Office of Utilities Regulation

Dominant Public Voice Carriers

A Consultative Document

OFFICE OF UTILITIES REGULATION

March 2000

Abstract

The Telecommunications Act, 2000 requires all public voice carriers to permit interconnection with other public voice carriers and in doing so to give effect to the principles of: *any-to-any, end-to-end operability,* and *equal responsibility*. But additional requirements apply to dominant public voice carriers, who must, for example, provide interconnection with: -

- terms and conditions that are
  - non-discriminatory;
  - reasonable and transparent; and
- interconnection charges that are cost oriented.

The OUR is to determine which public voice carriers are to be classified as dominant. Before determining dominance the OUR is obligated to consult with the public and the Fair Trading Commission (FTC) and take into consideration their views.

This Consultative Document reflects the OUR's initial views on the issue of dominance in interconnection markets during Phase I. The OUR considers that Cable & Wireless Jamaica is dominant in various markets for fixed interconnection services and in mobile call termination.

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Comments From Interested Parties

Persons who wish to express opinions on this Consultative Document are invited to submit their comments in writing to the OUR. Comments are invited on all aspects of the issues raised, but especially the specific questions identified. These questions appear below the explanatory text to which they relate. To ease the OUR's processing of the responses, respondents are requested as far as possible to follow the order of the OUR's questions. If they consider it appropriate, respondents may wish to address other aspects of the document for which the OUR has prepared no specific questions. They may of course only wish to answer some of the questions posed - failure to provide answers to all questions will in no way reduce the consideration given to the response.

Responses to this Consultative Document should be sent by post, fax or e-mail to:-

Franklin Brown
P.O.Box 593, 36 Trafalgar Road, Kingston 10
Fax: (876) 929-3635
E-mail: fknbrown@our.org.jm

Responses are requested by April 14, 2000. Any confidential information should be submitted separately and clearly identified as such. In the interests of promoting transparent debate, respondents are requested to limit as far as possible the use of confidentiality markings. Respondents are encouraged to supply their responses in electronic form, so that they can be posted on the OUR's Website (or a link included where the respondent wishes to post its response on its own website).

Comments on responses
The OUR's intention in issuing this Consultative Document is to stimulate public debate on the important regulatory issues surrounding dominance in interconnection markets. The responses to this Consultative Document are a vital part of that public debate, and so as respondents will have an opportunity both to find out the non-confidential evidence and views put forward in other responses, with which they may disagree, and to comment on them. The comments may take the form of either correcting a factual error or putting forward counterarguments.

Comments on responses are requested by April 21, 2000, ie one (1) week after the deadline for the receipt of responses.

Arrangements for viewing responses
To allow responses to be publicly available, the OUR will keep the responses that it receives on files, which can be viewed by and copied for visitors to the OUR's Offices. Individuals who wish to view the responses should make an appointment by contacting Granville Newell by one of the following means:-

Telephone: (876) 968 6053 (or 6057)
Fax: (876) 929 3635
E-mail: granewell@our.org.jm

The appointment will be confirmed by a member of the OUR's staff. At the pre-arranged time the individual should visit the OUR's offices at:

3rd Floor, PCJ Resource Centre, 36 Trafalgar Road, Kingston 10

The individual will be able to request photocopies of selected responses at a price, which just reflects the cost to the OUR.

Timetable

The timetable for the consultation is summarised in the table below which includes an indicative timing for the Statement.

Summary of the timetable for the consultation on dominance

Event	*Date*
Response to this document	April 14, 2000
Comments on Responses	April 21, 2000
Statement	By May 31, 2000

CHAPTER 1: MARKET LIBERALIZATION IN JAMAICA

Introduction

1.0 Part XVII of the recently passed Telecommunications Act sets out the phased arrangements to a fully liberalized telecommunications sector in Jamaica. Phase I commences with the passage of the Act, 2000 and will last for 18 months thereafter. During this period the following markets are to be opened to competition:-

- domestic mobile services;
- data services, such as internet service provision, using CWJ's facilities;
- provision of single line and multi-line (for example PBXs) customer premises equipment (CPE); and
- the wholesaling of CWJ's international switched voice minutes.

1.1 Carrier and service provider licences may also be granted for the provision of services solely for the purposes of free trade zone operations.

1.2 Phase II commences immediately after the ending of Phase I and will also last for eighteen (18) months. During this phase the Minister may grant licences for the following additional facilities and services:-

- domestic voice facilities and services, eg wireless in the local loop;
- resale of CWJ's switched domestic voice minutes; and
- internet access over facilities of subscriber television (STV) operators.

1.3 Phase III commences three years after the passage of the Act. During this Phase all market segments may be open to competition including international voice and data facilities. This document examines this arrangement with a view to identifying which public voice carriers should be classified as dominant, and the markets in which they are dominant. The focus is on the circumstances that will prevail during Phase I.

1.4 Three types of markets may be identified during Phase I, each of which is discussed below:-

- interconnection markets;
- wholesale markets; and
- retail markets.

Interconnection markets

1.5 The Telecommunications Act provides for the interconnection of all public voice networks. The vertically integrated incumbent, CWJ, operates two distinct public voice networks: fixed network and mobile network. Under the Telecommunications Act, it will have separate carrier licences for its fixed and mobile networks. The fixed network is 100% digital and has increasing islandwide coverage. It includes domestic and international facilities and supplies critical inputs to competing firms operating in downstream retail markets. The Company commenced the provision of mobile cellular services in 1991. Initially it operated a analogue mobile network but since 1998 digital services have been offered. At December 31, 1999 the number of mobile subscribers stood at 119,000 compared with about 79,000 at the start of April of the same year.

