THE HASHEMITE KINGDOM OF JORDAN

TELECOMMUNICATIONS REGULATORY COMMISSION

Review of Telecommunications Markets:

Public Consultation Document on Mobile Markets

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I. INTRODUCTION

Promoting competition is one of the major roles of the Telecommunications Regulatory Commission ("TRC"), whose primary aim is to ensure the provision of a variety of high quality telecommunications services at competitive prices. Since the liberalization of the Jordanian telecommunications market, the TRC has sought to perform this role through the adoption of a combination of remedies which facilitate market entry, especially in the form of mandated network access and interconnection obligations.

In furtherance of its twin goals of a comprehensive strategy for creating conditions for effective competition and in achieving a more efficient and effective framework of regulation, the TRC will adopt a series of regulatory measures as elements of a new comprehensive market review process. The methodological approach, the legal basis and the timing of this process have been set out in detail in the *White Paper on Market Review Process* (the "*White Paper*").[1]

The present consultation on the TRC's review of the mobile markets is the second of a series of four consultations. Following the Public Consultation on mobile markets, the TRC will launch two further Public Consultations on the fixed narrowband and dedicated capacity markets respectively.

1. Objective and Scope of the Consultation Process

This Public Consultation document presents the TRC's preliminary findings on the review of mobile markets and provides its conclusions on whether existing *ex ante* obligations applied on these markets should be maintained, revised or abandoned, and/or whether or not new *ex ante* obligations should be introduced.

The Consultation document sets forth the TRC's rationale as to why wholesale mobile call termination as well as mobile access and call origination ("MACO") must be considered for the imposition of *ex ante* regulation, and provides a set of proposals on the appropriate scope of *ex ante* regulatory measures. It does so by defining the relevant markets susceptible to *ex ante* regulation, identifying any dominant position on these markets and determining appropriate *ex ante* regulatory measures that target the particular competition problems found. Following the principles and conceptual approach laid out in the *White Paper*, the TRC's focus is to remedy the competition problems as much as possible on wholesale markets before addressing any remaining problems at the retail level.

1 TRC, *White Paper on Market Review Process*, released 14th of May 2009.

It is important to note that the present mobile markets review is based upon market data collected for the past three past years (2006-2008), and has a forward looking horizon of three (3) years as of the date of the publication of the TRC's Decisions. At the end of that period, the TRC will assess the need to revisit the market definitions, dominance designations and the *ex ante* obligations imposed, as a result of this market review, and will update them accordingly. The remedies proposed here will have to be implemented by the TRC as soon as possible so as to allow enough time for the TRC to evaluate their effectiveness.

This document is organised as follows:

Chapter II provides an overview of the **current structure** of the mobile sector. It describes the mobile network operators, the retail and wholesale services and a number of key features of the sector. It should be noted that while this *Chapter* provides important background information, the actual relevant regulatory analysis is contained in the subsequent *Chapters*.

Chapter III sets forth the TRC's **rationale** on why it considers mobile markets for *ex ante* regulation. The *Chapter* begins with a definition of the relevant market for retail mobile services and applies an initial three-criteria test to the market - assuming the absence of any *ex ante* regulation of dominant operator(s) at retail and wholesale levels. The test reveals competition problems and suggests that some form of intervention, at least at the wholesale level, is required.

Chapter IV develops the TRC's approach with regard to **wholesale mobile call termination**. It defines the relevant wholesale markets, applies the three-criteria test to these markets, and identifies each mobile network operator as a dominant operator with regard to mobile call termination on its individual network. Based on an assessment of the potential competition problems related to the dominant positions of mobile operators with regard to call termination, it proposes the introduction of appropriate *ex ante* remedies.

Chapter V describes the TRC's conclusion in relation to **wholesale SMS termination**. It defines the relevant wholesale market and applies the three-criteria test to this market. As the TRC believes that this market does not cumulatively fulfil the three criteria, the market is not regarded as susceptible to *ex ante* regulation and, thus, not subjected to a dominance test.

Chapter VI sets forth the TRC's considerations with regard to **wholesale mobile access and call origination ("MACO").** MACO allows an operator to offer mobile services to end-users without, or with a smaller amount of, network infrastructure investment and spectrum than the host operator. The TRC reviews the market for MACO under the assumption that wholesale mobile call termination is subjected to *ex ante* regulation, while MACO and the retail level of the market remain unregulated. The *Chapter* defines the relevant market for MACO and applies the three-criteria test to that market. In order to address the potential competition problems related to such dominance, it proposes that appropriate *ex ante* remedies be applied.

Chapter VII addresses the question of whether the market for **retail mobile services** should also be regulated. This issue is reviewed on the assumption that the *ex ante* regulation of wholesale mobile call termination and MACO are in place (as set out in the previous *Chapters*). Using the market definition proposed for the retail level set forth in *Chapter III*, the TRC applies a final three-criteria test to the retail market, with all proposed wholesale remedies in place. The TRC concludes that with appropriate *ex ante* regulation at wholesale level implemented, there would be no need for further regulation at the retail level. The TRC, however, notes that this conclusion is subject to the full and effective implementation of the proposed wholesale remedies.

2. The Public Consultation Process

Following the publication of this Public Consultation document, interested parties are invited to provide comments and observations to the TRC within a period of **30 days as of the publication of this document**. During that period, the TRC welcomes written comments on any of the issues raised in the Public Consultation document.

Interested parties are invited to respond to the consultation questions. It would facilitate the TRC's task of analysing responses if all comments were referenced to the relevant numbers of the Consultation Questions. The TRC also appreciates that some of the issues raised in the Public Consultation document might require that respondents provide confidential information in support of their comments. Respondents are therefore requested to **identify** clearly any such confidential material and to include it in a separate annex to their response.

Following the deadline for receiving comments, the TRC will post the comments of all parties on its website, subject to confidentiality considerations. Interested parties will have an additional **10 days** in which to provide input on any issues that are raised in the comments of other parties.

The TRC will complete this Consultation process by publishing a series of final Regulatory Decisions regarding the issues of market definition, the designation of dominance and the prescription of *ex ante* obligations, to be accompanied by an Explanatory Memorandum which provides an evaluation of the responses of interested parties, the final conclusions drawn by the TRC regarding the outcome of the mobile markets review in light of those responses, and the TRC's final conclusions regarding the maintenance, revision or abandonment of existing *ex ante* obligations and/or the introduction of new *ex ante* obligations.

II. THE CURRENT SECTOR STRUCTURE

This *Chapter* provides a description of the current market structure in the provision of mobile services in Jordan; in so doing, it examines the licensed mobile network operators ("MNOs") (*Section 1*), the retail and wholesale services offered by MNOs (*Section 2* and *Section 3* respectively). The final part (*Section 4*) addresses a number of key features of the mobile sector.

1. Mobile Network Operators (MNOs)

Mobile telecommunications services in the form of "2G" services were first introduced into Jordan in 1995, with the operation of what is now Zain. The second mobile license was issued in 2000, to what is now Orange Mobile. There are currently four Public Mobile Wireless Service providers ("MNOs") licensed to provide mobile telecommunications services in Jordan. These are (in order of their respective dates of operation):

- Zain
- Orange Mobile
- Xpress
- Umniah

As is reflected in below, two of the MNOs have been allocated GSM 900 spectrum (Zain and Orange), while Umniah operates in the GSM 1800 range, while Xpress has been allocated spectrum for its "Iden" service. The leading three MNOs have recently enhanced their networks with the deployment of General Packet Radio Service (GPRS) and EDGE (Enhanced Data rates for GSM Evolution) technology, which introduces packet data transmission. GPRS and EDGE technologies are commonly referred to as "2.5G" systems. On 10 September 2009, the TRC granted a 3G spectrum license to Orange Mobile in the 2.1 GHz frequency range, and the launch of services is expected during the course of 2010. Other mobile operators will be allowed to introduce the service after a one year operation period, provided that they meet the same conditions that were applied to Orange-Mobile.

The original spectrum licenses held by each of the MNOs vary in terms of their expiration dates between 2014 until 2021.

Among the four MNOs, three MNOs (Zain, Orange Mobile, and Umniah) have achieved high levels of population and territorial coverage in Jordan.

Table 1: Mobile Spectrum Assignment

Operator	Spectrum Award			
	Date of spectrum acquisition	Valid till	Range of Spectrum	Methodology of Award
Zain	30 Oct 1994	21 Feb 2021	2x17.5 MHz in 900	Direct Award
Orange Mobile	23 Jan 2000	9 May 2014	2x12.5 MHz in 900	Direct Award
Xpress	23 Oct 2003	5 April 2015	2x5 MHz in 800	Direct Award
Umniah	9 Aug 2004	8 Aug 2019	2x15 MHz in 1800	Beauty contest

Source: TRC

The mobile penetration level in terms of active[2] mobile subscriptions was around 91% by the end of 2008 and, by Q3 of 2009, had surpassed 100%. It should also be noted, however, that around 28% of Jordanian subscribers were independently estimated in the second half of 2007 to hold more than one mobile subscription (*i.e.*, multi-SIM card owners).[3] Assuming the percentage of 28% to be constant during the reference period used by the TRC for this market review, mobile penetration in terms of subscribers was around 65% by the end of 2008. By contrast, the fixed penetration level in terms of fixed phone lines per household was decreasing in the same reference period from 64% in 2005 to 47% by the end of 2008, as indicated in Tables 2a, b and c below.

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2 Active post-paid subscribers are subscribers who are registered in the Home Location Register HLR of the MNO in question, and who pay their monthly bill or their monthly subscription fees, or who make at a minimum one charged activity where the MNO collects that charge, during the past three months from the date of the counting of the number of active subscribers. Active pre-paid subscribers are those subscribers who are registered in the Home Location Register HLR of the MNO and who make at minimum one charged activity where the MNO collects that charge, during the past three months from the date of counting the number of active subscribers.

3 Report of Arab Advisors Group Strategic Research Service – September 2007.

Table 2a: Mobile penetration is terms of active subscriptions

Date	31/12/05	31/12/06	31/12/07	31/12/08
Penetration	57%	74%	82%	91%

Table 2b: Active subscriptions as % of multi-SIM owners

Date	31/12/05	31/12/06	31/12/07	31/12/08
Penetration	41%	53%	59%	65%

Table 2c: Fixed line household penetration

Year	2005	2006	2007	2008
Penetration	64%	59%	53%	47%

Source: Tables 2a and 2b - MNO responses to questionnaires.
Table 2c - Fixed Network Operator responses to questionnaires and the TRC's database.

2. Retail Mobile Services

The three leading MNOs (Zain, Orange Mobile and Umniah) offer similarly broad baskets of mobile services to retail customers. Those services consist of both a range of voice call-related services (both between MNOs and with fixed operators) and data transfer services (as between MNOs only).

The *voice services* provided over the MNOs' networks are made up of:

Basic voice services, in terms of the conveyance and switching functions necessary to access a called party, are provided on the basis of national, international and international roamed calls. They are available either in a pre-paid or in a post-paid manner, with the latter category also being broken down further according to various available subscription packages. The voice services can be further broken down into different tariffs depending on whether the calls are on-net mobile calls, off-net mobile calls, or mobile-to-fixed calls. The charges for each of the above voice services vary and are influenced by such factors as the tariff/subscription package, whether or not airtime is included in the price, and the origination and/or destination of the call.

Supplementary voice services are provided at additional charge, and are largely accessed via short codes. They include premium rate services, directory services, voicemail, and conference calls. Additional services are also targeted at business customers, including Mobile Private Network (MVPN) services.

Emergency services, which enable mobile subscribers to reach emergency services via a standard number.

The *data telecommunications services* currently provided over the MNOs' networks are divided into content connectivity[4] and mobility services, examples of which are respectively mobile Internet access and location-based services. The greater deployment of GPRS and EDGE technology (2.5G), and even 3G technology[5] at a later point in time, will increase the range of available mobility services. SMS ("Short Messaging Services")[6] are the mobility data services most commonly used by consumers using the prevailing 2G technology.

The extent to which the retail service portfolios of the respective MNOs are very similar can be seen from Table 3, where an indicative comparison of the individual service offerings of the four MNOs in Jordan is presented.

Of the four MNOs, only Xpress does not have GPRS capabilities, while it alone provides the "push to talk" function for its customers. Currently, Xpress' "push to talk" service is essentially used as a "walkie talkie" service by large user groups providing various public facility functions.

4 Internet connectivity services add mobility to users' fixed Internet experiences and include mobile Internet access services and secure Intranet/Extranet access services. The introduction of GPRS technology has allowed the increase in data transmission rates of up to 115kbps.

5 Orange Mobile was awarded the first 3G spectrum license on 10 September 2009.

6 SMS allows messages of up to 160 alphanumeric characters long to be sent to and from mobile terminals on a point-to-point basis. SMS is very similar to a paging service, but is bi-directional in nature.

Table 3: Retail service offerings of mobile operators

Type of Services		Operators			
		Zain Mobile	Orange Mobile	XPress	Umniah Mobile
Call-related services	basic voice service	✓	✓	✓	✓
	CLI	✓	✓	✓	✓
	voice mail	✓	✓	✓	✓
	call waiting	✓	✓	✓	✓
	missed calls	✓	✓	✓	✓
	voice SMS	X	✓	X	✓
	call back	✓	X	X	✓
Internet services	Browsing	✓	✓	✓	✓
	Email	✓	✓	✓	✓
	web to sms	✓	✓	X	✓
	On line payment	✓	✓	✓	✓
Messaging	SMS	✓	✓	✓	✓
	MMS	✓	✓	X	✓
Roaming services		✓	✓	✓	✓
Premium rate services		✓	✓	✓	✓
GPRS services		✓	✓	X	✓
Directory services		✓	✓	✓	✓
Push-to-talk		X	X	✓	x
Other services	Conference call	✓	✓	3-way	✓
	Call barring	✓	✓	X	✓
	Call hold	✓	✓	✓	✓
	Call forward	✓	✓	✓	✓

Source: Websites of MNOs

Regulation at the retail level currently includes two measures which are not yet fully implemented, namely:

- The obligation on all mobile operators to allow subscribers to port their numbers as between MNOs.[7] The TRC is in the process of awarding a build/operate/transfer contract to a technical operator of the number portability system, anticipated to be operational by the end of 2010/start of 2011.[8]

7 *TRC Instructions for Implemented Number Portability* (January 2005)

8 Refer to *TRC Statement of Number Portability Implementation*, 22 July 2009, TRC Board Decision No. (1-12/2009)

- The obligation on Zain to provide the Carrier Selection (CS) and Carrier Pre-Selection (CPS) functions to other licensed operators.[9]

As part of that latter obligation, the charges imposed on individual customers seeking to change their services to the Carrier Select/Pre-Select operator should be fair and reasonable, and should not discriminate as between customers. Moreover, Zain is obliged to provide a consolidated billing function for Carrier Pre-Selection, to produce and publish a Reference Offer for mobile interconnection services, and to provide billing and collection services.

3. Wholesale Mobile Services

The principal wholesale service currently provided by MNOs to all other operators is the voice call termination service. In addition, SMS termination services are provided by MNOs to other MNOs. The provision of voice call termination, SMS and MMS is regulated by the TRC.[10] As a related aspect of that regulation, MNOs have an obligation to provide interconnection services and collocation and infrastructure sharing services at a cost-based price. In the case of SMS and MMS termination, traffic is exchanged among MNOs under the "bill and keep" system, and has so operated for a number of years without any regulatory prescription.

Insofar as mobile access and call origination is concerned, the TRC sought to encourage the commercial negotiation of MVNO access and issued the regulatory decision on the provisioning of MVNO service in Jordan in 16/9/2007.[11] However, the High Court of Justice of Jordan has ruled against such an order under the system of *ex ante* regulation which precedes the current market review mechanism. The TRC issued a new regulatory decision in 29/7/2008 and since that time, no MVNO agreements have been negotiated on commercial terms.

4. Key Features of the Mobile Sector

The mobile telecommunications sector is characterised by a number of key features, namely:

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9 Instructions for Implemented CS/CPS (TRC Board 1-15/2005). The services included within the CS/CPS obligation for international calls include voice and fax, which should be made available to post-paid as well as to pre-paid customers using independent or consolidated billing. The TRC has also determined that in-bound and out-bound roaming services are not to be included within the CS/CPS services.

10 According to Paragraph 57 of *the Interconnection Instructions*: "All Licensees shall be required to provide Traffic termination service to all other Licensees".

11 TRC Regulatory Decision on the Provisioning of Mobile Virtual Network Operator (MVNO) Services in Jordan, July 2008.

- Although the mobile penetration level in Jordan surpassed 100% in Q3 of 2009, the market would not appear to have reached saturation level, given that externally compiled statistics demonstrated that in 2007 around 28% of Jordanian subscribers had more than one mobile subscription (*i.e.*, multi-SIM card owners).[12]

- The absence of **number portability** has hampered customer churn as between different MNOs. The figures reported by the operators under the term "churn" encompass customer migration between various tariff packages offered by the *same* MNO, and thus do not appear to measure real churn so as to reflect the levels of competition across the MNOs.

- **Market** growth occurred in 2008, as reflected in the rise in total subscriber numbers (12%) and in the volume of originated traffic minutes (39%).

Table 4a: Annual market growth in terms of total subscriptions

Growth annually	31/12/05	31/12/06	31/12/07	31/12/08
Total Subscriptions	na	32%	14%	12%

Table 4b: Annual market growth in terms of total originated traffic

<table>
<tr><th>Growth annually</th><th>31/12/06</th><th>31/12/07</th><th>31/12/08</th></tr>
<tr><td>Zain</td><td colspan="3" rowspan="4">numbers omitted (n.o.)</td></tr>
<tr><td>Orange Mobile</td></tr>
<tr><td>Xpress</td></tr>
<tr><td>Umniah</td></tr>
<tr><td>Total</td><td>50%</td><td>44%</td><td>39%</td></tr>
</table>

Source: Operator responses to TRC's questionnaires

- Despite the availability of most types of retail services across all MNOs, the **business strategies** for all four operators appear to be different. Market shares in terms of post- and pre-paid subscribers, revenues and monthly average minutes per subscriber suggest that Zain's commercial strategy, is to focus on post-paid customers, while Orange Mobile and Umniah focus their strategies on pre-paid customers. Xpress, by contrast, focuses its business strategy on servicing large utility-based Closed User Groups.

