of the residential lines (see items (m), (n), (o) and (q) in Appendix D); or
- (c) any act or omission of any other FTNS operators was a material cause of any failure of the incumbent to meet the "50% requirement" (see items (o), (p) and (q) in Appendix D).

6.3 In the event, in April 1998 one new operator accepted the incumbent's offer in relation to seven exchanges which served 17% of the residential lines at that time (Note 14). The Government approved the incumbent's proposals to increase the monthly rental in August 1999 and December 2000. A chronology of the key events is at Appendix E.

Note 14: *These seven exchanges, together with those exchanges already opened to the three new operators at that time, served about 31% of the residential lines.*

Audit observations on the implementation of the Framework Agreement

6.4 ***No documentary evidence to show OFTA had verified compliance.*** According to the Framework Agreement, as a new operator had accepted the incumbent's offer in relation to seven exchanges, the incumbent was required to make ready for access (Note 15) these seven exchanges by 1 January 1999, before the monthly rental for residential lines could be increased (see para. 6.2(b) above). **However, Audit could not find documentary evidence in OFTA's records indicating that OFTA had verified (e.g. by carrying out site inspections) that the incumbent had fulfilled this requirement, before the TA approved the increases of monthly rental in August 1999 and December 2000.**

6.5 ***Audit's enquiry about when the seven exchanges were made ready for access.*** Audit noted from OFTA's records that, of the seven exchanges in question, three had been co-located (Note 16) by the new operator in 1999, one in 2000 and two in 2001 (i.e. a total of six by the end of 2001). Audit recognises that, although the exchanges in question had not been co-located by 1 January 1999, it does not necessarily mean that the incumbent had not fulfilled the "made ready for access" requirement (Note 17). **However, at the time of audit, there was insufficient information in OFTA's records to enable Audit to determine whether all the seven exchanges had been made "ready for access" by 1 January 1999 (and at the time approvals were given for monthly rental increases in August 1999 and December 2000).**

Note 15: *"Made ready for access" means that the incumbent had made available the exchanges in terms of space, cabling, power supply and other supporting facilities for the new operator to install his equipment in the exchanges.*

Note 16: *"Co-location" means that the new operator has laid optical fibre cables to connect the exchange with his own network and has installed his equipment in the exchange to provide telephone service. Therefore, co-location will take some time after the exchange has been made ready for access by the incumbent.*

Note 17: *This is because:*

- (a) *under the Framework Agreement, a local exchange was considered "made ready for access" if the incumbent had completed, at that local exchange, his work under the relevant LAL Agreement which was necessary for the new operator to commence using LALs at that local exchange, and the incumbent had notified the new operator in writing that he had completed the work;*
- (b) *the "made ready for access" requirement would be deemed to have been met if any act or omission of any other FTNS operators was a material cause of any failure of the incumbent to meet the requirement (see para. 6.2(c) above); and*
- (c) *the new operator could decide to defer co-location of any exchanges irrespective of whether or not the incumbent had made ready for access those exchanges.*

6.6 ***OFTA sought clarification from the incumbent.*** In response to Audit's enquiry, OFTA wrote to the incumbent on 28 December 2001 seeking his clarification as to whether the seven exchanges had been made ready for access by 1 January 1999 and, if not, the reason why the incumbent informed OFTA in July 1999 that the relevant conditions of the Framework Agreement had been satisfied (see item (f) in Appendix E). In his reply of 28 January 2002 to OFTA, the incumbent stated that he had discharged the obligations under the Framework Agreement when he applied for the monthly rental increase for the local residential lines in July 1999. The incumbent also stated that he had made ready for access in 1998 four of the seven exchanges in question and that, for the other three exchanges, the new operator's acts (or failures to act) were a material cause of the delay. Up to 28 January 2002, Audit noted that OFTA had not yet consulted the new operator on the matter.

6.7 ***Post-implementation review needed.*** In view of the delay in the co-location of the seven exchanges, Audit considers that there is a need for OFTA to conduct a thorough post-implementation review of the Framework Agreement, in consultation with the incumbent and the new operator concerned, so as to establish whether the incumbent had fulfilled the "made ready for access" requirement. The post-implementation review will also help OFTA identify lessons for future reference. Such lessons should include the need to verify on a timely basis compliance with the relevant requirements and to keep proper records of the verification.

Audit recommendations on the implementation of the Framework Agreement

6.8 **Audit has *recommended* that the Director-General of Telecommunications should:**

- (a) **in consultation with the incumbent and the new operator concerned, conduct a post-implementation review of the 1998 Framework Agreement, so as to establish whether the incumbent had fulfilled the "made ready for access" requirement under the Framework Agreement; and**
- (b) **identify areas for improvement and document the lessons learnt (e.g. the need to verify on a timely basis the compliance with relevant requirements and to keep proper records of the verification) for future reference.**

Response from the Administration

6.9 **The Director-General of Telecommunications has said that:**

On the audit recommendation in paragraph 6.8(a)