1.6 Interconnection markets are distinguished from retail and wholesale markets by virtue of the fact that carrier licences are required to provide or purchase such services and because interconnection services are distinct from wholesale or retail services, eg they comprise segments of a call rather than an end-to-end service. For these services, the interconnection seeker pays interconnection charges, which is a source of revenue to the interconnection provider and a cost to the interconnection seeker.

1.7 Entry of competing domestic and international fixed network operators is legally barred until Phases II and III respectively. Thus, these areas will remain exclusive to CWJ until such time. Entry of domestic mobile facilities will occur during 2000 - two entrants, Cellular One Caribbean and Mossel will be granted mobile carrier and service provider licences under the new Telecommunications Act. Thus, during Phase I there will be three operators of mobile facilities (CWJ mobile and two new entrants) and one operator of a public switched telephone network (CWJ fixed network). In order to satisfy the principle of *any-to-any* the networks of the two new mobile entrants and CWJ's fixed and mobile voice networks are to be interconnected. Additionally, Cellular One and Mossel offer mobile interconnection services to each other.

Wholesale markets

1.8 The Act provides for the wholesaling of CWJ's international switched telephone minutes for resale by service providers (eg to be used in the provision of international pre-paid calling cards). The distinguishing characteristic of wholesale markets is that services are sold by one service provider to another, who in turn use them as inputs in the supply of their retail services to end-users. Competition in the resale of CWJ's domestic switched minutes is delayed until Phase II to allow time for rebalancing to occur, so that domestic voice service prices are not below cost. These do not qualify as interconnection services under the Telecommunications Act. The term "interconnection" is used in this document, as it is in the Act, to refer to the physical or logical connection of public voice networks of different carriers.

1.9 Under the Act (Section 79) the wholesale price is the retail price minus the net cost avoided by CWJ for not providing the service on a retail basis. The economic logic underpinning this approach to pricing starts from the observation that these service providers are essentially purchasing normal retail services. Against this background, resellers of CWJ's international and domestic switched minutes should face price levels similar to those it charges its end-users for similar services. The cost to the incumbent of providing these services to its own end-users is made up of relevant network costs, an appropriate share of common cost, retail costs and a reasonable return on investment. However, the retail costs to the incumbent for providing these services to its end-users will be higher than the cost incurred to provide the same services to resellers, who will have lower associated billing, marketing and other costs on a per minute basis. Resellers should therefore be charged a lower price than CWJ's end-users to reflect these cost savings.

1.10 Some service providers will be purchasing other services from CWJ to use as inputs in the provision of their retail services. For example, internet service providers require international leased circuits from CWJ. The Act does not require these services to be offered by CWJ at a discount to the retail price. But, at the least, the charges paid to CWJ by these competing service providers should be no higher than those paid by CWJ's end-user for the same or equivalent service.

Retail markets

1.11 These markets cover the services provided by service providers to end-users who pay retail prices. They include CWJ's retail services (fixed and mobile voice and data), mobile services offered by the two new mobile entrants to customers, the services to be offered by resellers of international switched minutes and by data service providers.

Purpose of this Document

1.12 Under section 28 of the Act, the OUR has a duty to determine which public voice carriers are to be classified as dominant. For this exercise only interconnection markets are relevant, because wholesale and retail markets relate to service providers . Also it is only interconnection markets relating to public voice services that are relevant and not interconnection markets relating to data. The Act does not prevent interconnection of data networks, but it does not make it a requirement.

Conclusion

1.13 During Phase I competition will be introduced in the supply of customer equipment, domestic mobile facilities and services, resale of the incumbent's international switched minutes, and data services using the incumbent's facilities.

1.14 The sets of markets that are relevant to Phase I are:-

- interconnection markets: the interconnection of CWJ's fixed and mobile networks with the mobile networks of new mobile entrants.

- wholesale markets, for example the resale of CWJ's switched international minutes; and
- retail markets, i.e services to end -users.

1.15 Only interconnection markets are relevant for the purposes of this document.

Structure of this Document

1.16 This document contains the results of an analysis into which public voice carriers are dominant and the interconnection markets in which their dominance exists. It is structured as follows:-

- regulatory framework (Chapter 2);
- principles of market definition and dominance (Chapter 3); and
- assessment of interconnection markets and dominance (Chapter 4).

CHAPTER 2: THE REGULATORY FRAMEWORK

2.0 The Telecommunications Act, 2000 is the primary legislation governing Jamaica's telecoms sector. Under this Act the OUR has been assigned certain regulatory duties. The broad objectives of this Act are:-

- to promote and protect the interests of the public;
- to promote universal access to telecommunications services for all persons in Jamaica, to the extent that it is reasonably practicable to provide such access;
- to facilitate competition in a manner consistent with Jamaica's international commitments in relation to the liberalization of telecommunications; and
- to encourage economically efficient investment in the sector.

2.1 It is a provision of the Act that the OUR discharges its duties and responsibilities in a transparent and accountable manner. Amongst the duties and functions of the OUR are to:-

- promote the interests of customers while having due regard to the interests of carriers and service providers ; and
- promote competition among carriers and service providers.