- There are no technical reasons for **capacity** to be constrained. With the exception of one operator, all other operators reported that they have established methods in place to address any possible capacity constraints.

- The **distribution** of mobile retail services occurs through a number of sales channels. For example, the mobile services of Zain and Orange Mobile

12 Report of Arab Advisors' Group Strategic Research Service – September 2007.

products are mostly sold through their own branded shops, through franchise relationships, or through personal dealers. Umniah mostly sells its products through the franchise system. The sales channels of Xpress are significantly underdeveloped compared to the other three MNOs. The standard minimum contract in the industry is one year (and renewable), catering for various options to achieve early termination. The loyalty programmes in place by the various MNOs vary in their scope; they might include free services, minus SMS, billing discounts, or even a redeemable points programme.

- With the exception of Umniah, the MNOs are able to allocate **advertising expenses** consistently around 3-5% of their annual turnover. It is widely acknowledged that advertising expenses constitute a fundamental aspect of customer acquisition in the mobile telecommunications sector.

- All the MNOs provide **handset subsidies** to their customers, through the availability of various deals. Usually, the subsidy level is determined on the basis of the length of the subscription period.

- The MNOs have all signed **interconnection agreements** among themselves and have also signed a range of international roaming agreements.

III. RETAIL MOBILE SERVICES (IN THE ABSENCE OF ANY *EX ANTE* REGULATION)

As a first step in its market review exercise, the TRC considers the state of competition at the retail level for mobile services. This exercise is a greenfield analysis carried out with a three year forward-looking perspective under the hypothetical assumption that there exists no *ex ante* regulation at both retail and related wholesale levels. This initial step is required to allow the TRC to be able to form an initial view on whether the retail market is characterised by competition problems that warrant further scrutiny, or whether any related upstream wholesale markets (and perhaps also the retail market itself) may have to be identified and considered for *ex ante* regulation.

The first step involves carrying out two distinct exercises. *First*, the TRC defines the relevant retail market for mobile services (*Section 1*). *Second*, it performs an assessment of the likely competition problems that could arise in the absence of any *ex ante* regulation being imposed (*Section 2*). Based on this initial analysis, the TRC concludes that some form of *ex ante* regulation is required, and its details are further elaborated upon further below in the subsequent chapters.

1. Market Definition

The policy objective of defining a relevant product market is to identify all the products and services that are sufficiently substitutable (interchangeable) with one another. Such an exercise will involve an examination of whether all the objective characteristics of the product/service in question can satisfy the consumer's needs, especially in terms of price and the intended uses to which the service can be put.

The definition of a relevant product/service market therefore begins with the grouping of products or services used by consumers,[13] based on their same final purpose or use. These grouped products and services will be considered to fall within the same relevant product market if there is: (1) demand-side substitutability and (2) supply-side substitutability[14]. The degree of demand and supply side substitutability forms competitive constraints to the supply of those product/services and as a result sets the borders of the relevant market. Both of these competitive constraints are examined when the TRC seeks to define a relevant product market. As discussed in TRC's *White Paper*, where possible, the so-called Hypothetical Monopolist or

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13 The concept of a "consumer" can equally apply to a wholesale and to a retail customer for the purposes of a substitutability analysis.

14 In practice, the determination of the issue of substitutability could be determined either on the basis of a demand side or a supply side analysis, depending on the particular characteristics of the market in question.

("SSNIP") Test[15] may be used to evaluate the existence of demand and supply side substitutability.

In practice, for the definition of the market for retail mobile services, the existence of demand and supply side substitutability requires an examination of the following issues:

- Whether the retail market is a "cluster" market comprising set of individual services falling within the identified cluster.
- Whether separate relevant markets for business and non-business customers exist.
- Whether post-paid and pre-paid form distinct relevant markets.
- Whether different technological platform generations such as 2G, 2.5G, 3G, *etc.*, used for the provision of mobile services, fall within the same relevant market.
- Whether mobile and fixed retail services fall within the same relevant market, *i.e.*, whether mobile services are substitutable for fixed retail services.

1.1 Cluster vs. Individual Services

From the supply side, all MNOs offer the same palette of services as part of a single contract meaning that replicability is not an issue between MNOs, unlike the case of fixed access services.

From the demand side, customers use mobile phones for different purposes, such as making a voice call or sending an SMS. However, rather than using different providers for each of these individual services, customers appreciate the ease and convenience of having only one handset and SIM card. Thus, consumers purchase a bundle or "cluster" of services from one MNO, which usually includes local, national and international (and roamed) calls, and SMS. In this manner, MNOs can benefit from economies of scope and consumers can benefit from a reduction in transaction

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15 The SSNIP abbreviation stands for a small but significant non-transitory increase in price (usually in the range of a 5-10% price increase). The application of the SSNIP test involves anticipating consumers' buying decisions and determining whether a hypothetical monopolist or cartel could profit from a price increase of 5% for at least one year (assuming that "the terms of sale of all other products are held constant"). If sufficient numbers of buyers are likely to switch to alternative products and the lost sales would render such price increase unprofitable, the hypothetical market should not be considered to be a relevant market for the basis of litigation or regulation.

costs. In terms of consumer perception, customers view their demands by reference to the service cluster, rather than the individual services within the particular cluster.

Mobile telecommunications users have no apparent substitute for mobile access, and there is no supply-side substitute unless new spectrum becomes available. Therefore, it seems to be the case that access could be considered to be a market that is separate from the supply of services over the network at the retail level. However, every end-user purchases access to a mobile network with the objective of making and/or receiving calls (and using SMS, *etc*.), both nationally and whilst roaming internationally. Even if a user purchasing a mobile retail service chose not to originate calls, their decision to have service must be based on a need for call termination (to receive calls), otherwise access would be rendered meaningless. This motivation also has implications for the definition of the corresponding wholesale market for voice call termination services.

Similar considerations to those described above exist for international roaming at the retail level. Retail international roaming services include the ability to make and to receive calls whilst in a country other than the one where the end-user has established his or her network subscription. From a demand perspective, the retail provision of international roaming services could be examined to determine if it is a separate relevant product market. However, it is a standard part of the bundle of retail services offered by MNOs. Moreover, roaming is likely to be even more marked by transactional complementarities than other services offered by mobile operators (where a consumer might wish to sign contracts with different operators for different countries and for different times of the day, *etc*.) Thus, retail roaming is also usually part of the cluster of services purchased. Moreover, a domestic supplier of other mobile telephony services could respond to a price increase by a hypothetical monopolist provider by concluding agreements with foreign mobile operators so as to supply retail roaming services.

There is no available empirical evidence that a customer will change its overall selection of an MNO based on one individual element within the cluster being priced higher. Consistent with best practice among Regulatory Authorities around the world, there has not been any application of the SSNIP test as between different elements of the service bundle if it is clear that the patterns of supply and demand coincide with the availability of a service bundle.[16]

The business plans of the respective MNOs focus on consolidated ARPU, which reflects the consistent perception of MNOs in terms of their sales of a retail cluster of package.

Accordingly, the available evidence on both the demand and the supply side suggests that the relevant retail product market should include a “cluster” of available

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16 This is, of course, without prejudice to a narrow market definition being adopted for the purposes of an *ex post* competition analysis.

services, whereby non-substitutable services are included in the same relevant product market on the basis of demand and supply-side dynamics outlined above.

1.2 Business vs. Non-business Services

The perceived differences between the business and non-business services exist primarily with respect to traffic volumes between users, not in regards to other fundamental product/service conditions. Customer segmentation is not, of itself, a convincing reason to define distinctive relevant markets for *ex ante* regulatory purposes. Furthermore, differentiated tariff plans do not necessarily lead to defining separate relevant product markets. They are not strictly speaking “discriminatory” in nature, as they vary objectively in terms of frequency of usage/time of usage criteria offering the same tariffs to customers with similar usage profiles. Differentiated tariff plans based on differentiated conditions of frequency and/or time usage are highly likely to be characterised by the existence of a chain substitution effect.

With respect to demand substitution, end-users (regardless of under whose name the subscriptions are taken) are generally indifferent to tariff packages designed for business or residential users, provided that the terms suit their particular usage profiles.

As regards the issue of supply substitution, an operator serving only business customers may easily switch to supplying residential users in response to a small but non-transitory price increase by a hypothetical monopolist. Similarly, an operator serving residential customers may easily switch supply to serve business customers in response to a small but non-transitory price increase by a hypothetical monopolist.

The combination of both business and non-business services within one market for *ex ante* purposes is also consistent with international best practice. However, this will not prevent a narrower market definition from being adopted for competition law (*ex post*) purposes. This degree of market segmentation is more appropriate in an *ex post* context, where allegations might arise of particular types of abusive behaviour occurring *vis a vis* particular customer groups.

As a result, and given that there are no convincing arguments against both demand and supply side substitutability between business and residential services, consistent with international best practice the TRC takes the preliminary view that they should fall within the same relevant market.

1.3 Pre-paid vs. Post-paid

The issue of whether pre and post paid fall into the same or distinct relevant markets is similar in nature to the business vs. residential customer issue.

An emphasis on post-paid customers by any given MNO is consistent with a commercial strategy to extract maximum value from a segment of its customer base on the basis of traffic volumes and brand loyalty, but does not necessarily lead to the conclusion that such services fall into a different relevant market for the purposes of an *ex ante* market review. Again, the definition of relevant markets requires an examination of demand and supply side substitutability.

Demand-side substitutability exists as pre-paid (post-paid) customers may easily switch to post-paid contracts response of a 5% to 10% small but significant non-transitory increase of a pre-paid hypothetical monopolist (and *vice versa*). This is particularly true for the switching of pre-paid to post-paid contracts, given the nearly zero switching costs and, in many cases, the various marketing incentives offered by the operators such as handset subsidies. Switching from post-paid to pre-paid contracts is slightly more costly, especially when is the customer has to take such a decision well in advance of the expiration of the minimum contract period.

Supply-side substitutability is also relatively easy to effect as between pre-paid and post-paid. Given the very low switching costs between the two services an operator serving in the pre-paid business can immediately switch to a small but significant non-transitory increase of the post-paid hypothetical monopolist (and *vice versa*).

Furthermore, the inclusion of both post and pre-paid in one individual relevant product market is also consistent with international best practice.

As a result of the above analysis, the TRC takes the preliminary view that post-paid and pre-paid fall within the same relevant product market.

1.4 Technological Migration Issues

It is clear that GSM 900 and GSM 1800 services fall within the same relevant market, as they have similar functionality, are subject to similar tariff packages, have similar physical characteristics, and are subject to similar competitive constraints.

The principle of technological neutrality, which is an international best practice, supports the view that the market definition for mobile retail services should be independent of the generation of the technological platform via which such services are offered. As a result, 2G, 2.5G, and 3G mobile technology should therefore form part of the same relevant market if these systems constitute little more than a technological migration which is based on the use of improved enabling technology. In many respects, such systems create a chain substitution effect, as the new generation platform delivers essentially the same services as its predecessor technology, only at greater speeds, higher quality, and so on. It is true, however, that different generation technological platforms also offer additional and more advanced services, such as WAP-enable Internet access, GPRS (including EDGE technology) and 3G. A description of the various services offered by the different generation platforms is given in Table 5. It is only when the “break” in the technologies becomes so significant in terms of functionality and, as a result, price, that they might arguably be considered to fall into separate relevant product markets.

Table 5: Mobile Network Generations

Specification	Features
1G analog networks	• Voice service only (analog) • No data service
2G	• Digital voice service • Push-to-Talk (PTT) • Short Message Service (SMS) • Conference calling • Caller iD • Voice mail
2.5G	All 2G features plus: • MMS (Multimedia Message Service) • Web browsing • Real-time location-based services such as directions Basic multimedia, including support for short audio and video clips, games and images
2.75G	Better performance for all 2/2.5G services
3G (DSL speeds)	Support for all 2G and 2.5G features plus: • Full motion video • Streaming music • 3D gaming • Faster Web browsing
3.5G (cable speeds)	Support for all 2/2.5/3G features plus: • On-demand video • Video conferencing • Faster Web browsing (especially graphics intensive sites)
4G (wired networking equivalent)	Support for all prior 2G/3G features plus: • High quality streaming video • High quality videoconferencing • High quality voice-over-iP (voiP)

Source: *2G and 3G cellular networks: Their impact on today's enterprise mobility solutions and future mobility strategies, Motorola*

In any event, it is appropriate for the TRC to reserve its position on the treatment of 3G services at this stage of its market review, given that:

(a) 3G services have not, at the time of the release of this Public Consultation, been introduced on to the market in Jordan; and

(b) the truly differentiating factor of 3G services, the mobile Internet, has only recently taken off in most countries where 3G has been available over several years (as a result, its substitutability ramifications have not been studied adequately).

In such circumstances, it is perhaps premature to speculate as to the patterns of supply and demand that could characterise such 3G retail services, given that they have not as yet been deployed on the market. Accordingly, on a best-case scenario, the treatment of 3G retail services in terms of market definition will not need to be considered until a period of time that is well advanced into the lifetime of this particular market review.

1.5 Mobile vs. Fixed Services

The final issue that needs to be considered is whether fixed and mobile retail services fall within the same retail relevant market. It is often argued by fixed operators *that they are losing market share to mobile operators* and as a result, both fixed and mobile services should form part of the same product market. While such an argument is a theoretical possibility, its validity must be examined by reference to fixed to mobile substitutability, and *vice versa*.

With regards to demand side substitutability, the TRC notes that mobile and fixed services have distinctive functional characteristics. While it may be true that a caller in a fixed location with both a mobile and a fixed connection is able to originate his call from either the fixed or the mobile connection, such a possibility of call origination substitution is not possible when the caller is on the move. A similar argument applies to call termination, *i.e.*, when the called party is on the move there is practically no other option but to be called on his mobile phone. The distinct feature of “true mobility” thus remains an exclusive feature of the mobile service. Furthermore, there are additional differences that clearly distinguish the functional differences of fixed and mobile services. One of these is the high speeds achieved by the various forms of broadband connections, such as ADSL, FBWA, and FTTH which, despite the technological development of 3G services and the mobile Internet, cannot be achieved by a mobile service. In addition, there are other qualitative differences such as voice clarity. However, such qualitative differences in terms of voice clarity and data speed transmissions are narrowing over time, and will no doubt narrow further as both fixed and mobile systems migrate to VoIP platforms. In addition, fixed and mobile services are subject to distinctive and substantially different pricing both in terms of tariff options and absolute price differences. This view is corroborated by the perception of all MNOs that mobile services/mobile subscriptions do not constitute an effective demand-side substitute for fixed line services/fixed subscriptions.

In terms of supply side substitutability, a SSNIP test clearly suggests that a fixed operator cannot respond effectively in the short-term (within a year) to offer mobile (fixed) services as a response to small but significant (5%-10%) increase in the charges of an MNO. Among others, the lack of spectrum availability is the main reason. The reverse may be true for an MNO to respond to a fixed operator’s comparable price rise, but the level of substitution is only one-way. Accordingly, this would have an impact of the later market analysis exercise, but not on the initial market definition exercise.

1.6 Relevant Geographic Market

The relevant geographic market includes the area in which competing operators are involved in the supply and demand of the relevant products or services, where the conditions of competition are similar or sufficiently homogeneous, and where those conditions can be distinguished from neighbouring geographic areas.

The definition of the relevant geographic market presupposes the use of the same methodology utilized by the TRC in defining the relevant market, namely, the evaluation of demand and supply side substitutability conditions varying across Jordanian territory. As discussed previously, such an evaluation may also be carried out with the application of the Hypothetical Monopolist Test (or “SSNIP” test), which allows competitive constraints to be identified with respect to both demand-side and supply-side substitutability possibilities.

From the supply side, the TRC notes that:

(a) all MNOs in Jordan are licensed to provide services on a national basis;

(b) the existence of geographic and population rollout obligations that need to be fulfilled by all MNOs as part of their licensing obligations;

(c) the functional quality of “mobility” across the whole territory of Jordan for retail mobile services; and

(d) even though there exist limited Governorate-specific price offers, these are not likely to materially affect the finding of a national market definition.

Cumulatively, the above characteristics provide strong evidence that competitive conditions are sufficiently homogeneous across the entire territory of Jordan. In the face of such compelling evidence, there is no utility in the application of a SSNIP test in the circumstances.

As a result of the above analysis, the TRC preliminary concludes that the relevant market for retail mobile services is national in scope, thus covering the whole territory of Jordan.

1.7 Conclusion

On the basis of the above analysis, the TRC takes the preliminary view that a single national retail market can be defined which is made up of a cluster of voice and data-related services (in both post-paid and pre-paid forms) that includes the provision of access, national, international and roaming calls, SMS and other value-added services.

Such a “cluster” market definition for *ex ante* purposes does not restrict the TRC in adopting a narrower market definition – segmented along the lines considered above for the purposes of exercising its *ex post* competition law powers.

Consultation question:

Q1: Do you agree with the TRC’s preliminary conclusion regarding the relevant product and geographic market definitions for retail mobile services?

2. Application of the Three-Criteria Test

The application of the “three-criteria test” allows the TRC to provisionally determine whether *ex ante* regulation somewhere along the mobile value chain (including termination, access and call origination as well as retailing) should be considered to be appropriate, if at all. The test is carried out under the assumption of no *ex ante* regulation in existence either at the retail or wholesale levels at the time the market review is being conducted. This working assumption is necessary in order to avoid the circular argument that no regulation is necessary because the market is already functioning properly under current (regulated) conditions.

A decision to impose *ex ante* regulation somewhere in the mobile value chain on the basis of the three-criteria test requires the cumulative fulfilment of the following three criteria:

- The existence of high and enduring barriers to entry in the relevant market.
- The lack of a dynamic trend towards competition behind those identified entry barriers.
- The insufficiency of ex post intervention alone to deal with the competition problems identified.