- (a) **a chronology of key events has now been established at Appendix F. As the events indicated, the incumbent had fulfilled his obligations under the 1998 Framework Agreement before he increased the monthly rental for residential telephone lines in September 1999 and January 2001. The delay in the co-location of the seven exchanges**

was largely due to the commercial considerations of the new operator who, before the development of a more suitable environment for competition and the signing of the Deed of Undertakings in 1999 (see para. 7.3 below), had little commercial incentive (and no obligation) to co-locate the exchanges. As soon as it was known that the new operators had not accepted the majority of the Schedule 2 Offers under the Framework Agreement, the Government immediately conducted a review on the matter. The review had not been focused on the seven exchanges, but rather conducted in the broader context of developing further competition in the local FTNS market. This review led to the policy decisions in May 1999 on further market liberalisation and securing further commitments of the new operators on network roll-out. The TA also proceeded with the mediation and determination of the Type II interconnection charges of \$42 per month in April 1999. The current issue has gone beyond the delay in the co-location of the seven exchanges, as all the new operators have extended the service coverage considerably beyond what they were prepared to invest immediately after the conclusion of the Framework Agreement in 1998 (Note 18); and

On the audit recommendation in paragraph 6.8(b)

- (b) OFTA accepts that it had not documented on file the verification of compliance with the “made ready for access” requirement of the seven exchanges in question. OFTA also accepts that it is important to document verification of compliance for future reference.

6.10 The **Secretary for Information Technology and Broadcasting** has said that:

- (a) taking into account the actual performance of new operators in rolling out their networks, the Government reviewed the post-implementation situation in a wider context in 1998 and 1999. As a result, in order to introduce further competition in the market, the Government decided in May 1999 to issue more local wireless-based FTNS licences and a licence to a television company to provide telecommunications services (see para. 1.12 above); and
- (b) the Government also decided to, through a moratorium on the further issuing of FTNS licences, secure commitments from the three new operators to roll out their networks through co-location of exchanges and direct connection to buildings by end 2002. Such commitments were binding, through the provision of performance bonds. The Government has been actively monitoring the progress of roll-out under the commitments.

Note 18: *Given the lack of sufficient documentary evidence in OFTA’s records at the time of audit, the objective of the audit recommendation in paragraph 6.8(a) above was to prompt OFTA to conduct a thorough study to ascertain whether or not the incumbent had fulfilled the “made ready for access” requirement. This objective has been achieved as OFTA has now completed its study and has established that the incumbent had fulfilled the requirement.*

PART 7: OFTA's MONITORING OF FULFILMENT OF COMMITMENTS BY NEW OPERATORS

7.1 This PART examines OFTA's monitoring of the new operators' fulfilment of their commitments during the period of the extended moratorium.

Extension of moratorium

7.2 As mentioned in paragraphs 1.9 and 1.11 above, the three new operators started providing local telephone services in July 1995. In order to allow time for them to construct and operate their networks, the Government announced a 3-year moratorium during which the Government would not issue new FTNS licences. In May 1999, the Government extended the moratorium to the end of 2002.

Commitments on network roll-out and capital investment

7.3 In return for the extension of the moratorium, the three new operators made binding commitments on the extent of network roll-out to reach end-customers (in terms of the additional number of buildings served by their self-built networks) and on the extent of Type II interconnection (in terms of the total number of telephone exchanges to which Type II interconnection would be made). They also made a commitment of spending \$3 billion on capital investment in network infrastructure necessary to support the committed network roll-out and Type II interconnection. These commitments were guaranteed by the provision to the Government of a performance bond of \$50 million from each new operator. In October 1999, the three new operators signed Deeds of Undertakings with the Government on these commitments. Table 6 below shows the relevant details of the total commitments and the interim milestones for the four years from 1999 to 2002.

Table 6

Total commitments and interim milestones
on capital investment, network roll-out and Type II interconnections

Commitment type and date to be provided	Operator A	Operator B	Operator C
<i>New capital investment</i>	(\$ million)	(\$ million)	(\$ million)
end 1999	100	100	800
end 2000	200	100	500
end 2001	200	100	400
end 2002	100	100	300
Total	<u>\$600</u>	<u>\$400</u>	<u>\$2,000</u>
<i>Buildings to be served by self-built networks (Note 1):</i>	(Number)	(Number)	(Number)
end 1999	80	850	430
end 2000	60	100	350
end 2001	60	100	520
end 2002	60	150	200
Total (Note 2)	<u>260</u>	<u>1,200 (Note 3)</u>	<u>1,500</u>
<i>Number of local exchanges to be connected:</i>	(Number)	(Number)	(Number)
end 1999	5	6	11
end 2000	4	1	5
end 2001	3	1	2
end 2002	3	2	4
Total (Note 4)	<u>15</u>	<u>10</u>	<u>22</u>

Source: OFTA's records

Note 1: These networks may cover both commercial and residential buildings.

Note 2: Some of the buildings may be accessed by more than one new operator.

Note 3: The 1,200 buildings to be served by Operator B included those buildings to be directly served by his network and those to be served by Type II interconnections at the incumbent's local exchanges.

Note 4: Some of the exchanges will be opened up to more than one new operator. Overall, it is estimated that, by the end of 2002, a total of 27 local exchanges will be connected by one or more of the new operators.