Interconnection

2.2 In order to satisfy the *any-to-any* principle of interconnection each public voice carrier is obligated to permit interconnection of its public voice network with the public voice network of any other carrier for the provision of voice services.[1] This means that users of separate public voice networks should be able to communicate with each other or obtain services from other networks. Below are two other general principles regarding the nature and purpose of interconnection by all public voice carriers:-

a) *End-to-end Operability:* Interconnection should be across interfaces of sufficient functionality to ensure that high quality services can be provided to consumers even where the call recipient or service provider and the calling customer are on different networks.

b) *Equal Responsibility: A*ll public voice carriers have equal responsibility to ensure that networks are interconnected and to do so as quickly as is reasonably practicable.

[1] Section 29(1), Telecommunications Act, 2000

Interconnection Principles for Dominant Carriers

2.3 Within thirty (30) days of the passage of the Act the incumbent operator, CWJ, is to put forward its Reference Interconnection Offer (RIO). The RIO is to set out the terms and conditions that it proposes for interconnection with its network, including a list of its proposed interconnection services and charges. The OUR may assess the RIO and may accept or reject it in whole or in part. Rejection of (a part of) the RIO would be because it is inconsistent with the relevant interconnection principles. Additional principles apply to interconnection provided by dominant carriers as set out below. Carriers may negotiate about the terms and conditions of interconnection agreements (apart from those parts of the RIO that have been accepted by the OUR). In the case of a pre-contract dispute, either party may refer the matter to the OUR for arbitration.

2.4 Entrants have to pay a large amount of their revenues in interconnection charges, making them vulnerable to abuse of dominance by the incumbent. A dominant firm has the ability to distort competition in a relevant market. This is especially so in telecommunications, in which a dominant firm is typically both:-

- a supplier of critical inputs (interconnection and wholesale) to downstream service providers; and
- a competitor against these service providers in downstream retail markets.

2.5 For these reasons, the Act provides some other general underlying principles regarding interconnection services supplied by dominant public voice carriers. These are listed below (Section 30):-

- terms and conditions of interconnection shall be
  - on a non-discriminatory basis;
  - reasonable and transparent, including such terms and conditions as relate to technical specifications and the number of location of points of interconnection; and
  - charges shall be cost oriented and be guided by certain cost causation principles (section 33);
- no unfair arrangements for cross-subsidies shall be made;
- where technically and economically reasonable interconnection services shall be so diversified as to render it unnecessary for network components or facilities that it does not require.

2.5 Each dominant public voice carrier is also required to keep separate accounts in such form and containing such particulars as will enable the OUR to assess whether that carrier provides interconnection services in accordance with the principles cited above.

2.6 In addition, every dominant carrier is required to lodge with the OUR a proposed reference interconnection offer (section 32).

2.7 In Phase III the OUR may, after consultation with the Fair Trading Commission and other interested parties, impose competitive safeguard rules on public voice carriers that are dominant. The rules may relate to the following (section 35):-

- separation of accounts;
- keeping of records;
- provisions to ensure that information supplied by other carriers for the purpose of facilitating interconnection is not used for any uncompetitive purpose; and
- such other provisions as the Office considers reasonable and necessary for the purposes of the competitive safeguard rules.

2.8 The Act also allows for the OUR to make rules to require a dominant carrier to offer indirect access.

Determination of Dominance

2.9 The OUR has a duty to "…determine which public voice carriers are to be classified as dominant public voice carriers for the purposes of the Act"(section 28(1). Dominance is as defined in section 19 of the Fair Competition Act,1993 (see paragraph 3.8).

2.10 Before making a determination of dominance the OUR is required to invite submissions from members of the public, and consult with and take account of any recommendations made by the Fair Trading Commission (section 28(2)).

2.11 Dominance can be eroded over time as a result of market gains by the entrant and technological change. Hence, regular review is necessary. However, in network facilities, including interconnection markets, it generally takes significant time for new entrants to overcome the incumbent's dominance.

CHAPTER 3: MARKET DEFINITIONS AND DOMINANCE

Introduction

3.0 This Chapter sets out the methodology the OUR proposes to apply in identifying public voice carriers that are dominant. The same methodology is also suitable for determining dominance in retail and wholesale markets, although such questions are not addressed in this document. The approach is consistent with approaches in other jurisdictions such as the Office of Fair Trading (OFT)[2] in the UK, and the Australian Competition and Consumer Commission (ACCC)[3]. Using the methodology outlined in this Chapter, Chapter 4 investigates the relevant interconnection markets relating to public voice carriers, focusing on Phase I, and assesses whether there are dominant carriers in each relevant market.

Relevant Market

3.1 Definition of the relevant market(s) is a necessary step in determining dominance. It is only by defining the relevant market that competition authorities and regulators will be able to get a perspective on the various relevant services, how prices are formed, as well as the extent of competition or the potential for competition among firms. In seeking to identify the relevant market, consideration is given to the set of products or services comprising the market plus the geographic dimension of that market. This approach to market definition is for the purposes of competition analysis and regulation and so the term 'market' as used in this document has a specific economic meaning. There may well be legitimate reasons for the definition of the relevant economic market to differ from other perspectives of the 'market', such as the company's own view for marketing purposes.

3.2 The approach to market definition widely adopted in many jurisdictions is to focus on identifying the factors constraining the price setting behaviour of a 'hypothetical monopolist'. This is known as the 'hypothetical monopolist' test and requires the following thought process: if there was a sole supplier of a defined set of products or services in a defined geographical area, would that 'hypothetical monopolist' find a small but significant (and permanent) price increase (say 5-10%) profitable? If so, then a relevant market can be defined for competition and regulatory purposes. The logic is that, if such a price increase was profitable, then other products or services and other geographical areas would not provide a competitive constraint on the set of services and geographical area under examination. To apply the test, one starts first with the narrowest

[2] Source at http://www.oft.gov.uk.