2.1 High and Persistent Barriers to Entry (1st Criterion)

The reliance of the mobile sector on a limited amount of spectrum creates a barrier to entry. To this should be added the impact of spectrum and telecommunications licensing policy. International best practice suggests that the limited availability of spectrum is always considered to constitute a high and persistent legal regulatory barrier in the market for end-to-end mobile services, even if the possibility exists that further mobile licenses can be granted (as is the case in Jordan).

More importantly, there also exist high and persistent structural barriers to entry due to the economies of scale, scope, and density that are relevant to the investment decision to develop successful mobile access networks, particularly when addressing a relatively unevenly populated country such as Jordan.

Finally, the termination bottleneck, which exists on every individual MNO's network as a result of the Calling-Party-Pays (CPP) convention for voice calls, exacerbates the effects of these structural barriers to entry.

2.2 Lack of a Dynamic Trend Towards Competition (2nd Criterion)

The TRC has identified **no structural evidence** that competition behind the barriers to entry could emerge and that the market for retail mobile services – under the greenfield assumptions underlying this analysis - could tend towards a competitive outcome over the lifetime of this market review.

- There is strong market leadership exhibited by a particular MNO, when compared to its competitors, measured across several indicators of market power (including the number of subscribers, the volume of originated minutes, total revenues, and the amount of on-net traffic as a ratio to its overall traffic volumes). With respect to each of these measures, that MNO appears to have either over 40% or 50% market share. In particular, the post-paid segment of the overall retail market displays enduring characteristics which suggest that it is the market segment that is the least susceptible to competition.

- The market leadership identified by the TRC has resulted in a reversal of an incremental decline in market share that has occurred in the recent past in relation to particular service lines. Consistent with this observation, the same operator has captured a very high share of the growth in the overall market over the past year, as reported in Table 4b (*i.e.*, over double the size of growth in terms of volume).

- The high on-net/off-net traffic ratio enjoyed by the same MNO, coupled with its high shares across many economic indicators, suggests that it is less vulnerable to the impact of competition than other MNOs. This is exacerbated by the so-called "club effect" of having such a large customer base compared to other MNOs). The absence of number portability exacerbates the effect of these factors, especially since experience demonstrates that the profile of post-paid customers is most likely to have higher volume users and business users (often overlapping). These customer profile groups are least likely to wish to change their operator in the absence of being able to port their existing number.

- The calculated HHI indexes reported in Table 8 with the values of the calculated ratios indicate very high levels of concentration.

The TRC has also identified **no disruptive technological developments** that could move the market towards effective competition within the relevant timeframe. While it is conceivable that the emergence of mobile broadband may alter existing mobile market dynamics, this is only expected to occur over a longer timeframe, which is well beyond the timeframe of the current market review.[17] On 10 September 2009, the TRC granted a 3G spectrum license to an MNO in the 2.1 GHz frequency range, and the launch of services is expected during the course of 2010. Other MNOs will be allowed to introduce the service after a one year operation period, provided that they meet the same conditions that were applied to the original 3G licensee. Any competitive constraint which might be imposed by the provision of 3G services by another operator is unlikely to be able to significantly limit the power of the leading operator in the short term.

Given the structural evidence that competition behind the barriers is unlikely to move the retail mobile services market towards an outcome of *effective competition,* as defined in the TRC's Green Paper,[18] and the fact that mobile broadband is unlikely to disrupt the market over a timeframe of 2-3 years, the TRC takes the preliminary conclusion that the second criterion – the lack of a dynamic trend towards effective competition – is also fulfilled.

2.3 Insufficiency of Ex Post Intervention Alone (3rd Criterion)

The TRC believes that the market for mobile services is also characterised by the insufficiency of *ex post* intervention. The potential competition problems are such that they require intervention at the wholesale level on an *ex ante* basis. **In the absence of any *ex ante* regulation,** mobile operators may be unlikely to provide access to vital wholesale services upon reasonable request (such as the leading operator refusing to provide MACO) and, where access is provided (as in the case of mobile call termination), MNOs may discriminate against access seekers vis-à-vis their own affiliated retail arm and/or charge excessive wholesale prices.

Clearly, such competition problems are difficult to address through *ex post* interventions alone, given that *ex post* application of competition rules is case-specific and cannot satisfy the need for frequent, timely and anticipatory intervention required under the prevailing circumstances. *Ex post* intervention would also not be able to safeguard the necessary extensive monitoring required to ensure compliance with wholesale obligations imposed in accordance with transparency goals, accounting separation and cost accounting (see Chapters IV and VI below). What is

17 Many of these issues will be discussed in greater detail in the discussion on dominance in the wholesale Mobile Access & Call Origination market in Chapter VI.3.

18 According to the IRG definition adopted by the TRC in its Green Paper*: "Effective competition can be defined as the persistent absence of players with market power. In its essence market power is the ability to influence prices as substantiated in the possibility of enjoying persistent excess profits." See "*Creating the Conditions for Effective Competition in the Mobile Sector", Information Document (*Green Paper*), TRC Board Decision No. (11-13/2008), Date 23/06/2008.

clearly needed under such circumstances is a predictable set of *ex ante* regulations targeted at the competition problems identified.

2.4 Conclusion

The TRC preliminarily concludes that, in the absence of any *ex ante* regulation at wholesale and retail level, the **three criteria are cumulatively fulfilled** for the market for retail mobile services. The market is characterised by high and non-transitory barriers to entry, there is no dynamic trend towards effective competition, and *ex post* intervention alone is insufficient to deal with the competition problems at issue. Consideration must therefore be given to the imposition of *ex ante* regulation.

For the purpose of designing appropriate *ex ante* remedies, the TRC first identifies the value chain in the provision of mobile services and then defines the vertical sequence of markets that could be considered to be appropriate for the purposes of *ex ante* regulation.

The **value chain** can be described as:

- radio access;
- call origination and termination as well as SMS call origination and termination (which are at the same level); and
- retailing.

The sequence in which these components are analysed is clearly important. The general principle is that, where wholesale inputs can be ranked in terms of increasing functional coverage, the least inclusive input (the most upstream) is examined first.[19] However, the TRC deviates from this general principle, because of the bottleneck nature of termination services. Call and SMS termination are ranked first for analysis due to their bottleneck nature and the resulting lack of replicability, which renders mobile termination the most serious problem for *ex ante* regulation.

Based on these considerations, the following **vertical sequence of markets** is identified, starting with the least replicable inputs (mobile termination) and ranking the remaining elements based on their position in the value chain:

- The markets for the provision of wholesale call termination and the market for the provision of wholesale SMS termination;

[19] Thus, in the supply of broadband Internet access, unbundled local loops are in functional terms a less comprehensive product than bitstream, as they provide service over a smaller part of the value chain, which is included in the bitstream product. In its Broadband Consultation document, the TRC thus analysed unbundled local loops first, followed by wholesale broadband access.

- The market for the wholesale mobile access and origination ("MACO"), which comprises wholesale call origination on mobile networks, but also call/SMS origination bundled with radio access (more commonly described as variants of MVNO access) and national roaming; and

- The market for the provision of retail mobile services, *i.e.*, the provision of access, call origination and termination, SMS origination and termination, and retailing. This is the market that has already been defined in *Section 1* and was subjected to an initial three-criteria test in *Section 2* of this *Chapter.*

Once the vertical sequence of markets is identified, the TRC can assess the extent to which *ex ante* regulation is required to deal with the potential competition problems identified. This involves, for each relevant product market, the definition of its boundaries, the application of the three-criteria test (to identify whether the market is susceptible to *ex ante* regulation), the assessment of dominance (to designate the dominant operator/s), and the selection of remedies (to address the competition problems related to dominance).

Consultation question:

Q2: Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are cumulatively fulfilled in relation to the relevant market for retail mobile services?

IV. WHOLESALE MOBILE VOICE CALL TERMINATION (IN THE ABSENCE OF ANY *EX ANTE* REGULATION)

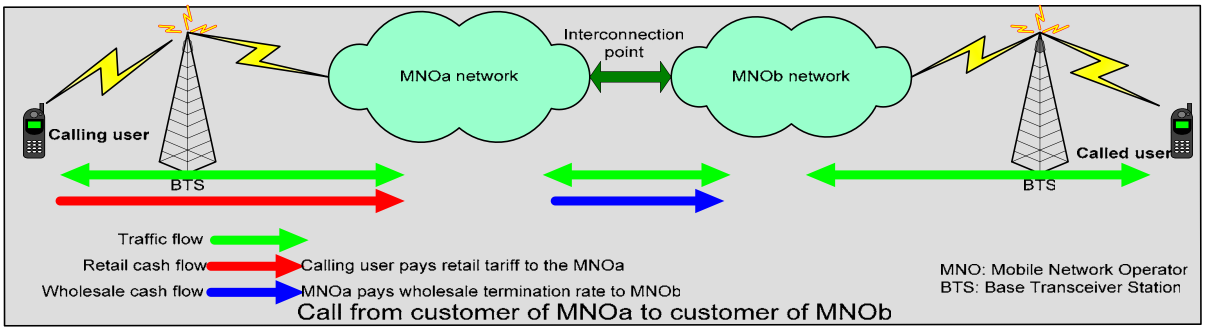
As competition based on end-to-end networks is unlikely to be effective, the TRC's next step is to assess whether *ex ante* regulation of wholesale mobile call termination can intensify competition sufficiently. As noted, the TRC considers *ex ante* regulation of wholesale mobile call termination first, because of its bottleneck nature and the resulting lack of replicability. The TRC also notes that the *ex ante* regulation considered here is the one based on the prior finding of the existence of a dominant position; by contrast, the symmetrical obligation that all mobile operators should offer, and negotiate on, interconnection upon reasonable request, is already factored into the analysis.

For the markets for wholesale mobile call termination, the TRC carries out the following assessments: *first*, it defines the boundaries of the relevant product and geographic markets (*Section 1*); *second*, it applies the three-criteria test to those markets, assuming the absence of any *ex ante* regulation (*Section 2*); *third*, it analyses the effectiveness of competition and assesses the existence of dominance (*Section 3*); and, fourth, it selects appropriate remedies targeting the competition problems related to dominance found to exist in the provision of wholesale mobile call termination (*Section 4*).

1. Market Definition

The provision of wholesale mobile call termination is illustrated by Figure 1.

Figure 1: Wholesale Mobile Call Termination



Since the termination charge is set by the called network, which is chosen by the called subscriber, the calling party in general does not have the ability to affect or influence termination charges. This is the case under the Calling Party Pays ("CPP") convention, which is currently commonly applied throughout many jurisdictions around the world, including Jordan. Under the payment system brought about by the application of the CPP convention, there is a disconnect between the party paying for the call and the party selecting the network upon which the termination of the call is to occur.

The CPP convention thus allows the terminating operator to raise its prices without a constraint from either the calling or the called party. The calling party pays a bundled fee and will not witness a direct pricing signal. In this scenario, the called party usually makes no payment. As a result, the called party is not in a position to be able to constrain the pricing power of its terminating operator. To the extent that the increased price reduces the number of calls that a person receives, there is a net loss in consumer welfare. However, this might not be readily noticed in practice, and the called party might not be able to attribute this decrease in calls to the existence of a higher termination rate. Thus, in the absence of *ex ante* regulation, MNOs each have the power to readily raise the price to be paid for termination on their networks.

Some form off supply-side substitution might in theory become possible at some point in the future as a result of technological change relating to SIM-card recognition, but that situation is unlikely to become a reality in the short term. Mobile termination charges might also be constrained in theory via demand-side substitution, but there is no potential for demand substitution at a wholesale level. Demand at the wholesale level is inextricably linked to supply; as indicated above, the operator (of the calling party) is unable to purchase call or SMS termination on a given network from an alternative source. In general, therefore, whilst it is apparent that end-users who subscribe to mobile services have a choice about the network to which they wish to subscribe and relative ease with which they are able to switch between networks, there is limited evidence of widespread constraints on the pricing of wholesale call termination services. This is mainly due to the fact that end-users subscribe to a bundle of retail services and most likely, due to informational asymmetries, high call termination charges are not a critical decision-making factor for the choice of their network subscription.

The above context suggests that wholesale call termination is an absolute bottleneck which dictates the particular analytical model used to conduct the market definition, analysis and remedy selection exercises. At the retail level, a call to a given user or user's terminal is not a substitute for a call to another user, and this limitation on demand substitution follows through to the wholesale level. With respect to supply substitution, if the supplier of call termination raises its price, there is no flexibility in practice for an alternative supplier to switch to supply that market, because they would need the SIM card details of that user to do so. With such a starting point in market definition, the supplier and the service in relation to each individual end user are identical – in other words, each MNO is in principle a monopolist provider of the wholesale termination service in relation to each individual subscriber on its network.

However, in the context of a proper market definition exercise, as described in the *White Paper,* it is important to consider the possibilities of both demand and supply substitution of the voice call termination service. Such demand and supply substitution might in theory constrain termination charges, and also the likely behaviour of MNOs in setting termination charges.

In light of the above considerations, in defining the relevant wholesale product market for voice termination, the TRC has sought to consider in practical terms the following issues:

- Whether the relevant market for voice call termination includes SMS and other data termination services as falling within the same relevant market;
- Whether a relevant market for voice call termination exists across <u>all</u> mobile networks, instead of individual mobile networks;
- Whether a relevant market for voice call termination should be defined by reference to individual mobile numbers, rather than the networks in relation to which those numbers relate;
- Whether voice call termination on 2G, 2.5G and 3G networks fall within the same relevant market;
- Whether a single market exists for voice call termination on mobile *and* fixed networks; and
- Whether the relevant market for voice call termination includes on-net and mobile-to-mobile calls.

Given the fact that the CPP payments convention plays such an instrumental role in the dynamics of providing terminating services, many of the above-listed factors need to be seen from both a demand-side and a supply-side perspective.

1.1 Voice Call Termination vs. SMS and Data Services

From the demand side, voice calls and data transmissions are not considered by consumers to be direct and perfect substitutes, even if the latter might be considered to be a partial substitute for certain types of calls in certain cases. For example, consumers, instead of making a short duration voice call, might choose to send an SMS, particularly in cases where the calling party (or sender) asks or informs the called party (the receiver).

The supply-side analysis is not a material concern to the issue of whether voice call terminations and data terminations fall within the same relevant product market, since all MNOs provide all the various call and data termination services simultaneously. Given that SMS traffic is terminated on the basis of a “Bill & Keep” arrangement, as opposed to prescribed termination tariff, the application of the SSNIP test unequivocally suggests that data-related termination falls outside the relevant product market to which voice call termination belongs.

As a result of the above analysis, the TRC takes the view that SMS or other data services are not a substitute for the termination of voice services and fall outside the relevant market.

1.2 Voice Call Termination across all MNOs

The definition of the market by reference to all MNOs would be too broad, because termination charges play no role in a customer's choice of mobile network under the CPP payments convention. As a result, a market definition by reference to individual mobile networks or individual mobile numbers would be more appropriate, as neither the terminating number nor the terminating network is substitutable, although a large MNO can mitigate the effects of high termination rates by encouraging greater levels of on-net traffic usage, which suggests the appropriate reference point is an individual mobile network (or the users on that network).

The relevant product market is therefore more appropriately mobile call termination on individual MNO networks, because a call terminated on another network is not a demand side wholesale substitute, nor is it a retail demand-side substitute when one takes into account the operation of the CPP system and the fact that users' choices of MNOs are guided by a number of other factors (*e.g.*, handset prices, monthly rentals, on-net pricing tariffs, and so on).

1.3 Voice Call Termination on Individual Numbers

From the supply-side point of view, it is not feasible to restrict the market definition to the provision of termination services with respect to each *individual user number*, given that each MNO could not succeed in setting individual differentiated prices by virtue of the demand-side elasticity demonstrated by individual users. For this reason, individual mobile numbers on the same MNO termination network are subject to identical competitive tariffs, despite the fact that the "bottleneck" facility being exploited by the terminating operator is its customer's individual number. At the other extreme, the technology does not currently exist to enable call termination through alternative networks (through re-programmable SIM cards) that would provide supply-side substitutability between the various MNOs' voice call termination networks.

Accordingly, the relevant product market should be at least as wide as termination for each MNO (whether seen in terms of its 'network' or its customer base).

1.4 Technology Dependant Voice Call Termination

Both a wholesale customer and an end user will be indifferent as to the precise technical platform being used to terminate a voice call, which is functionally equivalent in every sense.[20] From the demand side, therefore, a voice call on each type of network technology (2G, 2.5G, 3G) would be a perfect substitute. This is also

20 The use of different technological platforms to deliver the same functional service may, however, be more relevant when the TRC assesses the appropriateness and proportionality of certain remedies.

consistent with the principle of technology neutrality according to which the termination of voice calls delivered over 2.5G or 3G networks should fall within the same relevant product market as a voice call termination made over a GSM 900 or a GSM 1800 network.

From the supply side, an operator can easily divert calls over a cheaper 2G network to deliver what would otherwise be a “3G” voice call. As a commercial matter, it would be difficult in commercial terms to justify high call prices to one set of users (2.5G or 3G) as opposed to another (2G). Moreover, the principle of technology neutrality also suggests that the same principle should apply to 3G voice call termination, even if only on a forward-looking basis given that such services have not as yet been deployed.

1.5 A Single Market for Mobile and Fixed Voice Call Termination

Differences in pricing and the fact that mobility is an essential functional differentiator from fixed locations, clearly indicates that there is no demand-side substitutability between fixed and mobile call termination. At the retail level, substitution between fixed and mobile is partial and one-way.

A fixed operator without access to spectrum can not respond to a SSNIP situation, and cannot therefore be characterised as a substitute. Moreover, the underlying competitive conditions in which fixed-to-mobile and mobile-to-mobile calls are terminated are fundamentally different.

1.6 Call Termination vs. On-net Calls

A caller wishing to take advantage of cheaper on-net calls than the termination rate offered to third parties could, in theory, use two or more SIM cards or a SIM card with two or more numbers which each correspond to a different network (or even multiple handsets). However, this is not a viable option for a reasonable number of users to be able to exert some form of pricing constraint on termination charges – both in terms of technical availability and consumer ease of use. In any event, consumer motivation in doing so is blunted because of the CPP convention.