OFTA's monitoring procedures relating to the achievement of interim milestones

7.4 Under the Deeds of Undertakings, by the end of each year, the new operators are required to provide the following information to OFTA:

- (a) a year-end report on the cumulative capital expenditure;
- (b) the names of buildings to which the new operator can provide services through direct access or Type II interconnections; and
- (c) a list of the telephone exchanges of the incumbent to which the new operator has provided connections with his own network for Type II interconnections.

7.5 Failure to meet the interim milestones will not result in the Government taking action to forfeit the performance bonds, but the operators will be required to comply with the directions issued by the TA to take such actions or remedial measures as are reasonably required to meet the requirements of the interim milestones.

7.6 **Audit's enquiries in January 2002 indicated that OFTA had reviewed information received from the three new operators relating to the achievement of their 1999 and 2000 interim milestones. OFTA had also taken follow-up action when the information received revealed shortfalls in the achievement of the interim milestones (Note 19). However, in cases where satisfactory achievement of the interim milestones was reported by the operators, OFTA did not verify the information received.**

Audit observations on the need for timely verification of interim results

7.7 The commitments on network roll-out and Type II interconnections by the new operators are intended to generate more competition to benefit consumers. Therefore, it is important for OFTA to closely monitor the new operators' performance in meeting their commitments. **The interim milestones provide a useful tool for this purpose. Audit considers that timely**

Note 19: *For example, in respect of one new operator, the achievement for the year 2000 fell short of the milestone by three co-located exchanges. OFTA staff carried out site inspections to assess the interconnection problems which had delayed the achievement of the interim milestone. OFTA staff also acted as a mediator between the operator and the incumbent to help resolve problems.*

verification of the interim results is necessary because it will help OFTA identify potential problems and take follow-up action at an early stage.

7.8 In this connection, it should be noted that, during the moratorium from 1995 to 1998, OFTA had performed site inspections to verify the information submitted by the new operators on their achievement of the interim milestones. **Audit considers this to be a good practice, and there is merit in adopting similar procedures to verify the interim results during the period of the extended moratorium.**

Audit recommendation on the need for timely verification of interim results

7.9 To ensure compliance with the Deeds of Undertakings, **Audit has *recommended* that the Director-General of Telecommunications should perform timely verifications (e.g. by conducting sample site visits) of the achievements of the milestones reported by the new operators.**

Response from the Administration

7.10 The **Director-General of Telecommunications** has accepted the audit recommendation mentioned in paragraph 7.9 above. He has said that:

- (a) under the Deeds of Undertakings, compliance with the targets is to be verified after the licensees have submitted to the Government the necessary proof of compliance within one month (i.e. by 31 January 2003) of the deadline of compliance. OFTA's priority in the past years, therefore, was focused on remedial actions on interim milestones which had not been met; and
- (b) OFTA accepts that early verification of compliance with the interim milestones would help detect problems early. The new operators have provided, in January 2002, data on the progress of their roll-out in relation to their interim milestones up to the end of 2001. OFTA is checking the progress and will take necessary actions in accordance with the Deeds of Undertakings.

**OFTA's comparison of the progress
of competition in Hong Kong with other countries**

According to OFTA, the progress of development in competition in local fixed telecommunications services in Hong Kong is comparable to, or even better than, other countries where similar market liberalisation has been implemented. OFTA's comparison of the market shares of new entrants in several markets is given below:

	UK	Australia	US	Hong Kong
1 year after end of monopoly			2.0%	0.4%
4 years after end of monopoly			8.5%	3.7%
7 years after end of monopoly		4.3%		10.0%
8 years after end of monopoly		9.0%		
13 years after end of monopoly	6.0%			
18 years after end of monopoly	13.0%			

Note: The monopolies of local telephone services in the above markets ended at different times:

UK in 1982

Australia in 1991

US in 1996 (there was no monopoly right granted, but the scene was set for competition in the local telephone market only after amendments to the Communications Act in 1996)

Hong Kong in 1995

2. To compare the pace of development of competition in the different markets, it is necessary to consider the market share of new entrants after the same number of years from the commencement of market liberalisation. It can be seen that Hong Kong is doing better than the UK and Australia. For example, after 7 years of local fixed market liberalisation, new entrants in Australia had acquired only 4.3% market share while new entrants in Hong Kong have already acquired 10%. After the monopoly has ended in the UK for 13 years, the new entrants had acquired only 6% of the local market. The data show that relatively slower roll-out of competition in domestic fixed network services is a common phenomenon in all markets.