[3] Source http://www.accc.gov.au.

set of services and geographical area, and gradually widens it until the answer to the question is in the affirmative. The reason why a small but significant price increase might not be profitable is that the hypothetical monopolist could lose a sufficiently large volume of sales because of demand-side or supply-side substitution or both.[4]

Demand-side substitution

3.3 Demand-side substitution would mean that as the price of the 'hypothetical monopolist' increases, consumers substitute away from the service(s) under examination to substitute services. If sufficient consumers behave in this way, even if many other consumers do not, the price increase would be unprofitable. An example of demand-side substitution would be some consumers reacting to an increase in the price of beef patties by switching to purchasing chicken patties.

3.4 Demand-side substitution can be measured by the cross-price elasticity of demand for a product or service (for example beef patties) *vis-à-vis* other products or services (chicken patties). This measurement of demand-side substitution gives the sensitivity of the demand for one service (say Y) in response to a change in the price of another service or basket of services (say X). The cross-price elasticity of demand may be zero, negative or positive. If the cross-price elasticity is zero, there is no relationship between the demand for X and Y. In this case an increase in the price of X leaves the demand for Y unchanged. If the cross-price elasticity is negative, the services are complements (ie an increase in the price of X leads to a decrease in the demand for Y and vice-versa). If the cross-price elasticity is positive, then the demand for Y will fall as the price of X decreases. In this case X and Y are substitutes. This is the only case relevant to demand-side substitution.

3.5 The existence of substitutes, ie goods with positive cross price elasticity of demand, indicates that there are constraints to the price setting behaviour of the 'hypothetical monopolist'. Thus, a small, but significant increase in the price of X will lead to an increase in the demand for the substitute product Y. Users of X are able to switch to Y without having to incur significant switching expenses. In addition, if the cross price elasticity is sufficiently large, consumers of X are able to switch to the close substitute in sufficient number so that the imposition of a price increase on X is unprofitable for the 'hypothetical monopolist'. For these reasons product Y should be included in the relevant market alongside X, since the demand for Y constrains the price setting behaviour of the suppliers of X.

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[4] For a comprehensive discussion of market definition and dominance see the UK telecoms regulator's on *The Application of the Competition Act in the Telecommunications Sector*, January 2000. The document may be downloaded from Web site http://www.oftel.gov.uk/competition/cact0100.htm.

Supply-side substitution

3.6 The ability of suppliers not presently providing the service to increase or switch production capacity to the production of the service in response to a price increase by the 'hypothetical monopolist' is a major constraining influence on the pricing behaviour of the 'hypothetical monopolist'. For example, suppliers of beef patties would find it easy to switch to the supply of callaloo patties, if the 'hypothetical' monopoly supplier of callaloo patties was to increase price. If there was sufficient entry by supply-side substituters , then the price increase would be unprofitable, because a sufficiently large volume of sales would be lost. Supply-side substitution is a form of new entry, but a class of entry that is especially easy, cheap and effective. Other types of entry are considered by assessing the extent of barriers to entry (see below). The easier it is for these supply-side substituters to make alternative goods available and in sufficient quantity, the greater the constraint on the 'hypothetical monopolist'. Where these suppliers are unable to respond or unable to switch supply in a reasonable time period or face significant cost of doing so, then the 'hypothetical monopolist' has sufficient market power for a price increase to be profitable. If this is the case, the other services should be excluded from the definition of the relevant market for the service in question.

3.7 In defining what is the relevant market, the relevant dimensions are not only the products or services and potential suppliers but also the geographic boundary of the market. This may be defined in terms of the entire country, a region within a country, etc. The geographic boundaries of the relevant market are defined by the extent to which the product or products of rival suppliers at different geographical locations can impose competitive constraints on the pricing behaviour of firms operating in the market.

Determination of Dominance

3.8 Once the relevant market is appropriately defined, the next step is to assess whether any supplier is dominant. According to section 19 of the Fair Competition Act of 1993, "..an enterprise holds a dominant position in a market if by itself or together with an interconnected company, it occupies such a position of economic strength as will enable it to operate in the market without effective constraints from its competitors or potential competitors."

3.9 Although it is convenient and analytically desirable to separate these two steps (market definition and assessment of dominance), they are not entirely self-standing. For example, the usual approach is to split potential entrants into two categories: supply-side substituters and others. The former are considered as part of the definition of the market, the latter as part of the assessment of dominance. In the final analysis, it should not matter whether the different types of entry are taken into account in step one or step two. This emphasises the point that market definition is not an end in itself, but a means to identify dominance.

3.10 In assessing dominance there are several factors to consider, including market share, barriers to entry, buyer power, prices and profitability, and vertical relationships. Each of these is discussed in turn below.

Market share

3.11 A firm's share of sales in the relevant market is a useful starting point in the assessment of dominance. But, if not used in conjunction with other indicators, market share alone could be a misleading measure of dominance. A firm that has substantial market share in the relevant market might be constrained in its price setting behaviour by the fact that entry is easy. In addition, buyers could also have substantial bargaining power as is the case if the buyer is a monopsony. If the firm has a small market share it is unlikely that it would be dominant but it would be possible if barriers to entry were large and competition from other suppliers in the market was ineffective. Thus, the implications of market shares for the existence of dominance need to be considered in the context of an examination of market conditions such as entry conditions and the behaviour of competitors and customers.