As a general principle, the use of “GSM” gateways[21] might be capable of being used to transform off-net traffic into on-net traffic. However, such technical responses are not widespread in any part of the world, and only make sense if large volumes of traffic are involved, such as for business users. The technique also involves the inefficient use of spectrum, and is therefore banned in many jurisdictions. There is no available evidence of its widespread use in Jordan.

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21 GSM gateways are devices enabling GSM SIM cards to be used from fixed line phones as though it was calling from a GSM mobile handset.

1.7 Relevant Geographic Market

The TRC has also conducted a review of the scope of the relevant geographic market in which voice call termination services are provided. In the absence of some overriding technical or commercial reason, wholesale mobile services are inherently national in their scope. Such a finding would be consistent not only with the national scope of the existing mobile licenses, but also with the geographic and population roll-out requirements set forth under those licenses. Moreover, the homogeneous conditions of competition apply across the whole territory of Jordan, as the termination service is an essential wholesale input for all MNOs to be able to provide their retail services, which are also provided in the context of a national market.

1.8 Conclusion

The TRC's preliminary conclusion is that the relevant market is that for the termination of voice calls on individual mobile networks over the whole territory of Jordan.

Consultation question:

Q3: Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for wholesale call termination?

2. Application of the Three-Criteria Test

The application of the three-criteria test is used as the basis upon which the TRC will provisionally screen whether a defined relevant market might warrant *ex ante* regulatory intervention, based on its fulfilment of three cumulative threshold criteria. Each of these criteria are analysed by the TRC below in relation to the relevant market for the termination of voice calls on individual MNOs' networks.

2.1 High & Persistent Barriers to Entry (1st Criterion)

The key structural or technological barrier to entry is the absolute termination bottleneck control which every MNO has over a mobile number falling within its numbering range for its customer base. The effects of that bottleneck are reinforced by the application of the CPP convention.

Technical solutions such as multiple SIM handsets might emerge in the future to overcome the termination bottleneck, but they are highly unlikely to be available to any material degree over the three year lifetime of this market review.

2.2 Lack of a Dynamic Trend Towards Competition (2nd Criterion)

Each MNO has a monopoly position within the defined relevant market of voice call termination on its network (or to its subscribers). As a profit or value maximising monopolist, it is logical that an MNO would be inherently inclined to seek monopoly rents for its services. In this context, any further discussion on the second criterion, namely, whether there is lack of a dynamic trend towards competition in a naturally monopolistic market, may appear to be unnecessary.

However, the TRC has also examined whether the monopolist operator in voice termination might be challenged by a purchaser of its termination services with a significant degree of countervailing buyer power. Such countervailing buyer power would not increase the level of competition in the call termination market, which is a natural monopoly, but it might be capable of constraining the pricing behaviour of the natural monopolist and would thus be able to produce a “contestable” outcome whereby the monopolist is forced to price at cost with zero supernormal profits.

International best practice universally indicates that such countervailing buyer power is rare to identify, and that the CPP principle does not foster its widespread exercise.[22]

Moreover, in the absence of *ex ante* intervention aimed at restraining mobile voice call termination charges to an efficient level of cost, including a reasonable profit margin, the Bill & Keep principle currently being used for the termination of SMS is not likely to emerge within the lifetime of this market review.

Finally, there is little or no threat of a disruptive technology or major commercial developments occurring during the lifetime of this market review which are likely to alter the commercial dynamics and the economics of mobile voice call termination relationships.

2.3 Insufficiency of Ex Post Intervention Alone (3rd Criterion)

Ex post intervention is not well adapted to address most forms of wholesale access-related market failure, especially where it relates to the modalities of access or to the pricing of that access.

Ex post intervention also cannot effectively constrain market failures where there is a need for frequently recurring, timely, and anticipatory intervention. Under such

22 This particular issue is discussed at greater length in the discussion of dominance below.

circumstances, the imposition of ongoing monitoring tools and restrictions is required. For example, a series of requirements such as price caps, cost-based charges on the LRIC cost standard, cost accounting and account separation remedies, all require some significant investment which cannot be made in the context of *ex post* regulatory intervention. These types of remedies, however, are primarily used in connection with the implementation of obligations on dominant operators at the wholesale level.

Given the monopolistic position of the MNOs in the market for voice call termination on their individual networks, there is an increased likelihood of those markets exhibiting recurring monopolistic behaviour which would allow them to price well above costs in order to maximise profitability. In such situations, *ex post* competition law intervention is not well adapted to address the types of typical market failures arising from the voice call termination market.

2.4 Conclusion

The markets for wholesale mobile call termination **fulfil the three criteria test**. The TRC therefore arrives at the preliminary conclusion that these markets are susceptible to *ex ante* regulation.

Consultation question:

Q4: Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are cumulatively fulfilled in relation to the markets for wholesale call termination on individual mobile networks and that these markets are therefore susceptible to *ex ante* regulation?

3. Assessment of Dominance

Given that the markets for wholesale mobile call termination are susceptible to *ex ante* regulation, the TRC assesses whether these markets are also characterised by dominance and whether each mobile operator has "*such a sufficient impact on the market that it can control and affect the activity of the relevant* market", as is stipulated in Article 8(a) of the *Competition Safeguards*. When assessing dominance in the markets for mobile call termination, the TRC looks at market share, barriers to entry and potential competition in the market, as well as the existence of countervailing buyer power in the hands of interconnections partners, which might constrain the supply-side market power of mobile operators.

3.1 Market Share

Each MNO has a 100% market share with respect to the termination of calls over on its own network. Consistent with the approach taken in the *Competition Safeguards*,[23] dominance could already be presumed to exist at the much lower market share level of 50%, except in exceptional circumstances. The monopoly position has not changed over the course of time, with each MNO being an outright monopolist.

In addition, there is an incentive to earn monopoly rents from the exploitation of an absolute monopoly, particularly where those rents can subsidize competition at more competitive levels of competition, such as at the retail level.

3.2 Barriers to Entry and Lack of Potential Competition

The individual MNO's monopoly position is not contestable because of the absolute barrier to entry with regard to access to the individual numbers of subscribers, which form part of a unique number allocation accorded to individual MNOs. The presence of barriers to entry is a major criterion in the *Competition Safeguards* (Article 8(c), Number 14). This insuperable barrier to entry is reinforced by the CPP convention. Moreover, there is no viable mass-market technological means of overcoming the structural barrier to competition, either currently or during the lifetime of this market review. In consequence, there is a complete lack of actual and potential competition (thus satisfying the *Competition Safeguards*, Article 8(c), Number 12).

3.3 Countervailing Buyer Power

A hypothetical constraint on a monopolist's pricing power over termination on its network rests in the possibility of other operators – either MNOs or fixed operators, or even end users – being able to exercise countervailing buyer power so as to undermine a possible price rise.

In the case of **end users**, this is not a realistic possibility because of the CPP convention. A reasonable hypothetical pricing constraint might be capable of being exercised where the customers of an operator constitute a Close User Group (CUG), and the traffic is therefore all on-net. In the case of a CUG, the CPP convention might in practice be overridden, as the CUG will perceive its mobile purchasing decisions to include both the provision of origination and termination functions as elements of its tariff plan. That is not the case, however, in Jordan, as no MNO characterises all (or the vast majority) of its business in this manner.

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[23] Paragraph 8(b) of the Instructions on *Competition Safeguards* in the Telecommunications Sector.

As regards **other operators**, even though access relationships are two-way, countervailing buyer power is unlikely to exist to any significant degree given the lack of credible strategies to enforce such buyer power. This is demonstrated by the following three examples:

- The refusal to interconnect on the part of any MNO is not a realistic option, as it is overridden by the general duty to interconnect under the existing *Interconnection Instructions*. In the absence of overwhelming dominance ("super-dominance"), the originating operator would lose customers if it could not ensure end-to-end connectivity.

- A reciprocal increase in termination rates can be ruled out in the case of fixed-to-mobile calls if one can assume that the purchasing party's termination rate is already subject to the *ex ante* regulation of termination charges (under a so-called "modified greenfield" approach).

- An increase in the retail price for calls to the customers of the terminating network can be ruled out as an option if retail rates are already regulated (*i.e.*, the fixed incumbent's retail prices), and where non-discrimination rules apply. Moreover, the originating operator would lose both customers *and* traffic volumes in doing so, unless it was willing to run that risk because it enjoyed overwhelming dominance.

In conclusion, it does not appear to be realistic to expect that any purchaser of voice call termination services on individual mobile networks has sufficient countervailing buying power to be able to offset the monopolistic position held by individual terminating MNOs so as to prevent them from acting independently from their competitors, clients and consumers, particularly by charging prices for these services above their respective competitive levels. The fact that *ex ante* regulatory obligations have been in operation since 2005 (under the *Interconnection Instructions*, and even under its predecessor legal provisions) reinforces this conclusion.

Thus, the market power of a mobile operator in the provision of wholesale call termination on its individual mobile network is not constrained by any countervailing buyer power (criterion listed in Article 8(c), Number 6, in the *Competition Safeguards*).

3.4 Conclusion

The TRC concludes on a preliminary basis that the cumulative effect of 100% market share, coupled with the existence of high entry barriers and the absence of realistic countervailing buyer power on the part of wholesale and retail customers, justifies the conclusion that MNOs that provide voice call termination on their own networks should be designated as having dominance with respect to such a relevant market, and that such dominance will in all likelihood be maintained throughout the lifetime of this market review period.

Accordingly, those MNOs which should be designated by the TRC as being dominant are:

- Zain
- Orange Mobile
- Xpress
- Umniah

Consultation question:

Q5: Do you agree with the TRC's preliminary conclusion that Zain, Orange Mobile, XPress and Umniah each hold a dominant position in the markets for wholesale call termination on their own respective networks?

4. Appropriate Remedies

Having determined that the relevant markets for mobile call termination on individual MNO networks are not effectively competitive, the TRC should consider the appropriate and proportionate remedies that it should impose in the circumstances. The TRC has chosen to select remedies by adopting the following approach:

1. identify the likely market failures or competition problems most likely to arise from the lack of effective competition identified in its market analysis;
2. identify in more general terms the range of remedies that are available to the TRC in addressing the competition problems identified;
3. discuss of the scope of existing remedies that are available to address certain competition problems; and
4. specify the range of remedies that it proposes to submit to the consultation process.

4.1 Potential Competition Problems Related to Dominance

The type of market failures that are likely to arise from the existence of dominance in the termination of voice calls on individual networks of MNOs can take a number of forms.

First, a potential competition concern arising is the incentive for the respective MNOs to set fixed-to-mobile termination charges above cost. This will lead to an increase in retail prices for fixed-to-mobile calls and to a decrease in volumes of fixed-to-mobile call minutes, creating an economic distortion between fixed and mobile sectors.

It might be argued that this problem is mitigated in part by what is often referred to as the "waterbed effect". According to this proposition, MNOs will be required by the forces of competition in outgoing mobile markets to recycle any profits in fixed-to-mobile termination to their retail customers (*e.g*., by subsidising handsets and monthly or call charges). However, even if the waterbed effect works fully (which is by no means certain), such a process can lead to an inefficient structure of telephone charges.

Second, another potential competition problem that might arise is the incentive for MNOs to set mobile-to-mobile termination charges away from the optimal level, essentially for strategic reasons. In principle, they might be set either too high or too low. This excessive termination charge increases the retail prices for mobile-to-mobile off-net calls. As with excessive fixed-to-mobile termination charges, there is also a potential competition problem created by a "waterbed effect" which relates to excessive mobile-to-mobile termination charges. The MNOs will use profits in off-net mobile-to-mobile termination to subsidise competition for subscribers (*e.g*., by subsidising handsets, monthly charges, and discounted on-net calls).

Third, excessive mobile termination charges can in certain conditions enable operators to exploit the differential between on-net and off-net tariffs in such a way as to foreclose smaller rivals.

Fourth, insofar as MNOs would charge different termination rates for the termination of calls originating from fixed and mobile networks, the price discrimination taking place might be of such a magnitude as to raise the costs of fixed operators in competing for customers seeking to make voice calls (as voice calls originating from MNOs are growing, partly at the expense of growth in the fixed sector, one-way substitution is being subsidised by such price discrimination).

The remedies ultimately proposed by the TRC should therefore be appropriate and proportionate in seeking to address the above-listed competition problems.

4.2 Available Remedies

Remedies available to address the competition problems relating to the dominant position of MNOs in their respective voice call termination markets include a comprehensive set of primary and secondary remedies. Possible primary remedies include the granting of access upon reasonable request, non-discrimination in price and non-price terms, and price controls.

First, an obligation to provide access on reasonable request can be imposed to remedy an MNO's denial to provide wholesale voice call termination. As outlined above, the general obligation to negotiate on, and to provide, interconnection, should in theory already ensure this. The TRC, however, believes it to be appropriate to confirm this obligation within the framework of dominance-related remedies. The access obligation can be supported by a transparency remedy (including publication of a Reference Offer).

Second, an obligation of non-discrimination can address the discriminatory provision of wholesale voice call termination, vertical leveraging of market power into retail markets, and margin squeezes. The non-discrimination obligation can be supported by an obligation to provide accounting separation for MNOs' wholesale voice call termination businesses.

Third, an obligation of price control can prevent MNOs from charging excessive prices for wholesale voice call termination. It can be supported by an obligation of cost accounting based on regulatory accounting rules defined by the TRC.

4.3 Current Remedies

Under the current regulatory framework, various aspects relating to the competition problems raised by voice call termination on individual mobile networks are addressed by a series of remedies, which include the following:

- Zain is in principle subject to numerous asymmetric obligations in relation to the provision of Carrier Selection/Carrier Pre-Selection for international calls (including fax and voice services, but excluding in-bound and out-bound roaming services).[24] For Carrier Pre-Selection, Zain is in principle responsible for the consolidated billing of customer calls placed with an Alternative Service Providers. Zain is also obliged to produce and publish a Reference Interconnection Offer ("RIO"), while changes to the RIO are subject to public consultation process and the approval of the TRC. The introduction by Zain of new interconnection services or the withdrawal of an existing interconnection service is also subject to the approval of the TRC. Furthermore, Zain is obliged to provide "transport" services (the provision of transport capabilities for the implementation of interconnection), and Operator Assistance Services.

- All four MNOs are subject to a series of symmetric obligations, including the provision of call termination to all other mobile networks, collocation and infrastructure-sharing on mobile networks, and interconnection charging caps on mobile networks. The collocation/infrastructure-sharing obligation requires the provision by MNOs of space in theirs premises and/or the use of part of their physical or virtual infrastructure, such as ducts, dark fibre, energy sources, masts, towers, and so forth, to other Licensees. Interconnection tariffs are based on cost-based rates which are transparent and reasonable, having regard to the economic feasibility of the service, and sufficiently unbundled so that the interconnecting party does not pay for network components or facilities that it does not require for the service to be provided (it being understood that no unreasonable and unrecoverable costs will be

24 Refer respectively to the *Interconnection Instructions* and to the *Carrier Selection/Carrier Pre-Selection Instructions*.

imposed on the MNO in question in connection with any such unbundling obligation).

- All MNOs are also subject to a set of symmetric obligations[25] which are wholly unrelated to any finding of dominance, such as the need for them to provide number translation services,[26] public emergency services, directory enquiry services, international gateway access services,[27] and mobile number portability.[28]

- An important form of regulation on Zain's call termination pricing can also be found in the order contained in TRC Decision No. 9-1/2004,[29] which requires Zain to provide termination service to other operators based on a formula which is related to the weighted average of its own on-net prices. It also obliges Zain to charge reasonable rates (as determined by the TRC) for off-net calls.

The various existing remedies relating to termination rates are reflected respectively below in the MNO termination tariffs for the period 2006-2008 found in Table 6, and in Figure 2, which illustrate a glide path progression:

Table 6: Regulated mobile termination rates in Jordan (JDs/min)

	2006 (end June)	2007 (end June)	2008 (end June)	2009 (end June)
Zain	0.0379	0.0320	0.0258	0.0224
Orange Mobile	0.0396	0.0329	0.0272	0.0226
XPress	0.0590	0.0425	0.0302	0.0277
Umniah	0.0590	0.0425	0.0302	0.0277

Source: TRC

25 The current average mobile termination rate in Jordan has been set by the TRC at 0.028 JDs.

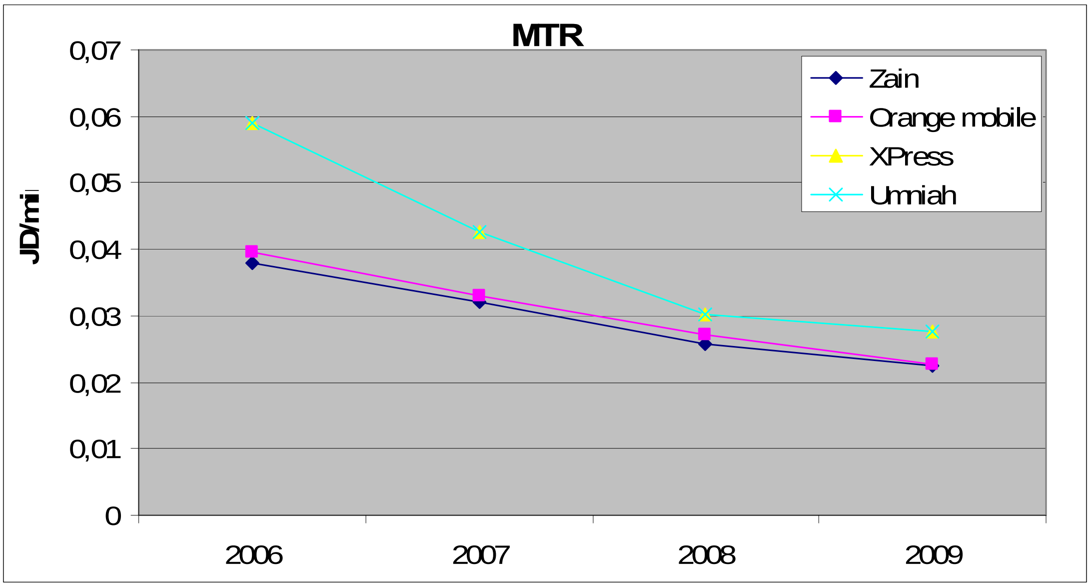
26 Number translation services are defined as those services where the end user dials a non-geographic number to a fixed termination point on another Licensee's Network and is charged a fixed fee.