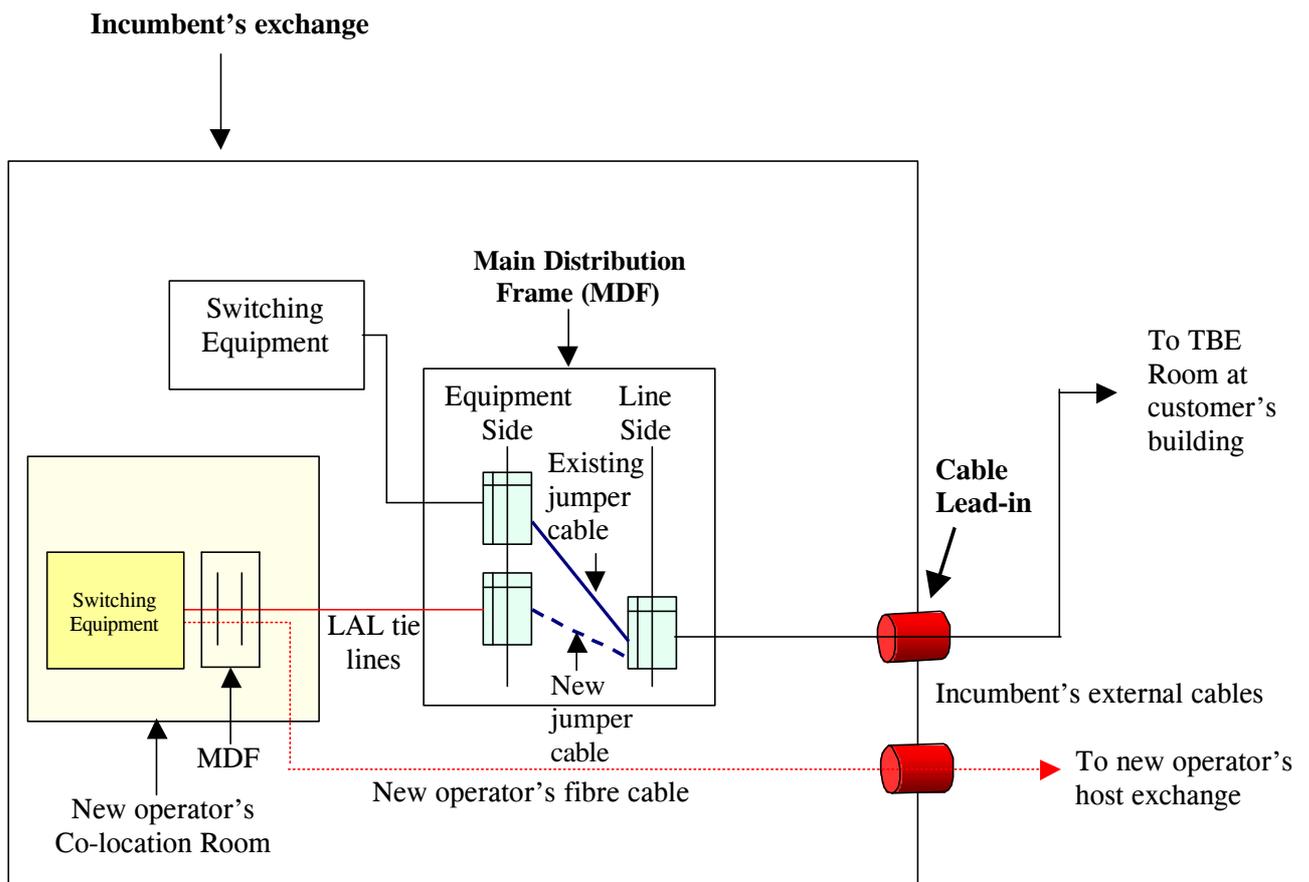
3. Hong Kong has established an environment conducive to the development of competition in the local fixed network market, such as implementation of number portability from the time of commencement of competition and Type II interconnection to local loops of the incumbent operator. Through a combination of regulatory measures, Hong Kong's pace of progress has been faster than other markets.

**Audit's visits to a co-located exchange of the incumbent
and the TBE rooms of three commercial/residential buildings**

Visit to a co-located exchange of the incumbent

On 24 October 2001, Audit visited one exchange of the incumbent in which co-location equipment of all new operators had been installed. This exchange had about 120,000 direct exchange lines. The area of each new operator's co-location site at this exchange was approximately 20 square metres.

2. The Figure below shows the general set-up of a co-location site at an exchange of the incumbent.



Source: Incumbent's records

3. A jumper cable connects the “line side” of the Main Distribution Frame (MDF) with the “equipment side” of the MDF (Note). To effect Type II interconnection, a new operator has to place a block of subscriber-tie cables (usually 2,000 or 4,000 tie cables) at the “equipment side” of the MDF for connecting to his own switching equipment. When a customer of the incumbent decides to switch to a new operator, the incumbent has to locate that customer’s line on the “line side” of the MDF, disconnect the existing jumper cable (which is connected to the incumbent’s switching equipment), and install a new jumper cable connected to the LAL tie lines of the new operator.

4. The new operators can request additional tie lines when needed. In the exchange Audit visited, the incumbent had set aside a special area on the equipment side of the MDF to accommodate all the tie lines of the new operators.

5. There were various other switching equipment at the exchange to support the leased line and data transmission line of the incumbent’s business customers. In addition there were ancillary equipment like power supply generators and back-up batteries to support the operation of the exchange.

Visit to TBE rooms of three commercial/residential buildings

6. On 23 October 2001, Audit, accompanied by one new operator, visited the TBE rooms of three different types of buildings: a commercial building, a commercial-cum-residential building and a newly constructed residential building. The TBE rooms of these three buildings showed the different types of conditions which the new operators had to work with when making interconnection to the blockwiring of buildings.