Barriers to Entry

3.12 The existence of dominance in a market is largely a function of the ease with which potential competitors may enter the relevant market and compete effectively against the incumbent(s). In telecommunications entry is very frequently restricted by the availability of licences to compete against the incumbent. For example, under the Telecommunications Act CWJ enjoys a three year monopoly for international telephony. But even in markets in which entry is not barred by legal restrictive arrangements, there may be economic barriers which deter entry. Economic barriers to entry may be derived from incumbency advantage, for example customer inertia, the large sunk cost of building a telecoms network, cost of switching from the incumbent service provider to a competing service provider, uncertainty of new entrant's service quality, and unfair access by entrants to incumbent's networks. Incumbency advantages also arise through control over "bottleneck" facilities which may include call termination (see the discussion in Chapter 4). The finite nature of the spectrum places a restriction on the number of entrants in the mobile telephony business and other wireless technologies.

Buyer Power

3.13 Under certain circumstances a buyer may impose constraints on the price setting behaviour of the 'hypothetical monopolist'. One such condition is where the buyer's share of purchases constitute a sizeable proportion of the supplier's output. The buyer's power is further strengthened if there are competing suppliers of the service. In this situation the buyer is in a position to influence the price it pays since anyone supplier would not want the buyer to reduce or stop purchasing and switch to an alternative supplier. Residential and micro businesses will generally be too small and diffused to exert an effective constraint on the price setting behaviour of suppliers.

3.14 Buyer power is stronger where the buyer can switch between suppliers easily but the seller has invested in assets specific to that buyer. In this regard there are no alternate uses which the assets can be put, or other buyers to whom sales can be made. Sometimes buyers have access to alternate supply on cost competitive terms, for example by in-house production.

3.15 Buyer power in intermediate markets is only beneficial to end-users when it exerts downward pressure on retail suppliers' prices which in turn lead to lower prices to consumers. In retail markets buyer power is usually limited to large business customers, such as multinational corporations.

Prices and Profitability

3.16 In examining dominance, and by extension the extent of market competition, focus is usually directed on the process of price formation in the relevant market. This requires an examination of the way in which prices are set which might include predation, price leadership, and parallel pricing. In addition, the profitability of firms operating in the relevant market can be an indication of the extent to which market power is influencing price formation. Dominance is often associated with the existence of super-normal profit (profit in excess of the minimum return required to compensate investors).

Vertical relationships

3.17 In analyzing market power the vertical integrated nature of firms operating in the industry needs to be taken into account. Vertical integration exists where a firm operates at both the downstream and upstream segments of an industry. For example the incumbent providing interconnection services to mobile entrants and simultaneously competing with those entrants in retail markets for mobile services. Where dominant in the upstream market, the vertical integrated firm may be able to frustrate downstream market entrants. Vertical integration need not constitute a barrier to entry since such firms may have low market share and there might not be any regulatory economic or technological barriers to entry. Vertical relationship is important if it is coupled with dominance which can be used in an anti-competitive manner.

Q3.1 What other factors should the OUR take into account in identifying firms that are dominant in a relevant market?

Conclusion

3.18 The OUR proposes a two-stage approach to the determination of dominance. In the first, the relevant market is identified. This involves an examination of demand-side substitution and supply-side substitution of a 'hypothetical monopolist'. The next stage involves the identification of firms that have economic strength to operate without effective constraints from competing suppliers and consumers within the relevant market. Determination of dominance requires careful investigation of market share, barriers to entry, prices and profitability, buyer power, and vertical relationships of firms operating in the relevant market.

CHAPTER 4: INTERCONNECTION MARKETS AND DOMINANCE

Introduction

4.0 This Chapter sets out the OUR's analysis of the definition of voice interconnection markets and its assessment of carriers that are dominant in those markets.

Interconnection Markets

4.1 Different interconnection markets may be defined. For example, international may be in a separate market from domestic interconnection, and interconnection services supplied by a domestic fixed network may be in a separate market from those supplied by a domestic mobile network. The policy of government is that international interconnection be delayed until Phase III. Until Phase III international will be available to carriers (mobile and fixed entrants) and service providers alike only as wholesale services, i.e on a resale basis. Below is a description of the types of interconnection markets relevant to Phase I. Following this is an examination of each relevant market to identify whether there is a dominant carrier.

4.2 Phase I is characterised by competition in domestic mobile facilities: CWJ's mobile network and the mobile networks of Cellular One Caribbean and Mossel (the two new entrants). CWJ will remain the exclusive fixed network operator during this period. For the present the OUR proposes to define the geographic scope of all interconnection markets as national. There is no justification for defining the relevant markets within a narrower geographic context. CWJ and the two new mobile entrants have been granted islandwide licences. Thus, at least for Phase I, there is no need to consider whether interconnection markets might be on a regional basis.

4.3 The main types of interconnection services envisaged during Phase I are:-

- call termination (call origination which would be purchased by indirect access (long distance) carriers is not relevant until Phase II);
- long distance/transit;
- interconnection circuits (and other services required to facilitate interconnection)
- ancillary services, such as emergency and directory assistance services.

Call Termination versus Call Origination

4.4 A distinction may be made between termination and origination. Even though the same network elements are used for termination as for origination but in different directions, in some countries interconnection charges differ between the two.[5] Should the 'hypothetical monopolist' decide to raise the price of call origination this will not bring about an increase in the demand for call termination and *vice versa*. In fact, as the price of call origination increases the demand for call termination will fall. This implies a negative cross price elasticity of demand, ie both services are complements. If the 'hypothetical monopolist' increases the price of call termination this will not cause a supplier of call origination to switch production capacity towards the supply of call termination. An increase in the price of call termination by the 'hypothetical monopolist' will not lead other suppliers of call origination to enter the supply of call termination to the 'hypothetical monopolist's customers. The justification for this is that once a customer opted to be connected to a particular network (say network X), anyone wishing to make contact with that customer must terminate the call on the network to which the customer is connected. Moreover, the customer has little incentive to switch from network X to another network because the cost of high call termination is not paid for by the customer himself, but instead by callers from other networks to the customer.