27 Any MNO controlling a point of connection to an international transport facility is required to provide access to such point of access on a non-discriminatory basis to all Licensees upon request; in some cases, the charge is zero, irrespective of the distance between the points of origination and termination.

28 Refer respectively to the *Interconnection Instructions* and the *Number Portability Instructions*.

29 Zain is obliged to provide all other operators with whom it concludes an interconnection agreement the right to buy the call termination service on the Zain network, by reference to the price that equals the weighted average of on-net prices on Zain's network or using the price approved by the TRC for termination service, whichever is the lower amount.

Figure 2: Mobile Termination Rates in Jordan



4.4 Proposed Remedies

Given the competition problems identified by the TRC in the provision of mobile call termination, the TRC's preliminary conclusion is that a relatively comprehensive set of remedies is required to address those problems. Therefore, the TRC is of the preliminary view that all MNOs should be subject to:

- An obligation upon all MNOs to provide termination services upon reasonable request, supported by an obligation of transparency, including the publication of a Reference Offer. This remedy is targeted at the outright denial of access by an MNO. As an ancillary aspect of this obligation, each MNO should be obliged to provide access to its associated facilities (e.g., collocation and infrastructure sharing at cost oriented prices) and services. Moreover, each MNO should not withdraw access which it has already granted. The application of such a remedy on all MNOs is a proportionate response to an identified competition problem which is common to all MNOs.

- An obligation of non-discrimination on all MNOs, supported by an obligation of accounting separation imposed only upon Zain and Orange Mobile. The aim of this remedy is to overcome the possible discrimination that might occur not only as between different operators, but also between the internal and external provision of termination services, and the creation of margin squeezes through the manipulation of the termination rate in light of high on-net/off-net tariff variations. In this respect, the particular non-discrimination obligation imposed in relation to Zain should also include the various elements of TRC Decision No. 9-1/2004, which will assist in addressing the possible discrimination that might occur vis à vis third operators as a result of Zain's very high ratio of on-net to off-net calls. Although this existing Decision is currently framed as a remedy based on a finding of dominance at the retail level, it can be included specifically as a wholesale level remedy under this market review because it seeks to address a market failure arising from the relative level of wholesale charges for termination compared to on-net charges imposed by Zain which are manifested at the retail level. In the particular case of Orange Mobile, it is in a position to provide converged fixed-mobile services in combination with the fixed incumbent, i.e., Orange Fixed. In such circumstances, the termination function applied across both mobile and fixed platforms might be susceptible to manipulation at the expense of competitors by facilitating discrimination against those competitors when compared to the terms of self-provision. Accordingly, the obligation on Zain and Orange Mobile to provide separate accounts is designed to reflect the performance of the wholesale business, as if it had been operated as a separate business. It should be prepared on an annual basis and should include the following information: financial statements for mobile termination, including profit and losses and the mean capital employed statement, consolidation of P&L and MCE statements and a reconciliation with statutory accounts or other sources of costing information, non-discrimination notes, and other necessary supplementary schedules. The TRC will subject the accounting rules and reporting formats for mobile accounting separation to prior Public Consultation after the adoption of the proposed measures. By contrast, the TRC's preliminary view is that it would be disproportionate to subject Umniah and Xpress to the accounts separation obligation, because their respective customer bases are not sufficiently large so as to justify such a supplementary obligation (i.e., there is no realistic danger that their respective monopoly positions in termination would be leveraged into adjacent areas).

- An obligation upon all MNOs of price control, supported by an obligation of cost accounting to target excessive charges. The aim of this remedy is to address the primary competition concern arising from the monopolistic provision of termination services – excessive charging. In accordance with the LRIC cost modeling exercise currently being run by the TRC, each MNO will be obliged to set prices for its wholesale voice call termination and associated facilities and services in such a manner that reflects the FW-LRIC standard of providing these services.

- As part of a general obligation of transparency which supports the other primary remedies proposed by the TRC, each MNO should submit to the TRC and should publish specified information on its website, including information on access points and quality of service information (*i.e.*, key performance indicators ("KPIs"))[30]. In addition, each MNO should also publish terms & conditions and prices in a Reference Interconnection Offer ("RIO"). This RIO

30 The TRC reserves its position as to whether it considers it important to decide upon the specific content of the KPIs.

will be subject to prior public consultation and approval by the TRC, including proposed amendments.

- As an aspect of the respective non-discrimination and transparency obligations, each MNO should not be allowed to discriminate on all material non-price elements related to the termination service, thereby offering equivalent conditions, prices, and quality in equivalent circumstance with respect to QoS (and also termination charges). Each MNO will need to monitor the non-discrimination obligation by recording its provision time, measuring its KPIs, and providing regular reports to the TRC. Finally, each MNO should offer Service Level Agreements ("SLAs") with appropriate compensation in case of non-compliance with the agreed service levels.

A number of these proposed remedies are based on existing *ex ante* regulatory obligations. The TRC's final Decision in this market review will incorporate, modify, amend or discard existing obligations, as is appropriate in light of the final form of that Decision.

Consultation questions:

Q6: Do you agree with the TRC's preliminary conclusion about the potential competition problems related to the dominant position of each MNO in the market for wholesale call termination on its own network?

Consultation questions:

Q7: Do you agree with the TRC's preliminary conclusion about the appropriate remedies that should be imposed on Zain, Orange Mobile, XPress and Umniah to address the identified competition problems?

V. Wholesale SMS Termination (in the absence of *ex ante* regulation)

SMS termination is located at the same functional level as mobile call termination and is therefore immediately analysed after the latter. For SMS termination, the TRC carries out the following assessments: *first*, it defines the boundaries of the relevant product and geographic market (*Section 1*) and *second*, it applies the three-criteria test to the market, assuming the absence of any *ex ante* regulation of SMS termination (*Section 2*). Since the TRC does not find the three-criteria test to be fulfilled, it does not need to analyse the effectiveness of competition in the market for SMS termination or to consider the imposition of remedies on dominant operators.

1. Market Definition

The wholesale provision of SMS termination services appears to constitute a separate relevant product market or markets when compared to the various individual MNO network markets for voice call termination. As occurred in the case of voice call termination, the identification of the relevant market has been considered by reference to both demand side and supply side substitutability criteria.

1.1 Relevant Product Market

As discussed above in Chapter IV, the provision of *voice* call termination services on individual MNOs' networks constitute distinct relevant markets. Beyond the scope of that market definition, *all* other termination services are, by necessary implication, data-related. From the demand side, this is the case because data transmissions and voice transmissions are complementary, rather than directly substitutable, services.

Another differentiating factor with voice call termination markets is that SMS termination essentially occurs only between MNOs themselves, and does not include termination relationships with fixed line operators. From the supply side, while it is clear that only MNOs can provide the SMS termination service, it is equally clear that the SMS termination service and the voice call termination service is supplied in parallel by all MNOs to one another. It is therefore unlikely that one MNO would respond to a SSNIP situation by providing only the SMS termination service if one of its MNO competitors raised its prices. Accordingly, supply-side analysis is not a conclusive element in terms of defining the relevant market.

Most importantly, the application of a SSNIP test reveals that data and calls termination services at the wholesale level respectively fall within distinct relevant product markets. Although the underlying functional relationships between MNOs are identical to those which prevail in the context of mobile voice call termination markets, the commercial dynamic of SMS termination is very different, insofar as MNOs have chosen not to extract monopoly rents from their respective termination bottlenecks. Unlike voice call termination on individual networks, which requires *ex ante* intervention in order to restrict the level of monopoly rents extracted by terminating MNOs from originating operators, SMS termination wholesale services have been subject to a “Bill & Keep” system that has been implemented by commercial negotiation between the MNOs themselves, without recourse to any regulatory supervision on the part of the TRC.

Whether the market for the termination of SMS messages is an individual operator market or a multi-operator MNO market can be left open by the TRC, given the conclusion reached by it in the application of the three-criteria test below.

1.2 Relevant Geographic Market

For identical reasons to those cited in Chapter IV.1.7 of this Consultation Paper, the TRC takes the preliminary view that there exist homogeneous conditions of competition in the provision of wholesale SMS termination services across the whole territory of Jordan, as the termination service is an essential wholesale input for all MNOs to be able to provide their retail services nationally.

Consultation question:

Q8: Do you agree with the TRC’s preliminary conclusion regarding the relevant product and geographic market definitions for SMS wholesale call termination?

2. Application of the Three-Criteria Test

As occurred in the case of voice call termination, the three-criteria test has been used as the basis upon which the TRC has provisionally screened whether an identified relevant product market might warrant *ex ante* regulatory intervention, based on it fulfilment of three cumulative criteria. The TRC’s assessment of each of those three criteria is set forth immediately below.

2.1 High & Persistent Barriers to Entry (1st Criterion)

As was the case with voice call termination on individual MNO networks, the key structural or technological barrier to entry for the termination of SMS is the bottleneck control which every MNO has over a mobile number falling within its numbering range for its customer base. The effects of that bottleneck would in principle be reinforced by the application of the CPP principle, were it not for the fact that the MNOs currently provide termination services at no cost (see discussion below). Technical solutions might emerge in the future to overcome the bottleneck, but they are highly unlikely to be available to any material degree over the lifetime of this market review.

2.2 Lack of Dynamic Trend Towards Competition (2nd Criterion)

Each MNO in theory has a monopoly position within the market with respect to the termination of calls over its networks. Unlike wholesale voice call termination services, however, wholesale SMS termination services have been provided as between MNOs on the basis of a “Bill & Keep” system.

In doing so, the MNOs are not seeking to extract any monopoly rents from what would normally be considered to be the result of the monopoly control of a bottleneck resource. As a result, the respective MNOs are more concerned in cutting their wholesale costs due to the unavoidable termination externality rather than making monopoly rents. This difference in commercial motivation can be explained by a number of factors, such as:

- The fact that traffic flows between MNOs for SMS traffic are much more “balanced” between the two largest MNOs than is the case with comparable voice traffic volumes, which may account for some degree of countervailing buyer power being exercised by MNOs *vis à vis* one another.

- The ability of any MNO to be able to absorb high wholesale termination charges is less likely to be the case in the SMS context. Consequently, saving costs rather than generating wholesale charges appears to be more of an economic driver for MNOs.

- Because SMS messages are transferred as between MNOs only, there is no risk that high SMS termination charges would be used in a discriminatory fashion against fixed operators, as a means of encouraging fixed customers to migrate their voice services to MNOs (which has occurred in virtually all jurisdictions once mobile services were introduced).

The net commercial result arising from these relationships is that there is currently no market failure in Jordan in the termination of SMS which is occurring through the exploitation of monopoly power over the bottleneck termination resource. Nor is it likely that this situation will change during the lifetime of this review. Accordingly, there is little or no identifiable competition problem or market failure which is occurring that the existing competitive dynamic cannot address. In these circumstances, the second criterion of the three-criteria test cannot be satisfied.

2.3 Insufficiency of Ex Post Intervention Alone (3rd Criterion)

Given that the three-criteria test is cumulative in its effect, it is unnecessary for the TRC to examine whether the third criterion can be satisfied.

2.4 Conclusion

The TRC's preliminary conclusion is that SMS termination does not cumulatively fulfil the three criteria and, thus, need not to be considered for *ex ante* regulation.

Consultation question:

Q9: Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are not cumulatively fulfilled in relation to the market for SMS wholesale termination, and that this market is thus not susceptible to *ex ante* regulation?

VI. WHOLESALE MOBILE ACCESS AND CALL ORIGINATION (WITH *EX ANTE* REGULATION OF WHOLESALE MOBILE CALL TERMINATION IN PLACE)

The TRC believes that *ex ante* regulation of wholesale call termination alone is not sufficient to remedy the competition problems at the retail level over the lifetime of this market review. It arrives at this conclusion by performing a three-criteria test on the retail market with *ex ante* regulation of wholesale call termination in place, while at the same time it is assumed that MACO is not regulated. The TRC believes that – under these assumptions – the three criteria are still cumulatively fulfilled.

- **High and persistent barriers to entry**: While the regulation of mobile call termination can address the competition problems created by the termination bottleneck, the other factors leading to high and persistent barriers to entry to the retail market are still present. Given the limited availability of spectrum, the existence of large economies of scale and the substantial first-mover advantages of the leading operator, the 1st criterion is still fulfilled.

- **Lack of a dynamic trend towards competition**: Regulation of mobile termination also does not improve competitive conditions to an extent that the retail market could move towards effective competition in the absence of further regulatory intervention. The TRC believes that, while network effects can be effectively mitigated by cost based termination rates, the advantages of the leading operator in terms of higher scale and scope of operations and a superior customer base are such that the strong market leadership is unlikely to be put into question, and the retail market will not tend towards effective competition. In addition, any competitive constraint which might be imposed by the provision of 3G services by another operator is unlikely to be able to significantly limit the power of the leading operator in the short term. The TRC therefore believes that the 2nd criterion also continues to be fulfilled.

- **Insufficiency of *ex post* intervention alone**: Given the likely need to impose further wholesale remedies in addition to wholesale mobile call termination, it is also clear that *ex post* intervention alone on the basis of competition law would not be sufficient. What is clearly needed under such circumstances is a predictable set of *ex ante* regulations targeted at the competition problems identified.

The TRC therefore preliminarily concludes that, without the introduction of further remedies in addition to the *ex ante* regulation of mobile call termination, the **three criteria are cumulatively fulfilled** for the market for retail mobile services. As a result the TRC has also considered the scope and role of the *ex ante* regulation of MACO.

To determine the necessary scope of *ex ante* regulation, the TRC has carried out the following assessments: *first*, it has defined the boundaries of the relevant product and geographic market for MACO (*Section 1*); *second*, it has applied the three criteria test to the relevant market, assuming the absence of *ex ante* regulation of MACO (*Section 2*); *third*, it has analysed the effectiveness of competition and has identified Zain as the dominant operator on the relevant market (*Section 3*); *fourth*, it has selected the appropriate remedies to address the competition problems related to dominance in the provision of MACO (*Section 4*).

1. Market Definition

At the wholesale level, operators seek access to an MNO's network, with the possibility of originating all types of calls to be offered to their end users in the retail services market. End users would prefer to use these services together, and do not distinguish between them, which suggests that access to a mobile network and call origination from that network can be safely assumed to constitute a comprehensive service from the perspective of wholesale access seekers and MNOs providing the wholesale MACO service.

A wholesale MACO market would include: (a) the provision of MACO to other mobile service providers which seek to purchase access; and (b) the self-supply by the MNO to its own retail arm using the MACO services to provide all types of retail services.

In the event that there exists an operator on the market offering only access to the network and not also call origination from this network, the application of the hypothetical monopolist (SSNIP) test would suggest that, as a response to 5%-10% non-transitory price increase of a hypothetical monopolist, the access-only operator would be encouraged to also offer the call origination service quickly since this additional service could be offered without any significant additional expenses. This would provide competition to the hypothetical monopolist on the retail market, and its price increase would thereby be rendered unprofitable. When the access and origination for all types of calls are provided on the basis of the same infrastructure, a quick competitive response by such an operator would be very likely.

Although a wholesale MACO market is not directly observable in terms of arm's length commercial dealings, such a wholesale market can be considered to exist given the unquestionable existence of the following two types of demand:

- The first is driven by the vertically integrated operator of the public mobile telephony network, whereby its retail unit demands the service of access and origination for all types of services from the wholesale unit, with the intent of offering these services on the retail market. The vertically integrated operator wishes to provide its end users with access to the mobile network, and to enable them to originate all types of services.

- The second is driven by the actual or the potential existence of operators without any mobile network infrastructure (the so-called Mobile Virtual Network Operators - "MVNOs" - and simple service providers/resellers), as well as operators with some limited mobile network infrastructure. For those operators, their purpose is to operate on the retail market through their demand for the service of access to the mobile network and the origination of all types of voice calls from this network, as they also wish to provide their end users with access to a mobile network and to enable origination of all types of voice calls of the same scope and quality as is used by the retail unit of the vertically integrated operator.

1.1 Existence of a hypothetical market

The TRC is of the view that, even if currently no MACO agreements have been concluded and thus no commercial transactions exist, it is nevertheless possible to define a hypothetical market based on the self-provision of access and call origination by MNOs. The absence of signed agreements on the wholesale market merely demonstrates that the "offer" on the stated wholesale market is conducted internally through the vertical integration of the MNO. In such an event, the structure of the offer at the wholesale level (*e.g.*, the market share of operators active on the relevant market) is seen to be a reflection of what would otherwise be available hypothetically on the retail market.

Accordingly, the likely market dynamics in terms of structure, conduct and performance for MACO and the competitive relationship of the MNOs in the provisioning of such services should be inferred by reference to the market dynamics existing at the retail mobile services level. Moreover, self-supplied access and call origination can readily be provided to wholesale access seekers without incurring high set-up costs and without being subject to time delays. In the absence of any arm's length MACO transactions, the relevant market will therefore be considered by the TRC to include self-supplied mobile access and call origination services by all four of the vertically integrated MNOs currently operating in Jordan.