7. A TBE room is equipped with a miniature MDF. This MDF connects all the blockwiring of the building to the distribution equipment which in turn connects to the relevant local exchange through external cables. For older buildings, the TBE rooms were designed for one

Note: *The MDF is a set of two parallel wire racks that are about 40 metres long, 3 metres high and 0.5 metre wide. One wire rack is called the “line side” and the other wire rack is called the “equipment side”. The 120,000 direct exchange lines (connecting to the buildings of the incumbent’s customers) are first connected to the line side of the MDF and then connected to the equipment side through “jumper cables”. The equipment side is then connected either to the incumbent’s switching equipment or to the new operators’ co-location equipment through subscriber-tie cables (in the case of a Type II interconnection).*

telecommunications operator only. If new operators want to provide services to the customers of these buildings through interconnection at the TBE rooms, there may not be enough space to accommodate their equipment.

8. In a large commercial building in Kowloon, the TBE room was located at the basement garage area. Its size was about 10 square metres. All the three new operators had made interconnections at the TBE room. They had to mount their MDF on the walls of the TBE room because the incumbent's equipment was placed in the middle of the room. The TBE room was very congested, and the available space only allowed one person to move around and worked in the room.

9. In a small commercial-cum-residential building on Hong Kong Island, the TBE room was located on the ground floor of the building. The size of the TBE room was also very small, and looked like a closet. The equipment of the incumbent was placed along the walls of the room. Because the ceiling of the TBE room was high, a new operator managed to mount his equipment on the wall right above the incumbent's equipment. The workers of the new operator have to use a portable ladder to access such equipment when carrying out maintenance work.

10. The TBE room of a newly constructed Home Ownership Scheme estate on Hong Kong Island was very spacious. Its size was about 200 square metres. The area was large enough to accommodate the equipment of all the four FTNS operators. Three operators had installed their MDF in the TBE room while space was reserved for the remaining operator. Some space was still available to accommodate the equipment of additional operators.

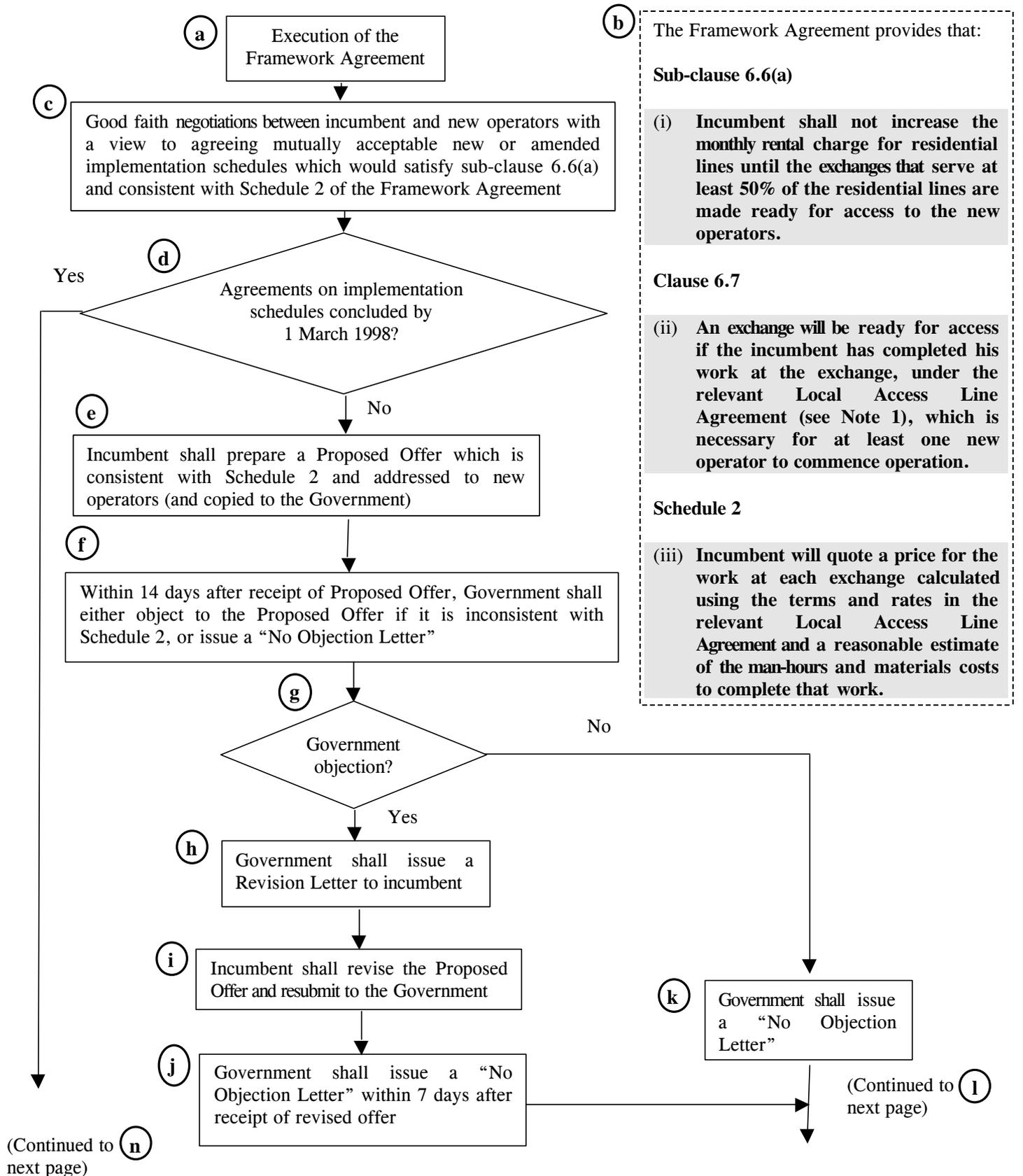
**Audit analysis of the time taken for TA's
determination in four local FTNS cases in Table 4**