4.5 Even where there is competition between networks, the economic characteristics of termination can be very different from origination, especially under calling party pays arrangements, because it is the caller that pays the call termination charge (via the retail price), but the call recipient that has the choice of which network to take service from. This is referred to as the call termination externality. For origination, the same individual pays the call origination charge (reflected in the retail price) as has the choice of networks. A network may therefore be able to raise the charge for call termination without adverse effect, because it is the customers of other networks that end up paying for the increase. Raising the price of call origination, in contrast may result in the loss of customers to competitors. For this reason call termination can be defined as a separate market for each local network operator, even if operators compete in the provision of call origination. There is a case, therefore, to define separate markets for call termination on each mobile network, because the call termination externality rules out or severely restricts demand side-and supply-side substitution.

4.6 The special characteristics of call termination are recognised in the Act. Section 29(4)-(6) singles out call termination as an interconnection service for which the OUR may make a determination of the terms and conditions for carriers that are non-dominant, as well as for dominant carriers. For the present, the OUR proposes to define mobile termination as a single market, but may consider further in the future whether separate markets

[5] See Annex D *Interconnection in Telecommunications, A Consultative Document*, 1999 March at http://www.our.org.jm.

would be more appropriate. During Phase I call origination is not an interconnection service to be offered by CWJ's fixed network. It is not until Phase II that dominant public voice carriers may be required to offer indirect access to their networks.

Fixed versus Mobile Interconnection Markets

4.7 The demand-side substitution test fails if in response to an increase in price by CWJ interconnection seekers would switch to alternate services in sufficient numbers to make the price increase unprofitable. There are no substitutes for which new mobile entrants may switch to in response to monopoly pricing by CWJ for the services of its domestic fixed network. An alternate network to CWJ's fixed network is its mobile network. However, interconnection service supplied by the fixed network is not a substitute for mobile network services (and *vice versa*) as substitution between the two is limited.

4.8 With regard to call termination demand-side substitution is not possible. This is because the demand for call termination is a derived demand, i.e demand for retail services. Call termination is to enable the customer making the call to be connected to the call recipient who is the customer of a different network. The recipient may be on the fixed or mobile network. In this regard mobile termination is not a substitute for fixed termination, since the numbers dialled by the caller determines the particular fixed line or mobile connection on which the call must be terminated. So even if the 'hypothetical monopolist' increases the price for fixed termination the mobile carrier cannot substitute mobile termination for fixed termination.

4.9 The supply side-substitution test is whether mobile carriers not presently offering fixed network services would increase or switch production capacity to the provision of fixed network services in response to monopoly pricing for fixed interconnection services by CWJ. In this regard the supply-side substitution test fails. There are legal restrictions on the number of players that offer services in that market, at least for the first 18 months (Phase I) from the date of the passage of the Act. Even in the absence of legal restrictions there is no supply-side substitution between fixed and mobile carriers. Mobile and fixed networks are technologically different: fixed networks cannot be used to provide mobile services and, although mobile networks can technically be used to provide fixed services, they generally cannot do so at competitive prices where they are in direct competition with fixed networks.

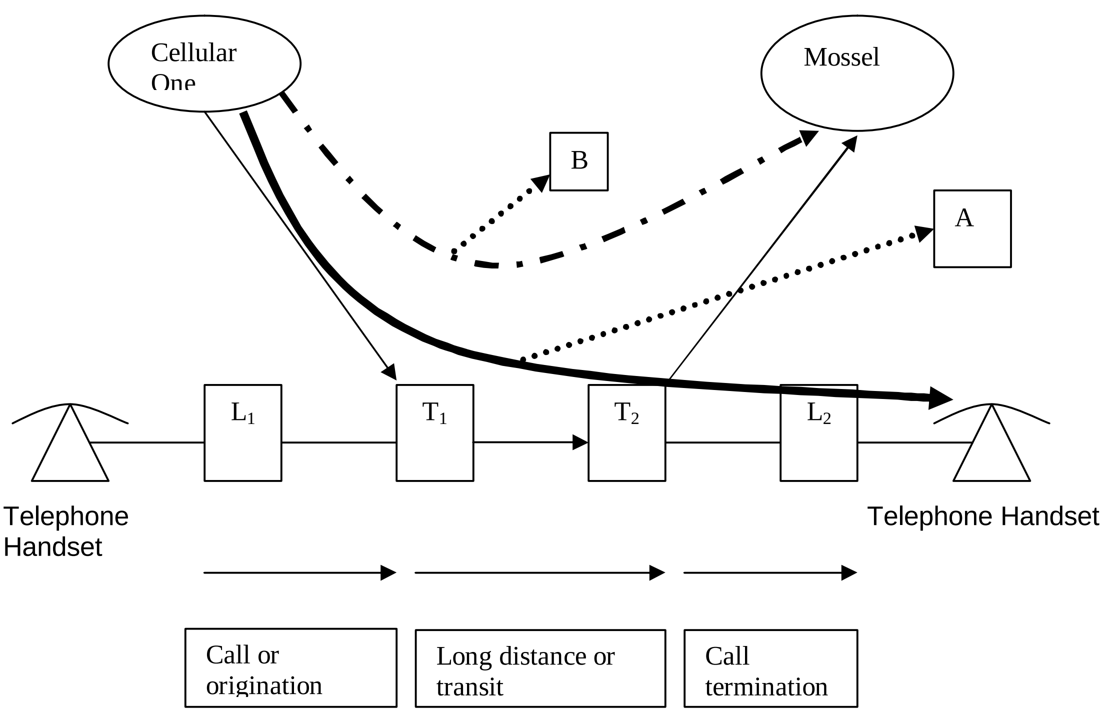
4.10 In summary, fixed network services are not substitutes for mobile network services and *vice versa* and supply-side substitution is absent. Because of the lack of demand and supply-side substitution mobile network services and fixed network services should be treated as separate markets. This conclusion is not dependent upon any assumption about demand and supply-side substitution between mobile and fixed services at the retail level (an issue that the OUR has not yet considered). It would be perfectly possible to conclude that substitution existed at the retail level, but not at the interconnect level.