1.2 "Access" vs. "origination" services

The application of the hypothetical monopolist (SSNIP) test would suggest that, as a response to 5%-10% non-transitory price increase of a hypothetical monopolist, the access-only operator would be encouraged to also offer the call origination service quickly since this additional service could be offered without any significant additional expenses. As a result, the TRC also takes the preliminary view that there is no evidence to suggest that the MACO market should be further broken down into its separate constituent elements of: (i) mobile access; and (ii) call origination.[31]

Until the situation where Carrier Selection and Carrier Pre-Selection for international calls is made available to third parties in practice, a separate dynamic of supply and demand with respect to "access" and "call origination" respectively is not likely to

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31 Although see Paragraph 7 of the *Interconnection Instructions*, which directs Zain to provide Carrier Selection and Carrier Pre-Selection services, and the ancillary services necessary to support such services (especially as regards billing), in relation to international calls.

develop in such a way as would be capable of giving rise to separate “access” and “call origination” markets. Accordingly, the current relevant product market should integrate both access and call origination functions into a single notional market.

1.3 Single network vs. multi-operator markets

Unlike the relevant markets for voice call termination on individual mobile networks, the MACO market is a market cuts across all mobile networks (*i.e*., it is a multi-operator MNO market). This is because the relevant access seeker can sustain a competitive presence for the provision of mobile services at the retail level, by obtaining MACO services from <u>any</u> given vertically integrated MNO instead of being required to obtain the service from each individual MNO (as in the case of wholesale termination). Termination required from each individual MNO is regulated through the TRC’s *ex ante* regulation imposed on all individual MNOs’ networks.

1.4 Scope of access services falling within MACO

The TRC takes the preliminary view that the scope of services falling within the relevant MACO product market should in principle include all forms of access relationship which the host MNO can provide to itself. This is particularly the case because no actual pattern of supply and demand has thus far developed, based on the existence of arm’s length transactions. It would therefore include the forms of access that would facilitate *inter alia* the provision of mobile retail services through an MVNO relationship, the provision of national roaming (in the event that a smaller MNO had not as yet been able to compete its network rollout), the provision of Carrier Selection and/or Carrier Pre-selection services, or the sale of airtime which could support the provision of mobile resale services (*i.e*., simple resellers).

1.5 Treatment of associated facilities

Associated facilities that might be considered to be necessary for the proper provisioning of MACO (*i.e.*, collocation) are more appropriately addressed in the context of remedy selection, rather than being considered as falling within the scope of the relevant product market.

1.6 Relevant Geographic Market

From the supply side, the vertically integrated MNOs are in the position to provide the wholesale service across the vast majority of the physical territory of Jordan, as they are currently able to do so for their own retail operations (*i.e*., through the self-supply of MACO services). From the demand side, access seekers would be seeking geographic coverage for their services which would include the whole territory of Jordan. While it may be argued that wholesale demand for MACO may be stronger in areas with high population density such as the capital and other major cities, this is only likely to be true in the shorter term. In the medium to longer term, an access seeker would still intend to develop its business across the whole country, as it would otherwise be subject to unsustainable competitive disadvantages.

Furthermore, given that in order to address competitive conditions at the wholesale MACO level, one needs to refer to the retail mobile services market defined across the whole territory of Jordan in Chapter III.2, the relevant wholesale MACO service should also cover the whole geographic territory of Jordan. This is also consistent with international best practice and with all previous wholesale and retail geographic markets addressed so far by the TRC.

1.7 Conclusion

The TRC takes the preliminary view that the relevant wholesale market for MACO is an integrated multi-operator MNO market, which incorporates both the wholesale access element and the wholesale provision of origination services, thereby permitting the access seeker to provide a range of competitive services at the retail level across the whole territory of Jordan.

Consultation question:

Q10: Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for wholesale MACO services?

2. Application of the Three-Criteria Test

The TRC applies the three-criteria test to the market for wholesale MACO in order to examine whether it is appropriate for that market to be subject to *ex ante* regulation. In carrying out this exercise, the TRC assumes that no *ex ante* regulation of MACO or retail mobile services is in place, but that mobile call termination is *ex ante* regulated. The three criteria considered are the presence of high and persistent barriers to entry, the lack of dynamic trend towards effective competition, and the insufficiency of *ex post* intervention alone to deal with the competition problems at issue.

2.1 High and Persistent Barriers to Entry (1st Criterion)

The TRC takes the view that there will always be a natural limit to the number of MNOs in the market at any given point in time in Jordan, given the fact that spectrum is a relatively scarce resource without which the provision of mobile services is not possible. Best practice suggests that the limited availability of spectrum will always be considered to constitute a high and persistent barrier to entry in the mobile telecommunications sector in general, even if the possibility exists that the TRC will grant further licenses for the operation of mobile services beyond the existing four MNO licensees.

In addition, the number portability regime in Jordan is not yet implemented. This acts, in effect, as an entry barrier. In an increasingly maturing market it is very difficult for new entrants to win existing customers from incumbent operators, as opposed to competing for new customers in new markets. It is anticipated that number portability as between MNOs will only be available by late 2010/early 2011.

2.2 Lack of Dynamic Trend Towards Competition (2nd Criterion)

The **preliminary view** of the TRC is that the absence of arm's length commercial access relationships within MNOs or between MNOs and other wholesale access seekers over **a significant period of time** clearly suggests that, in the absence of *ex ante* regulation of MACO, the likelihood of existing MNOs offering wholesale access services within the lifetime of this market review **is relatively low**.[32] This is manifested in the fact that none of the MNOs have concluded MVNO access agreements despite the TRC's efforts to encourage such a form of access.[33] This *de facto* refusal of access is in turn to be compared to the existence of pent-up demand for MVNO access on the part of a number of reputable operators. For example, a number of relatively detailed Business Plans for MVNO access have been lodged with the TRC, but attempts on the part of access seekers to engage in mobile access negotiations with MNOs have not progressed.[34]

2.3 Insufficiency of Ex Post Intervention alone (3rd Criterion)

As discussed in previously, *ex post* intervention cannot effectively constrain market failure where there is a need for frequently recurring, timely, and anticipatory intervention. Under such circumstances, the imposition of permanent monitoring tools and restrictions is required. For example, a series of requirements such as price caps, cost-based charges on a basis of a LRIC cost standard, cost accounting and account separation remedies all require some significant investment which cannot be made in the context of *ex post* regulatory intervention. These types of remedies, however, are primarily used in connection with the implementation of obligations on dominant operators at the wholesale level.

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32 By way of contrast, the widespread availability of such wholesale access relationships has meant that the mandating of wholesale MACO under the market review process in Finland was considered by the European Commission to have not been justified in the circumstances.

33 TRC Regulatory Decision for MVNO Provision (8-16/2008)

34 One of these (confidential) business plans foresaw a content-related strategy for the access seeker, while the other foresaw a niche voiced-based strategy.

The competition rules are ill-adapted to address wholesale access claims, especially where there has been no prior course of dealing between access providers and access seekers. In addition, it is exceedingly difficult for the exercise of the competition rules to arrive at an effective cost-efficient formula for the pricing of access which takes into account the appropriate investment incentives of operators.

Furthermore, it is not effective for competition authorities to mediate in disputes between the parties involved in wholesale access relationships. There would also need to be ongoing vigilance in the monitoring of any non-discrimination obligation in light of capacity constraints or other technical restrictions on MVNOs (given that the number of such operators is likely to be limited, as opposed to operators basing their business case on Carrier Selection or Carrier Pre-Selection), which *ex ante* regulation is better adapted to implement.

2.4 Conclusion

The TRC arrives at the preliminary conclusion that the relevant market for MACO **fulfils the three criteria test** and, as such, is a market susceptible to *ex ante* regulation.

> **Consultation question:**
>
> **Q11: Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation for MACO, the three criteria are cumulatively fulfilled in relation to the wholesale market for Mobile Access and Call Origination (MACO), and that the MACO market is therefore susceptible to *ex ante* regulation?**

3. Assessment of Dominance

Given that the market for MACO is susceptible to *ex ante* regulation, the TRC assesses whether this market is also characterised by dominance and whether an individual MNO has "*such a sufficient impact on the market that it can control and affect the activity of the relevant market*", as is stipulated in Article 8(a) of the *Competition Safeguards*. In case there is single dominance then there will be no need to further investigate the case of joint (collective) dominance.

In the absence of actual arm's length transactions at the wholesale level for MACO, the TRC has sought to assess the extent to which there exists a lack of effective competition in the retail mobile services market, with a view to inferring whether there is by implication a lack of effective competition at the MACO level. As discussed above, such an approach is appropriate in light of the direct relationship between the wholesale MACO market and the retail mobile services market, given that mobile access and call origination are essential inputs required for the provision of retail mobile services.

In conducting this exercise, the TRC has also sought to determine whether there exist the sorts of indicators at the retail level which would motivate a single dominant operator or collectively dominant operators to deny access at the wholesale level, thereby protecting their individual market position or collective market positions at the retail level.

The assessment of dominance in the MACO market is made by reference to the assessment of dominance in the retail mobile services market. The TRC's economic analysis has considered the following issues:

- The analysis of ***market shares***
- The consideration of ***barriers to entry and expansion***
- The analysis of ***conduct in the market with respect to competitors and customers, including end-users*** and the performance by considering also the ***impact on profitability***
- The consideration of whether there is ***lack of other competitive restraints***

Each of these factors is considered in greater detail below.

3.1 Market Shares

High market shares are an important starting point for the assessment of dominance because the capture of a large market share means that the operator or operators in question, by being responsible for a large portion of the trade in goods or services of a market, are able to be unavoidable trading partners at the wholesale level and are better placed to be able to exercise their independence from the rest of the market.

On the basis of its assessment of all the available evidence gleaned through responses to its data questionnaire and with reference to data which it has collected independently of the market review process, the TRC has sought to determine whether any given MNO holds such a market share measured across several indicators including revenue, subscribers and traffic volumes, in order to suggest whether they hold a position of market dominance, as indicated in Table 7 below.

The calculations of the Hirschmann-Herfindahl Index (HHI)[35] in relation to such indicators are also provided in Table 8 below:

Table 7: Shares of Jordanian MNOs

Shares of Retail Revenue	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Shares of SMS Revenue	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile[36]				
Xpress				
Umniah				
Shares of Subscribers	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Shares of pre-paid subscribers	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress[37]				
Umniah				
Shares of post-paid subscribers	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				

35 The Hirschman - Herfindahl Index or HHI, is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. Named after economists Orris C. Herfindahl and Albert O. Hirschman, it is an economic concept widely applied in competition law, antitrust and also technology management. It is defined as the sum of the squares of the market shares of the 50 largest firms (or summed over all the firms if there are fewer than 50) within the industry. Increases in the Herfindahl index generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite. It is calculated by the formula: $HHI = \sum_{i=1}^{N} s_i$ where *s* is the market share of operator *i* and *N* is the number of operators. There is also a normalized formula $HHI = \frac{(H - 1/N)}{1 - 1/N}$ providing ranges from 0 to 1.

36 Orange Mobile shares are based on TRC estimations.

37 XPress share for 2008 is less than n.o.%.

Shares of originated traffic minutes	31/12/05	31/12/06	31/12/07	31/12/08
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Shares of on-net originated traffic minutes	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Shares of total terminated minutes	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Shares of international traffic minutes	**31/12/05**	**31/12/06**	**31/12/07**	**31/12/08**
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				

Source: TRC calculations based upon industry responses

Table 8: Hirschmann-Herfindahl Indexes

HHIs	31/12/05	31/12/06	31/12/07	31/12/08
HHI of pre-paid subscribers	5027	3679	3338	3452
HHI of post-paid subscribers	3954	4000	3900	4728
HHI of total subscribers	4806	3670	3330	3477
HHI of on-net terminated traffic	5912	4271	3534	4345
HHI of total originated traffic	5404	3836	3416	4021
HHI of on-net originated traffic	5900	4256	3521	4327
HHI of off-net terminated traffic	5235	4373	3728	3507
HHI of total terminated traffic	5735	4368	3604	4222
HHI of originated SMS	9371	4129	3841	3767
HHI of originated international traffic	5414	3733	3526	3759
HHI of originated SMS revenues	6143	5332	3942	3737
HHI of retail revenues	5776	4571	3853	3763

Source: TRC calculations based upon industry responses

According to Table 7, which lists the market share indicators for each operator across all possible market share indicators where operator data has been submitted, Zain is the leading Jordanian MNO with high market shares at a level which suggest market dominance. As a result, the TRC's attention is focussed initially on the analysis of whether individual dominance might exist.

In order to focus the analysis, Table 9 below synthesises Zain's market shares across a range of service lines, calculated as at 31 December of each year from 2005 until 2008.

Table 9: Summary of Zain dominance

Shares of Zain	Year				Level of market power
	2005	2006	2007	2008	
Retail revenues	numbers omitted (n.o.)				Strong suggestion of dominance ✓✓
SMS revenues					Possibly dominant ✓
Active subscribers					Suggestion of dominance ✓
Post-paid subscribers					Presumption of dominance ✓✓✓
Pre-paid subscribers					Suggestion of dominance ✓
Originated traffic					Presumption of dominance ✓✓✓
Terminated traffic					Presumption of dominance ✓✓✓
On-net traffic					Presumption of dominance ✓✓✓
Mobile outgoing international traffic					Presumption of dominance ✓✓✓

A series of observations may be drawn with respect to Zain's market shares (all market shares relate to the most recent data, as of 31/12/2008):

- A very high share when measured in terms of **total revenues** (>n.o.%), which is considered to be a more accurate indicator of market power. Such a high figure is on the verge of being presumptively dominant under the standard established under Article 8(b) Competition Safeguards (>50%).

- Revenues in the more price-sensitive **SMS segment** are slightly less than this figure, but nevertheless still consistent with a finding of dominance (>n.o.%) in the event that it can be corroborated with other market evidence.

- A very high share of the overall total **subscribers for both pre & post-paid market** (>n.o.%), which is significantly higher than the legal reference point contained in the Competition Safeguards (>25%). This can be broken down further into an extremely high share of the **post-paid segment** of the retail services market (>n.o.%) in terms of subscribers, which is likely to mean that it has the majority of the more lucrative business customers as its subscribers, and which suggests that it is presumptively dominant in this segment of the overall relevant market (*i.e.*, something which appears to be also consistent with its business strategy). Its market share of **pre-paid subscribers** is less in absolute terms (n.o.%), but is nevertheless also set at such a high figure that it is consistent with market dominance where it can be corroborated with other evidence.

- A very high overall market share (>n.o.%) measured in terms of total **terminated minutes**, with also a very high market share for total **originated minutes** (>n.o.%), both of which market shares are presumptive of dominance. These very high market shares indicate that the majority of mobile traffic (originated by mobile subscribers or terminated to mobile subscribers) in Jordan is managed through the Zain network. These high market shares in mobile traffic also reflect the high market shares achieved by Zain in terms of revenues (in termination, Zain has wholesale revenues while, in origination, Zain has retail revenues).

- A very high share of total **on-net mobile traffic** (>n.o.%), which again reflects a position of market dominance (presumed to be dominant under the Competition Safeguards).

- A market share for total **originated international mobile minutes**, which is around n.o.% (i.e. on the verge of being presumed to be dominant under the Competition Safeguards).

The above-cited figures have been further considered by the TRC in their proper historical and comparative context. For example:

- The HHI indexes reported in Table 8 have values for the calculated ratios which exceed by far typical international concentration ratios, which are in the region of 1800.

- The latest market share figures should also be considered in light of Zain's recent traffic growth patterns when compared to its competitors. These emerging patterns reinforce Zain's position as the leading MNO with the high market shares suggesting dominance. For example, Zain's growth in market share in 2008 exceeded the level of overall market growth by a ratio in excess of 2:1 (measured in total originated minutes). This has created a significant gap between Zain and its nearest competitor (Orange Mobile) of over n.o.% in market share.

- From a historical point of view, while most of Zain's market shares were decreasing until 2007 at the same time as the most of market share of its competitor Umniah were increasing, 2008 has witnessed a sharp increase across most of Zain's market shares, while at the same time most of Orange's market shares have decreased and those of Umniah have remained almost constant. According to the analysis below, it appears that Zain has managed to successfully defend its market share as a result of a decrease of Zain's price indicator (see discussion below) during 2008.

In light of the above considerations, the TRC takes the preliminary view that Zain has very high market shares across a wide range of indicators. These market share figures suggest either the possible existence of dominance or even the presumption of dominance, both under existing Jordanian legal standards (Article 8(b) *Competition Safeguards)* and standards of international best practice. For example, **Zain has market shares higher than 40% and 50% across a number of important parameters of market power, including revenues, subscribers, and traffic volumes. These market shares either suggest dominance when they exceed 40% of the relevant market (under international best practice) or lead to clearly to the presumption of dominance when exceed 50% under both prevailing Jordanian and EU legal standards.**

3.2 Barriers to Entry and Expansion

The leading position of Zain in the provision of mobile services is protected by high **barriers to entry** (*Competition Safeguards*, Article 8(c), Number 14) and **barriers to expansion** (*Competition Safeguards*, Article 8(c), Number 13). No other operator would be in a position to effectively constrain Zain's behaviour <u>as the leading MNO</u> and, as a result of the high barriers to entry and expansion, actual and potential competition is weak (*Competition Safeguards*, Article 8(c), Number 12).

The high level of barriers to entry and expansion and the weakness of actual or potential competition is result of the following factors:

First, the spectrum made available limits the number of mobile operators to four.

Second, there are **economies of scale** in the provision of services over mobile networks (*Competition Safeguards*, Article 8(c), Number 9) which, in combination with the sunk costs involved, create a barrier to entry and expansion. Zain and Orange Mobile have a significant advantage over their other MNO competitors in terms of their infrastructure deployment, having both benefited from their first and second mover advantage in 1995 and 2000 respectively.[38] This inevitably lowers their respective unit costs in carrying traffic. In addition, their respective distribution networks are both widespread and sophisticated, which means that they are much better adapted to effectively market their services to their customers as compared to the other two MNOs in the mobile telecommunications sector.