		Months taken for individual stages			
		Case 1	Case 2	Case 3	Case 4
(a)	Stage 1: Consideration of request for determination	¾ month	2 months	1½ months	2½ months
		-----	-----	-----	-----
(b)	Stage 2: The proceedings				
	(i) Parties made submission to the TA (including comments on other party's submission)	15½ months (Note 1)	3½ months	9½ months	2½ months
	(ii) The TA issued preliminary analysis	¾ month	2 months	3½ months	6 months
	(iii) Parties commented on the preliminary analysis	1¼ months	½ month	2½ months	2 months
	Sub-total	----- 17½ months	----- 6 months	----- 15½ months	----- 10½ months
(c)	Stage 3: Promulgation of the TA's determination	¾ month	2 months	2½ months	½ month
		-----	-----	-----	-----
	Total time taken [(a) + (b) + (c)]	19 months ----- (Note 2)	10 months ----- (Note 3)	19½ months ----- (Note 4)	13½ months ----- (Note 5)

Source: OFTA's records

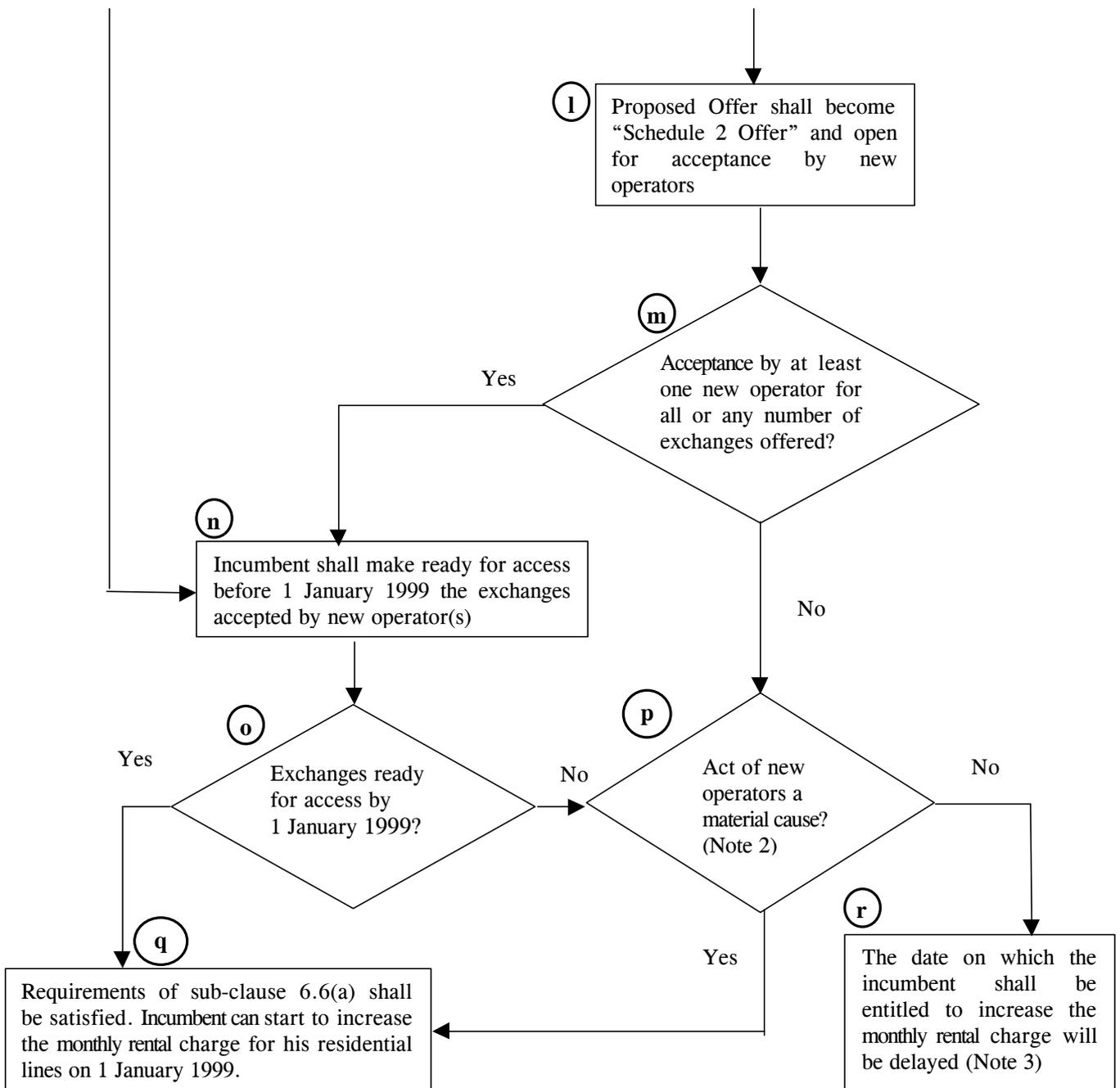
- Note 1: The proceedings were suspended for nine months (from March to November 1997) pending completion of a review of the TA's Statement No. 7. The determination process was also lengthened due to the need to construct a cost model and to obtain data to input into the model.*
- Note 2: OFTA considered that the determination did not affect interconnection between the two networks as the TA had directed that interconnection be effected from the commencement of competition in July 1995. The determination was to decide the charges payable with retrospective effect.*
- Note 3: During the process of determination, OFTA mediated an interim arrangement whereby access from the payphones to the IDD services would be provided with charges to be determined with retrospective effect. OFTA considered that there was no question of access not provided pending the outcome of the determination.*
- Note 4: The scope of the determination was expanded on two occasions (one in October 1999 and another in January 2000) at the requests of the incumbent and the new operator. The progress of determination was affected by the scope revisions. As number portability between networks had been implemented since July 1995, OFTA considered that there was no question of the number porting disrupted pending the outcome of determination.*
- Note 5: With the agreement of all parties, the determination process was suspended for two months during October to December 2000 to examine the technical configuration proposed by one party to cover the shortage of POI capacity. This determination process was a complex one as it involved careful balancing of the risk assumed by the interconnecting parties in the supply of additional POI links to cope with future traffic increases. The TA made two determinations, one in March 2001 and one in November 2001. During the process of determination, OFTA had made many interventions as well to secure the supply of additional POI links to meet immediate requirements.*