Long Distance/Transit versus Call Termination

4.11 It is also appropriate to define separate markets within fixed network interconnection services. Domestic long distance or transit interconnection services should be defined in a separate market from local services, ie call termination and origination. On the demand-side these services are complements not substitutes since they comprise different segments of an end-to-end call. On the supply-side, a long distance network cannot be used to supply local services and vice versa.

4.12 Figure 4.1 is used to demonstrate the distinction between local interconnection services and long distance or transit interconnection services. There are many other possible configurations of both call types and switching stages that may be required on CWJ's network.

Table 4.1: Illustration of Long Distance/Transit versus Call Termination



4.13 Cellular One's mobile network is connected via an interconnection circuit to CWJ's fixed network at T_1. A mobile call originates on Cellular One's network and terminates on CWJ's fixed network. To deliver the call to CWJ's fixed customer Cellular One buys long distance (i.e T_1 - T_2) and call termination from CWJ's fixed network (which may be offered as a single service, such as double tandem). This is demonstrated by line A.

4.14 Where two networks are not physically interconnected the principle of *any -to-any* interconnection is only possible if these networks are logically interconnected via a third network. In Figure 4.1 it is assumed that the mobile networks of Cellular One and Mossel are not physically linked. In practice, the decision of physical or logical interconnection will be made by the two new entrants. Consider the situation when a customer of Cellular One makes a call to a customer of Mossel. In this instance Cellular One will purchase transit (i.e T_1-T_2) from CWJ's fixed network. Cellular One need not purchase call termination from CWJ's fixed network since the call is terminated on Mossel's mobile network. Transit interconnection services facilitate the conveying of messages from say the customers of Cellular One network to those of Mossel mobile network. The third network (CWJ's fixed) is simply providing a transit service since the call did not originate or terminate on it.

Interconnection Circuits

4.15 Interconnection circuits are used to physically join two networks. In this regard they are complements to other services since without them *any-to-any* is not possible. This implies a negative cross price elasticity of demand, thus demand-side substitution is absent. In general there are two kinds of interconnection links. One type is where both the interconnecting provider and the interconnecting seeker build out a circuit from their respective switches and circuits and the circuits are linked somewhere in between. The next possibility is where either the interconnecting seeker or the interconnecting provider supply the whole circuit to the interconnecting provider's switch building.

Ancillary Services

4.16 Customers of the two new mobile entrants would need to have access to emergency services and directory assistance. In fact, it is a requirement of the Act that public voice carriers provide their customers access to directory assistance and emergency services. Interconnection services may be used to fulfill those requirements which apply at the retail level. The Jamaica Constabulary Force operates its own call centre which is reached at 119. There are two ways for entrants to access this centre. The first is for them to establish their own direct links. This might not be economical because of insufficient call volumes to justify the cost of establishing the link and so they might need to use the second way to access the centre by purchasing conveyance to the centre as an interconnection service from CWJ. In terms of demand-side substitution there is no alternate service entrants may purchase to provide access to their customer to the emergency services of the Police.

4.17 At present for 110 emergency services (eg. fire, ambulance) calls are made to CWJ's call centre, thereafter the details are handed over to the respective emergency centres. The new mobile entrants would therefore have to acquire access to 110 emergency services via CWJ's call centre to enable their customers to access the same emergency services available to CWJ's customers. In this situation new entrants have no alternative service apart from self-provision of a similar call centre. But self-provision is unlikely to be a realistic and economical option. First, the volume of calls might not be at a sufficiently high level to make the investment in a call centre economical. If faced with increased charges by CWJ for access to 110 new entrants cannot switch to 119 emergency services since they will need to offer both options to their customers. Thus, demand-side substitution is absent. Supply side-substitution is also absent. Emergency services may find it more practical to deal with one call centre rather than multiple centres. This would constitute a barrier to entry even if call volume is sufficiently high to make investment in a call centre rewarding. An increase in the charge by CWJ for access to its 110 emergency will not caused other suppliers to switch capacity to the provision of the service since entry is barred. Because both demand side and supply side substitution is not possible 110 and 199 emergency services are in separate markets.

4.18 The demand for directory assistance is not affected by an increase in the price of emergency services and vice versa. In short, emergency and directory assistance services are unrelated on the demand-side, ie cross price elasticity of zero. Supply-side substitution is absent: an increase in the price for accessing directory assistance would not induce a supplier of access to the emergency services to start supplying the service, since the same firm, CWJ is the supplier of both. For directory enquiry the two new mobile entrants will buy transmission from CWJ to its call centre and then connect to operators of its directory assistance service.