Third, Zain is a **fully vertically integrated entity** (*Competition Safeguards*, Article 8(c), Number 10) that is controlling the full value chain for mobile services, and is active on all relevant markets across the value chain enjoying a level of efficiency advantages and strategic options. The TRC also notes that, unlike Zain's smaller MNO competitors other than Orange Mobile (which predominantly relies upon Jordan Telecom), Zain has a high degree of self-reliance in terms of international

[38] For example, the number of BTS units operated by Orange and Zain is much higher than the numbers for Umniah and Xpress.

mobile services originating in Jordan since above n.o% of its international traffic passes over the international gateway of its affiliate, Bella.[39]

Fourth, there appear to be network effects which clearly favour Zain (*Competition Safeguards*, Article 8(c), Number 3):

- Compared to its competitors, Zain is able to maintain a very high ratio of on-net/off-net traffic on its network (see Table 10 below), which thereby allows it to extract greater benefits from the network effects created by its user base. High numbers of subscribers and the current level of on-net/off-net traffic means that Zain's customer base is less exposed to competitive pressure. Given that Zain grew its subscriber base by n.o.% in 2008 in light of overall subscriber market growth of 12%, the potential for such customers to remain on the Zain network is high.

Table 10: **Ratio on-net / off-net originated traffic**

Ratio of on-net/off-net originated traffic				
	2005	2006	2007	2008
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				
Total				

Source: Operator Response to TRC's Questionnaires

- Zain's widespread Middle East network of affiliates provide it with a significant competitive advantage, insofar as it is able to minimise its payments to third parties while at the same time being able to retain more international traffic on-net, thereby avoiding costs based on externalities.

Fifth, there appears to be a lack of effective competitive restraint from being imposed on Zain by other MNOs in the market, largely because of the absence of number portability. This reinforces Zain's ability to retain its more profitable post-paid customers, which is the customer segment most likely to value the importance of being able to port a number (*i.e.*, because it is this customer segment that is most likely to include high volume business users).

While the current penetration rate suggests that there continues to be scope of growth for new customers, current on-net/off-net traffic ratios will probably mean that Zain's market position and its overwhelming capture of recent market growth will be difficult to challenge in the immediate future in the absence of some form of

39 By contrast, Umniah and Xpress rely on the gateway services provided by the fixed incumbent, Jordan Telecom (as does Orange Mobile, although the fixed and mobile units of the Orange group are affiliated).

regulatory intervention. The recent decision to grant Orange Mobile a 3G spectrum license opens up the possibility of greater competitive pressure being exerted on Zain in the future with respect to business customers/post-paid customers. However, given that the availability of such competitive 3G services will only commence later in 2010 and will take some time to develop, it would be premature for the TRC to conclude at this point in time that such 3G services would definitely exert a significant competitive constraint within the timeframe of this market review.

3.3 Conduct in the market with respect to competitors and customers, including end-users (pricing conduct) and impact on profitability

The TRC has also sought to understand the pricing patterns and conduct of the MNOs and, in particular, of Zain (*Competition Safeguards*, Article 8(c), Number 14), with a view to determining whether its pricing is consistent with the preliminary findings of the TRC which suggest that Zain is dominant.

(i) Voice call price indicators

The TRC has sought to examine the pricing patterns of all MNOs in order to understand their pricing conduct over the period of 2005-2008. To this end, the TRC has constructed a voice call price indicator for each operator which is calculated by reference to average revenue per minute that can be readily calculated from the operator response data.

Voice Price Indicator = Total Non-Data Revenues / total traffic

Where:

- *Total Non-Data Revenues = Voice Call Revenues + % of Revenues from monthly and activation fees*

- *% of Revenues from activation and monthly fees = Total revenues from activation and monthly fees * Voice Call Revenues/ (Voice Call Revenues + Data Revenues)*

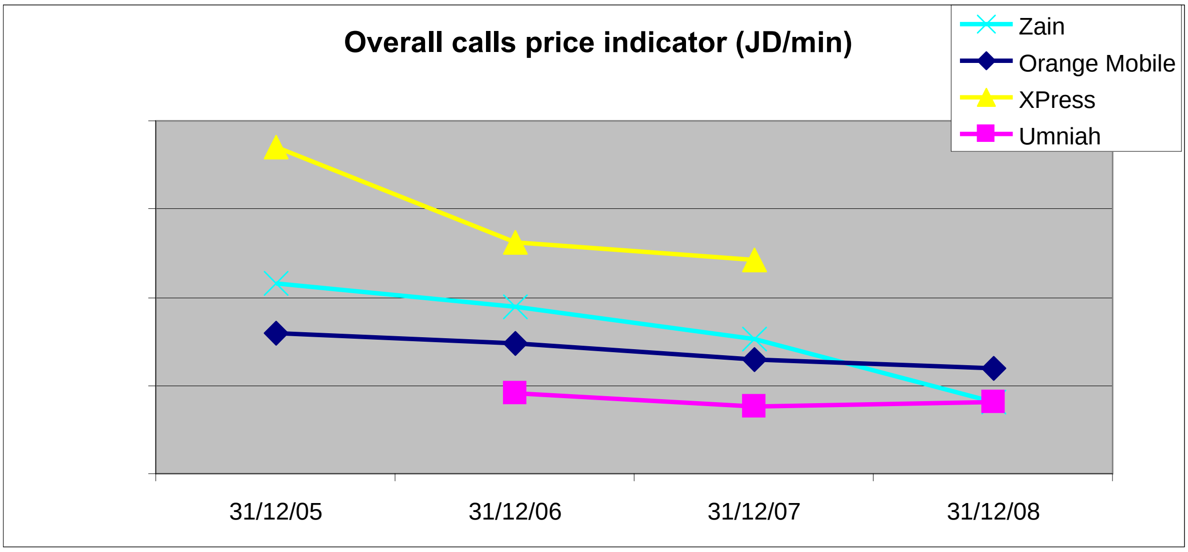
Although such a price indicator may not be as robust as the calculation of weighted average prices, it is sufficient in economic terms to allow the TRC to study the MNOs' pricing patterns. Furthermore, the advantage of this *average per minute price indicator* is that it encapsulates all drivers of profitability, since it divides overall non-data revenues with traffic. The results are illustrated in Table 11 and Figure 3.

Table 11: **Operator Voice Price Indicator constructed by TRC (JD/min)**

Operator	31/12//05	31/12//06	31/12/07	31/12/08
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				

Source: TRC calculations based on operators' data

Figure 3: Operator Voice Price Indicator constructed by TRC (JD/min) (numbers omitted)



(ii) Strategic price cuts and impact on profitability

The review of overall calls price indicators needs to be considered in light of the fact that Zain has managed to successfully defend its market shares in terms of revenue, subscriber and traffic-based indicators (reported above in Table 7) by price indicator reductions during 2008 of around 50% (as can also be derived from Table 11) at the expense of only a non-significant drop of 1 percentage point in its share of revenues since 2007.

Also, a price drop of this magnitude has not impacted adversely on Zain's overall profitability, as is shown in Table 12, **which indicates persistent levels of supernormal profits** with its ROCE levels standing at well over n.o.% when compared to: (a) the TRC-calculated WACC; (b) the WACC of a notionally efficient operator; and (c) the WACC levels of a typical MNO in the European Union, which are in the region of 9% to 14%,[40].

40 Refer to the European Commission's 14th Report on the Implementation of the Telecommunications Regulatory Package – 2008.

Table 12: ROCE

Operator	2005	2006	2007	2008
Zain	numbers omitted (n.o.)			

Source: TRC data

Thus, the 2008 price decrease has redressed Zain's historical market share losses by: increasing market share in terms of subscribers (from n.o.% to n.o.%); increasing market share in terms of originated traffic by 14% (from n.o.% to n.o.%); while decreasing the revenue market shares by only 1 percentage point from n.o.% to n.o%.

(iii) Comparison of the cheapest tariffs

The TRC has investigated pricing patterns in Jordan with respect to the cheapest available voice call tariff packages and SMS tariff packages respectively, based on the retail service baskets defined by the OECD, using the pricing data received in the course of data questionnaire responses and information available to the TRC through its usual market monitoring powers. The analysis performed comprised the following steps:

1. **Construction of User Profile**

   Define three categories of low usage, medium usage and high usage, using the OECD user profiles (for the definition of profiles, see Annex 4).

2. **Identification of the cheapest package**

   For each operator and for each user profile, identify cheapest package among all offered packages for pre-paid and post-paid customers respectively.

3. **Cross-operator comparison**

   Compare the operators' cheapest offers for post-paid and pre-paid customers respectively.

The analysis performed is based on the following assumptions: (a) data based on operator responses to mobile questionnaires; (b) "best friend categories" are not taken into account; and (c) certain missing data from the mobile questionnaires were completed by reference to data on the TRC's databases (collected otherwise in the exercise of its various regulatory powers).

An examination of these voice and SMS tariff packages respectively per user category suggests that Zain consistently maintains a premium in both the post- and pre-paid segments, when compared to its competitors, for all of the more lucrative customers in Jordan. This is reflected in Figures 4-9 below, which suggest that:

For low users: Orange is the most expensive in the post-paid segment, but the cheapest in the pre-paid segment. Zain is the most expensive in the pre-paid segment (excluding Xpress).

For medium users: Zain has the highest prices for both pre- and post-paid segments. Orange has the lowest offers for pre-paid, with Umniah providing the lowest offer for post-paid.

For high users: Zain has the highest prices for both pre- and post-paid segments (jointly with Orange in the post-paid segment).

Based on the TRC's analysis comparing the cheapest tariffs outlined above for both the voice calls and SMS segments of the overall retail services market, it is the TRC's preliminary view that Zain's adopts a similar pricing strategy, and maintains a price premium across all user categories (low, medium, high).

Figure 4: Low usage for pre-paid (numbers omitted)

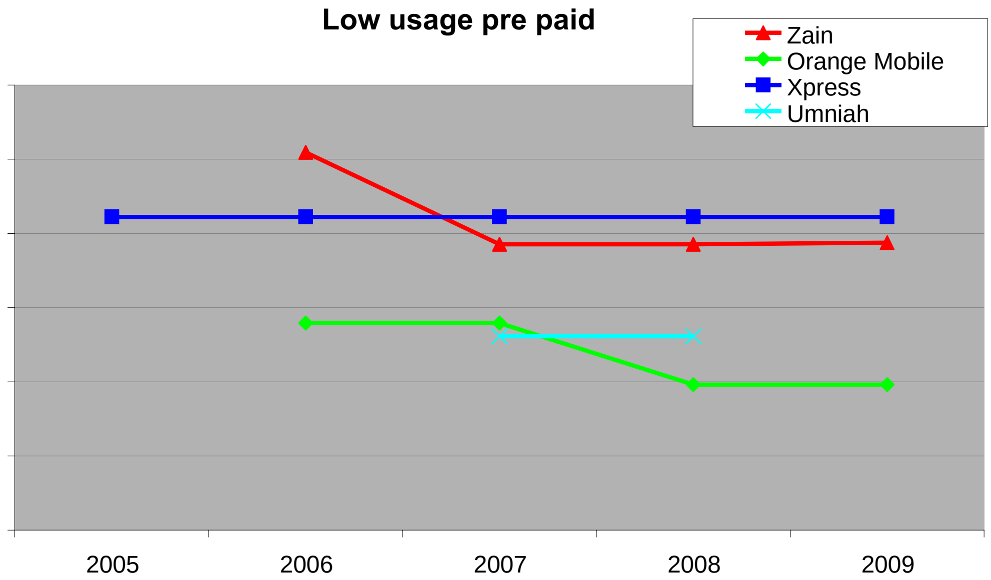


Figure 5: Low usage for post-paid (numbers omitted)

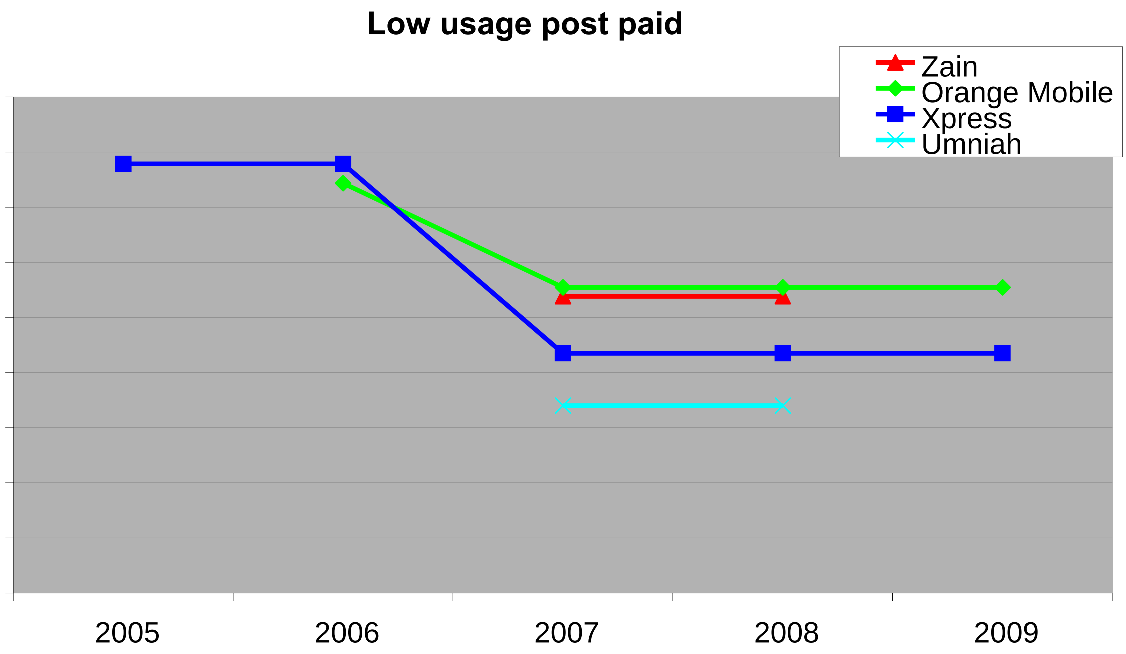


Figure 6: Medium usage for pre-paid (numbers omitted)

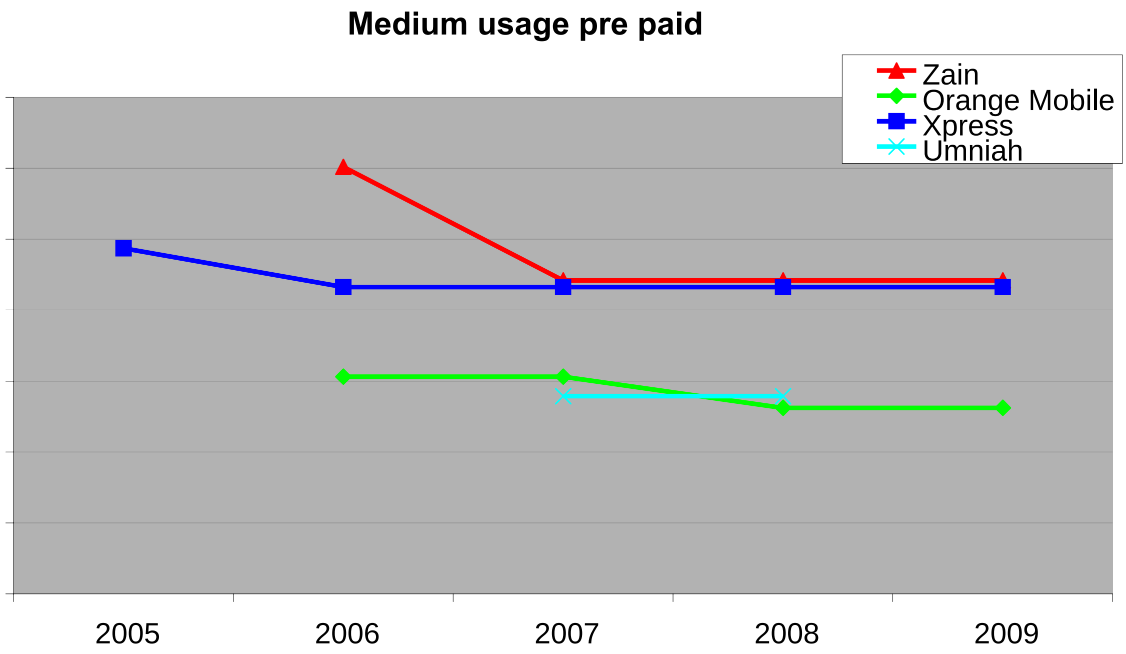


Figure 7: Medium usage for post-paid (numbers omitted)

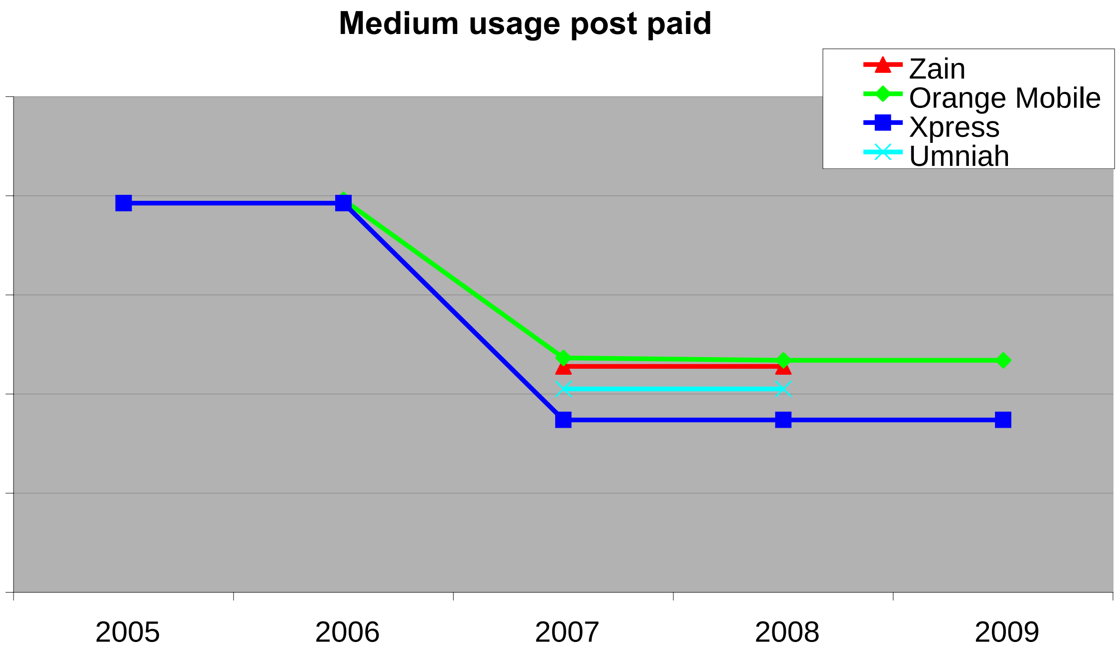


Figure 8: High usage for pre-paid (numbers omitted)