Requirements to be met before the incumbent could apply for a rental increase under the 1998 Framework Agreement



(Continued from
(d) on previous page)

(Continued from **(j)** and **(k)** on
previous page)



Source: Audit analysis of the Framework Agreement

Note 1: These refer to the local access line agreements entered by the incumbent with the three new operators at different times in 1996.

Note 2: According to clause 6.10, the incumbent shall be deemed to have complied with the requirements of sub-clause 6.6(a) if any act or omission of any other new operator is a material cause of any failure of the incumbent to meet the requirements of such sub-clause.

Note 3: According to sub-clause 6.6(c), in the event that the requirements of sub-clause 6.6(a) are not satisfied on or before 1 January 1999, the dates on which the incumbent shall be entitled to increase the monthly rental charge for its residential lines will be delayed.

Appendix E
(para. 6.3 refers)

Chronology of key events in opening up the incumbent's exchanges

	Date	Event
(a)	Early March 1998	The incumbent advised the Government that he could not reach agreement on his Proposed Offer with the three new operators and asked for the issue of the "No Objection Letter" (see items (c), (d), (e) and (f) at Appendix D above).
(b)	13 March 1998	The Economic Services Bureau (ESB — Note 1) sought legal advice on whether the issue of the "No Objection Letter" would signify that the Government was satisfied with the charges the incumbent had set for the work to be undertaken at the designated exchanges. On the same day, legal advice was obtained indicating that the issue of the "No Objection Letter" could only be taken to mean "that a price has been quoted and that the price was calculated on an agreed methodology". However, it did not imply that the Government had agreed to the price quoted (see item (g) at Appendix D above).
(c)	23 March 1998	The Secretary for Economic Services issued a "No Objection Letter" to the incumbent advising him that the Government had no objection to his Proposed Offer (see item (k) at Appendix D above).
(d)	24 March 1998	The incumbent forwarded his Schedule 2 Offer to the three new operators for the opening up of 17 exchanges which, together with those already opened up to them at that time, served 55% of the local residential lines at that time (see item (l) at Appendix D above).
(e)	1 May 1998	The incumbent informed OFTA that, by the specified deadline (i.e. 30 April 1998), one new operator had accepted his Schedule 2 Offer in relation to seven exchanges (which served 17% of the local residential lines) for roll-out. These exchanges were the King's Road, Kwai Chung, Chai Wan, Jordan, Shatin, Ma On Shan and Yuen Chau Kok Exchanges (see item (m) at Appendix D above).
(f)	July/ August 1999	In July 1999, the incumbent submitted a proposal to OFTA applying for an increase in the monthly rental on the grounds that he had fulfilled his obligations under the Framework Agreement. The proposal was approved by the TA in August 1999 (see item (q) at Appendix D above).
(g)	September 1999	The incumbent increased the monthly rental for residential lines from \$68.9 to \$90 (Note 2).
(h)	November/ December 2000	In November 2000, the incumbent applied for another increase in the monthly rental on the grounds that he had met the conditions of the Framework Agreement (see item (q) at Appendix D above). Approval was granted by the TA in December 2000.
(i)	January 2001	The monthly rental for residential lines of the incumbent was increased from \$90 to \$110 (Note 3).

Source: OFTA's records

Note 1: The ESB was the policy bureau overseeing the telecommunications industry before April 1998. Since April 1998, the ITBB has taken over the policy responsibility.

Note 2: The incumbent was allowed to increase his monthly telephone rental for local residential lines to \$90 which was the price cap permitted for 1999 under the Framework Agreement.

Note 3: The incumbent was allowed to further increase his monthly telephone rental for local residential lines to \$110 which was the price cap permitted for 2001 under the Framework Agreement.