4.19 Table 4.1 lists the various interconnection markets identified by the OUR for Phase I.

Q4.1 What are the relevant interconnection markets during Phase I?

Q4.2 Should a separate market for call termination be defined for each mobile carrier, or should it be a single market for mobile call termination?

Table 4.1: Interconnection markets

Interconnection market	*Interconnection Markets*
Domestic fixed	? fixed termination ? long distance/transit Ancillary services ? access to 110 emergency services (fire, ambulance) ? access to 119 emergency service (Police) ? directory assistance
Domestic mobile	? mobile termination
Other	? Interconnection circuits & other services required to facilitate interconnection

Dominance in Interconnection Markets

4.20 For the purposes of this exercise consideration is not given to price and profitability because these services are only now been offered in Jamaica. Therefore, the analysis of dominance relies on other indicators, namely market share, barriers to entry in the relevant market, buyer power, and vertical relationship of the provider(s) of these services.

Fixed Call Termination

4.21 Entry of competing fixed network carriers is legally barred until at least 18 months from the date of the passage of the Act. For this reason the incumbent, CWJ, will have 100% of market share for fixed call termination. Even after this period and if entry is allowed CWJ is likely to retain a high market share. This is because entrants will take some time before rolling out their networks and to start challenging CWJ for customers. Moreover, CWJ is vertically integrated. It provides interconnection services, wholesale, and is also a major player in downstream (retail) markets. With the existence of legal barriers to entry coupled with its vertically integrated structure it can wield substantial influence in the marketplace, unless appropriately regulated. At the end of December 1999 CWJ had approximately 500,000 fixed subscribers of voice services. The new entrants' customers would want to make calls to this group of customers. There is not likely to be material buyer power, because initially traffic (and interconnect revenues) from new entrants will be a small proportion of CWJ's total traffic. The OUR concludes, therefore, that CWJ is dominant in the market for fixed call termination.

Mobile Call Termination

4.22 CWJ offers various tariff packages to mobile subscribers: Performer, Security, and Prepaid. Under the Performer and Security tariff plans the call recipient pays for incoming calls from fixed line customers as well as other mobile customers. In this regard it is the call recipient who pays the call termination charge. However, with the Prepaid package no payment is made by the call recipient for incoming calls, and outgoing calls are made using the World-Talk prepaid calling cards. In this instance it is the caller who pays for call termination, via the retail tariff. Therefore, it is only under the Prepaid plan (or any new package that CWJ may choose to introduce in the future, which involves calling party pays arrangements) that the two new mobile entrants will be required to pay call termination interconnection charges to CWJ.

4.23 As argued above (paragraph 4.4-4.5), there is a natural tendency for seller power to exist in call termination. A crucial consideration whether this translates into dominance is the existence of and extent of buyer power. The new entrants will have little buyer power in purchasing mobile call termination from CWJ, because their volume of purchases will at least initially form a small proportion of CWJ's total call terminations. In the absence of buyer power, the OUR conclude that CWJ is dominant in mobile call termination.

4.24 Conversely, CWJ does have buyer power in relation to call termination provided by the mobile entrants. All fixed-mobile calls and many mobile-mobile calls will originate on CWJ's network. The great majority of the entrants' call termination services will be purchased by CWJ. The mobile entrants will not be dominant, therefore, in mobile call termination, at least in the short term. This conclusion would hold even if separate markets for termination were defined for each mobile network.

Long Distance/Transit

4.25 As mentioned above there are legal barriers to entry in this market because competing fixed networks are not permitted until Phase II. Thus, CWJ is dominant, having 100% of market share.

Interconnection Circuits

4.26 Typically entrants have to purchase at least some parts of interconnection circuits from the incumbent; they may be able to self-provide some of the circuits, but the final section of the link that connects to the incumbent's switch must usually be purchased from the incumbent; sometimes either the technical requirements or the economic/financial circumstances mean that self-provision for a substantial section of the circuit, or even the whole circuit, is not feasible or economically reasonable. CWJ can be expected to be dominant for the following reasons:-

? it has a national network and so can generally provide circuits much more easily and cheaply than entrants; and
? it has much greater buyer power than entrants due to the volume of business.

Ancillary services

4.27 For 119 emergency services CWJ is dominant because it is unlikely to be possible or economical for entrants to establish a link to 119 emergency services to justify the cost of the link.

4.27 With regard to 110 emergency services CWJ is also dominant. It is not feasible or economical for entrants to set up their own call centre. In addition, to the costs of the call centre there are difficulties and costs involved in obtaining all of the customer information necessary to run such a service. The entrants would have to obtain all of this information on all of CWJ's customers.

4.28 Since the same point applies to directory assistance CWJ is dominant in this market also.

Q4.3 Do respondents agree with the OUR that CWJ is dominant in all interconnection markets? If you disagree, please give the justification for your answer.

Conclusion

4.29 The OUR examined interconnection markets using demand-side and supply-side substitution set out in Chapter 3. It concluded that there are the following interconnection markets:-

- fixed call termination;
- transit/long distance;
- access to 119 emergency service (police);
- access to 110 emergency services (ie fire, ambulance)
- directory assistance;
- mobile call termination; and
- interconnection circuits and other services to facilitate interconnection.

4.30 The various markets have been examined for dominance. In all of the markets CWJ is considered dominant. Unless evidence or comments submitted during the consultation cause the OUR to change its view, it will make a determination to this effect, in which case the requirements on dominant carriers specified in the Act will be triggered.