**Chronology of key events established by OFTA
regarding the incumbent's fulfilment of obligations
under sub-clause 6.6(a) of the 1998 Framework Agreement**

In response to the audit recommendation mentioned in paragraph 6.8(a) above, OFTA has established a chronology of key events regarding the incumbent's fulfilment of obligations under sub-clause 6.6(a) of the 1998 Framework Agreement. **Based on the events, OFTA has concluded that the incumbent had fulfilled his obligations under the Framework Agreement before he increased the monthly rental for residential telephone lines in September 1999 and January 2001.** The following are OFTA's comments:

“Made ready for access” and “co-location”

2. OFTA considers that it is necessary to distinguish what is meant by “made ready for access” from “co-location”. “Co-location” means the new operator's optical fibre cables have been laid to connect the exchange concerned with the new operator's own network and the new operator's equipment have been co-located in the exchange and service is available from the new operator. “Made ready for access” means the incumbent has made available the exchanges in terms of space, cabling, power supply and other supporting facilities for the new operator to install his equipment in the exchanges. The new operator still needs to install the necessary equipment and facilities in order to offer telephone service. Therefore “co-location” will take some time after an exchange has been made ready for access.

3. The Framework Agreement aims at inducing the incumbent to make ready those exchanges which are to be taken up by willing new operators for co-location. Whether or not the new operators will finally take up those offers and co-locate their equipment in those exchanges is a commercial consideration of the new operators (as the Framework Agreement did not bind the new operators).

Chronology of key events

4. By 6 November 1998, the incumbent had issued ready for use notice for co-location space at four out of seven exchanges accepted by the new operator, while the new operator was still negotiating with the incumbent on detailed design proposal for the remaining three exchanges. Those 4 exchanges were King's Road (ready for use notice issued on 25 August 1998), Kwai

Chung (ready for use notice issued on 24 September 1998), Chai Wan (ready for use notice issued on 25 September 1998) and Jordan (ready for use notice issued on 6 November 1998). The outstanding exchanges were Shatin, Ma On Shan and Yuen Chau Kok.

5. On 6 November 1998, the incumbent informed the new operator that unless he received the new operator's confirmation by 9 November 1998 on the design proposal of the Shatin and Ma On Shan Exchanges, he would not be able to make ready for access these two exchanges by 31 December 1998.

6. On 11 November 1998, the incumbent informed the new operator that the latter had failed to provide the outstanding information requested. The incumbent would not be able to make ready for access the Shatin and Ma On Shan Exchanges by 31 December 1998. Regarding the Yuen Chau Kok Exchange, up to January 2002, the new operator had not reapplied for any co-location arrangements.

7. The new operator did not enter the exchanges which were ready for use for co-location because there was dispute on the price offered for co-location and no commercial agreement had been reached. The tariff for residential telephone service was also not rebalanced (Note) then. There was no commercial incentive for new operators to offer residential telephone service. Hence the Government had to secure a Deed of Undertakings in 1999 to require the new operators to roll out their networks (see para. 7.3 of the report).

OFTA's conclusion

8. Clause 6.10 of the Framework Agreement provides that the incumbent shall be **deemed** to have complied with the requirements of sub-clause 6.6(a) if any act or omission of any other FTNS operator is a material cause of any failure of the incumbent to meet the requirements of sub-clause 6.6(a). By Clause 6.10 and given the failure of the new operator to supply the design information to the incumbent for the Shatin and Ma On Shan Exchanges, the incumbent shall be deemed to have complied with sub-clause 6.6(a).

Note: *The term "rebalance" refers to the increase of end-customer prices so that the local telephone services would no longer be subsidised by other sources of revenue of the incumbent (e.g. income from external telecommunications services).*

9. By the end of December 1998 (which was within the deadline under the Framework Agreement), the incumbent had complied with sub-clause 6.6(a) of the Framework Agreement. Therefore, there was no delay in the incumbent's meeting his "made ready for access" obligations for the exchanges concerned. The delay of "co-location" was not caused by any act or omission of the incumbent. The final taking up of the exchanges by the new operator for co-location is not within the ambit of the Framework Agreement.

10. In the incumbent's application for tariff rebalancing on 20 July 1999, he confirmed that he had met the obligations under sub-clause 6.6(a) of the Framework Agreement. OFTA had not received any complaint from the new operator concerning any of those exchanges in relation to which the incumbent had issued a ready for use notice for co-location. There was no reason to believe that those exchanges related to the notices were not ready for use.

Acronyms and abbreviations

COP	Code of Practice
COP Forum	Forum to develop and coordinate the implementation of the Code of Practice for Interconnection to Local Access Links
ESB	Economic Services Bureau
ExCo	Executive Council
FTNS	Fixed Telecommunications Network Services
IDC	Interconnection Determination Committee
IDD	International Direct Dialling
ITBB	Information Technology and Broadcasting Bureau
ITB Panel	The Panel on Information Technology and Broadcasting
LAL	Local Access Link
LegCo	Legislative Council
MDF	Main Distribution Frame
OFTA	The Office of the Telecommunications Authority
OFTEL	The Office of Telecommunications
POI	Point of Interconnection
RIO	Reference Interconnection Offer
TA	Telecommunications Authority
TBE	Telecommunications and Broadcasting Equipment
UK	United Kingdom