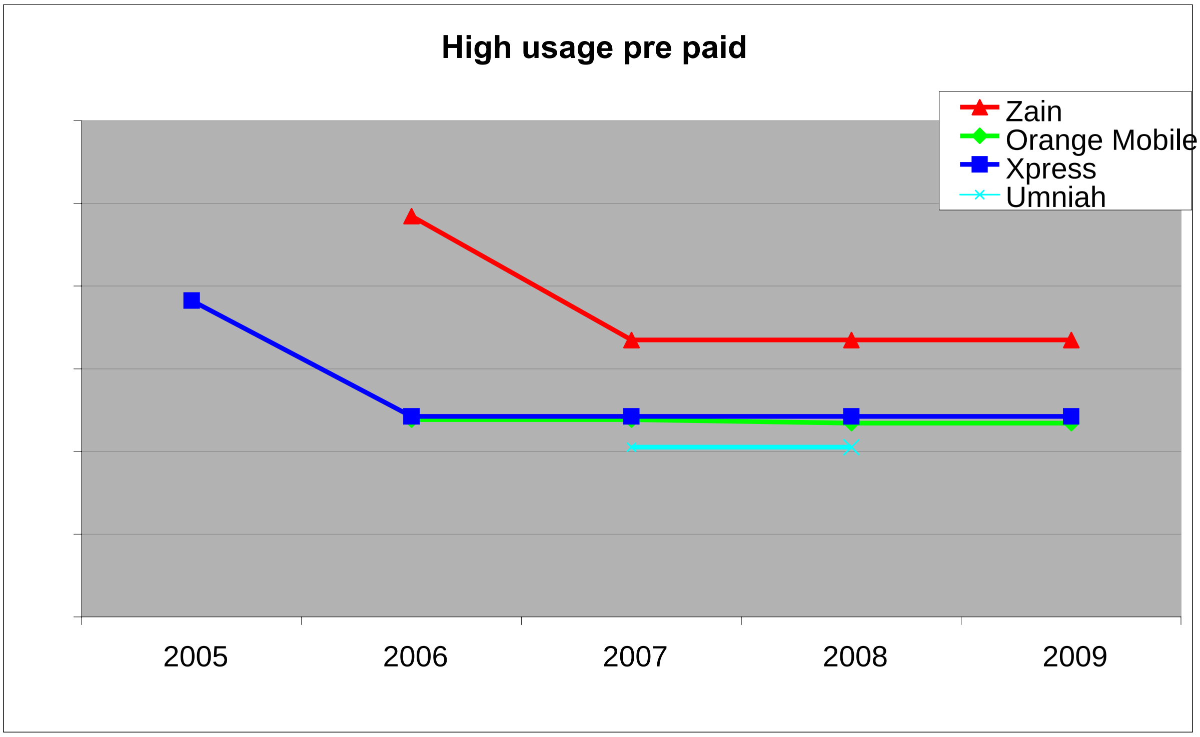
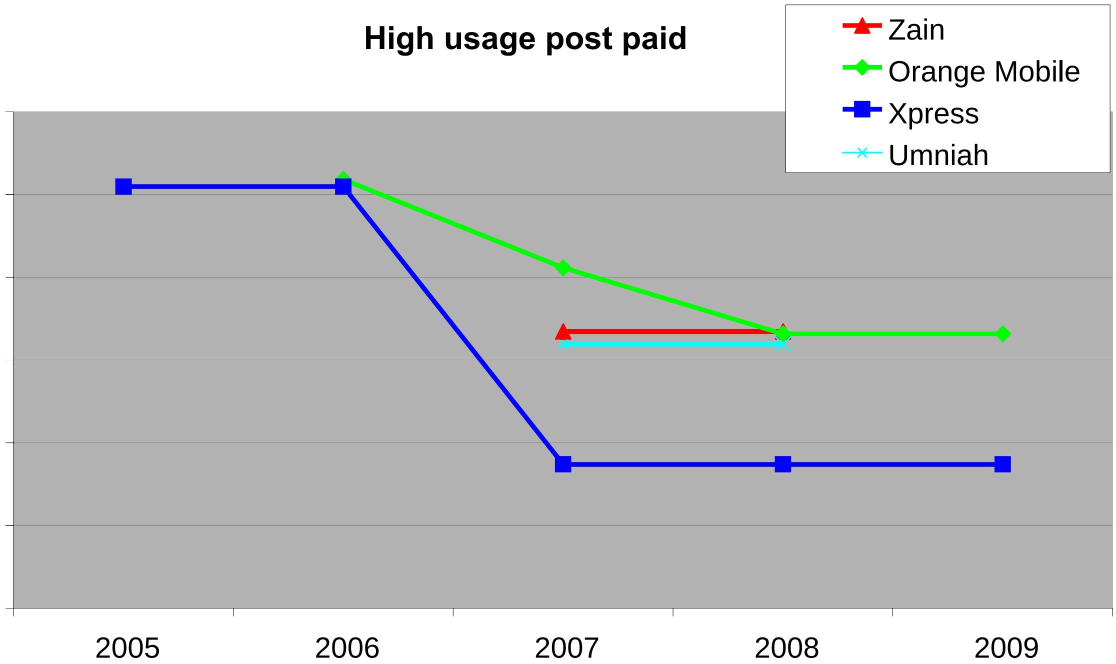


Figure 9: High usage for post-paid (numbers omitted)



(v) Analysis of Average Revenue Per User (ARPU)

As shown in Table 13 below, with respect to ARPUs, Zain is in a significantly superior position when compared to its competitor Zain has an average ARPU of over n.o. JDs, which far exceeds anything achieved by its two major competitors with the next highest being n.o. JDs for Orange Mobile, dropping to n.o. for Umniah.

Table 13: Operator ARPU (JDs)

	2005	2006	2007	2008
Zain	numbers omitted (n.o.)			
Orange Mobile				
Xpress				
Umniah				

Source: Operators' financial statements and responses to questionnaires

(v) Pricing Conduct Conclusion

On the basis of the above observations, the TRC is of the preliminary view that Zain is able to exercise a sufficient degree of autonomy in its pricing practices. This suggests that, on balance, Zain has the ability to be able to act, to a significant degree, independently of its competitors and consumers.

3.4 Lack of Other Competitive Restraints

As regards the realistic imposition of competitive constraints from existing MNOs or potential new entrants, the picture is a mixed one:

- Of Zain's three MNO competitors, only Orange Mobile appears to be capable of imposing any realistic competitive constraint on Zain in the future. For example, the relatively high level of Orange off-net traffic to domestic fixed operators (mainly to its domestic fixed affiliate) (n.o.%) (See Table 14 below) poses a potential challenge to Zain insofar as demand for fixed-mobile converged service offerings grows in the future, especially through various "homezone" offerings. However, a relatively low fixed penetration rate in terms of households (47%) compared to mobile penetration suggests that this factor might not increase significantly in relative importance over the lifetime of this market review. At this stage, however, the only immediate threat posed by Orange Mobile is in the pre-paid segment of the overall retail services market, and among low users. For example, a Zain affiliate also has a growing FWA business, which may over time rival the Orange group in terms of its ability to provide fixed-mobile converged services.

- As noted previously, the recent acquisition of a license by Orange Mobile to provide 3G services provides the possibility of a longer term competitive constraint on Zain, but the ability of that threat to materialise in practice cannot be predicted with any degree of certainty on a forward-looking basis, and is in any event unlikely to occur in the short term.

- Of the existing operators, the market impact which Umniah made in the period up to 2007 appears to have remained static over 2008. As regards Xpress, its market share in terms of active subscribers is very low. Furthermore, its originated traffic has decreased rapidly, while Zain's has increased by n.o.%. Moreover, Xpress' existing business plan, which is (information omitted), appears likely to mean that it will always be a marginal end-to-end competitor in the mobile telecommunications sector.

Table 14: Market shares of domestic mobile-to-fixed calls

	31/12/05	31/12/06	31/12/07	31/12/08
Zain	**numbers omitted (n.o.)**			
Orange Mobile				
Xpress				
Umniah				

Source: Operator responses to TRC Questionnaires

3.5 Conclusion

On the basis of the above analysis (using Zain's position in the retail mobile services market as a proxy for dominance at the wholesale MACO level), the TRC arrives at the preliminary conclusion that Zain should be considered **to be individually dominant in the MACO market.**

Consultation question:

Q12: Do you agree with the TRC's preliminary conclusion that Zain holds a dominant position in the wholesale MACO services market, based on its position in the retail services market, and that it should be designated as being individually dominant at the MACO level?

4. Appropriate Remedies

As discussed below in Section 4.4 of this Chapter, the selection and formulation of appropriate remedies should take place in accordance with the methodology set forth in the *White Paper*. In particular, the TRC will be guided by the need to establish proportionate remedies which address the competition problems identified by the TRC as being likely to arise as a result of the market dominance of Zain.

4.1 Potential Competition Problems Related to Dominance

The principal market failure which would need to be addressed by *ex ante* regulation would be the likely refusal on the part of Zain to supply wholesale MACO in response to reasonable requests.

Another competition problem is to supply such access at excessive charges. .

Last but not least, the final competition issue is the possibility of discriminatory treatment of wholesale access seekers, particularly regarding the external and internal provisioning of access. This would include discriminatory terms and conditions regarding quality of service, undue requirements relating to financial terms, and the use of information from the wholesale business to target the new entrant's retail customers, and discriminatory charges resulting in a potential margin squeeze.

4.2 Available Remedies

The remedies available to the TRC include the full set of primary and supporting remedies that would be capable of addressing the above competition problems. Possible primary remedies include an obligation to negotiate access on reasonable request, non-discrimination in terms of price and non-price elements, and some form of price control.

First, an obligation to provide **access on reasonable request** can be imposed to remedy the dominant operator's refusal to provide MACO. This could be supported by a transparency remedy (possibly including the publication of a Reference Offer).

Second, an obligation of **non-discrimination** can address the likely discriminatory provision of MACO, the vertical leveraging of market power into retail markets, and margin squeezes. The obligation not to discriminate in terms of price could also be supported by an obligation to provide accounting separation for the dominant operator's wholesale business of providing MACO.

Third, an obligation of **price control** can prevent the dominant operator from charging excessive prices for MACO services and/or prevent margin squeezes. The price control obligation could be also supported by a **cost accounting obligation** based on regulatory accounting rules defined by the TRC.

4.3 Current Remedies

The existing remedies related to the MACO market include:

- Provision of call origination (CS/CPS for outgoing international calls) (only for Zain)
- Access to MVNOs
- Consolidated Billing for CPS (only for Zain)
- Produce, publish RIO (only for Zain)
- Approval of TRC for any modification of interconnection services
- Collocation - infrastructure sharing on cost oriented prices
- Call origination for number translation services
- Non-discrimination requirement
- Transparency requirement

4.4 Proposed Remedies

Given the competition problems identified by the TRC and in order to promote competition at the retail services level, the TRC takes the preliminary view that the following set of remedies is required:

- An obligation on Zain to negotiate access requests of MVNOs in good faith. This primary obligation is directed towards the outright denial of access. It is questionable whether a Reference Offer for MVNO access is a useful remedy given the wide variety of possible MVNO arrangements. Furthermore, the obligation to negotiate access in good faith will be subject to the exercise by the TRC of its dispute settlement powers in accordance with Article 60 of the Telecommunications Law and the TRC's dispute resolution instructions. As a supporting measure relating to the obligation to provide MACO, access seekers will be encouraged to submit their business plans with the TRC in order to establish their case for seeking access. The procedure proposed appears to be necessary both because an MVNO can take many different forms and because there may be capacity constraints on MNOs' abilities to host MVNOs. However, at present, the TRC takes note of the fact that there are no capacity restraints on the Zain network that would restrict it from hosting an MVNO on its network.

- Zain's obligation to provide Carrier Selection and Carrier Pre-Selection and wholesale call origination of international calls on reasonable request should be maintained. The terms and conditions of such access will be consistent with the terms currently prescribed under existing legislation, although included in the final Decision of the TRC under this current market review exercise as a wholesale measure. The TRC will maintain this obligation for as long as is considered necessary, especially insofar as there is an absence on the relevant market of MVNO access relationships. As a supporting remedy Zain should be also obliged to publish a Reference Offer.

- Zain should also be obliged to maintain the provision of call origination for Number Translation Services (NTS) which currently is also a symmetrical obligation imposed upon all mobile operators.[41]

- As regards all envisaged forms of access falling within MACO – namely, wholesale call origination, and MVNO access - the TRC also proposes that an obligation of non-discrimination apply to Zain. TRC is of the view that at the early stage of the MACO market development, it is not necessary that this primary obligation is complemented by a supporting accounting separation obligation.

- In the event that the TRC exercises its dispute settlement powers in order to facilitate the hosting of one or more MVNOs on Zain's network, it takes the view that the most likely form of price control should be based on a retail-minus charging formula. In contrast, for CS/CPS and NTS services as well as wholesale call origination the price control should be cost-based and prescribed on an ex ante basis.

41 TRC reserves the right to maintain the imposition of this remedy as a symmetrical obligation on all licensees.

Consultation questions:

Q13: Do you agree with the TRC's preliminary conclusion about the potential competition problems related to the dominant position of Zain in the wholesale MACO services market?

Q14: Do you agree with the TRC's preliminary conclusion about the appropriate remedies to be imposed on Zain, to deal with the identified competition problems?

VII. Retail Mobile Services (With *Ex ante* regulation of Wholesale Mobile Call Termination and MACO in Place)

The TRC's final step is to carry out an assessment of the market for retail mobile services on the assumption that there is no *ex ante* regulation at the retail level in place, but on the understanding that there is in existence *ex ante* regulation of the markets for wholesale mobile call termination and wholesale MACO. This is a different set of assumptions than those used in *Chapter III* for the initial analysis of the retail market. The TRC, however, believes that the revised set of assumptions about *ex ante* regulation at the wholesale level does not change the definition of the relevant retail market. The remainder of this Chapter demonstrates the outcomes of the three-criteria test once the proposed wholesale regulation is in place (*Section 1*) and provides an overall conclusion (*Section 2*).

1. Application of the Three-Criteria Test

The TRC takes the preliminary view that, despite the existence of **entry barriers** discussed, the proposed *ex ante* obligations to be imposed on the wholesale markets (call termination and MACO) within the lifetime of the market review should mitigate the effects of the barriers to entry in the retail services market. Accordingly, in the TRC's view, the effective *ex ante* regulation of wholesale mobile call termination on individual mobile networks and MACO mitigates regulatory barriers to entry in the retail sector (*i.e.*, limited number of MNO licenses, spectrum scarcity) and structural barriers to entry (economies of scale and scope, termination bottleneck reinforced by the effects of the CPP convention).

The wholesale obligations proposed in this Consultation document are also designed to promote the **dynamic tendency towards effective competition** in the retail market, thus minimising the likelihood of the second threshold criterion being fulfilled. As a result of the proposed effective *ex ante* regulation of wholesale mobile call termination and MACO, to be implemented as soon as possible, new entry and expansion by existing smaller MNOs and new entrant MVNOs becomes more likely.

Finally, ***ex post* competition rules** are inherently better adapted to address market failures at the retail level, as compared to the wholesale level, where *ex ante* regulation is more appropriate. Market failures at the retail level can often be addressed by the prohibition of a particular practice, or by subjecting it to a general behavioural obligation such as non-discrimination. Moreover, there is every possibility, under an *ex post* analysis, that a more nuanced market definition approach might be more appropriate, often one that requires the narrower definition of markets along the lines of what would otherwise be considered to be a market segment under an *ex ante* analysis.

2. Conclusion

As a result of the above analysis, the TRC takes the preliminary view that the regulation of retail mobile services market is unnecessary in light of the *ex ante* regulatory measures directed at the wholesale level which are already proposed in this Public Consultation document.

The TRC, however, notes that this conclusion that the mobile retail services market is not susceptible to *ex ante* regulation can be revisited by the TRC if the timely, full and effective implementation of the proposed wholesale remedies would be hampered in the event that Zain fails to comply with the *ex ante* obligations imposed.

Consultation question:

Q15: Do you agree with the TRC's preliminary conclusion that, in light of the proposed *ex ante* regulatory remedies (if implemented) put forward in this Public Consultation, the three criteria are not cumulatively fulfilled for the retail mobile services market and that, therefore, this market is <u>not</u> susceptible to *ex ante* regulation?

ANNEX 1: CONSULTATION QUESTIONS

Market for Retail Mobile Services (in the absence of any *ex ante* regulation)

Q1. Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for retail mobile services?

Q2. Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are cumulatively fulfilled in relation to the relevant market for retail mobile services?

Market for Mobile Call Termination (in the absence of any *ex ante* regulation)

Q3. Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for wholesale call termination?

Q4. Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are cumulatively fulfilled in relation to the markets for wholesale call termination on individual mobile networks and that these markets are therefore susceptible to *ex ante* regulation?

Q5. Do you agree with the TRC's preliminary conclusion that Zain, Orange Mobile, XPress and Umniah each hold a dominant position in the markets for wholesale call termination on their own respective networks?

Q6. Do you agree with the TRC's preliminary conclusion about the potential competition problems related to the dominant position of each MNO in the market for wholesale call termination on its own network?

Q7. Do you agree with the TRC's preliminary conclusion about the appropriate remedies that should be imposed on Zain, Orange Mobile, XPress and Umniah to address the identified competition problems?

Market for wholesale SMS termination

Q8. Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for SMS wholesale call termination?

Q9. Do you agree with the TRC's preliminary conclusion that, in the absence of any *ex ante* regulation, the three criteria are not cumulatively fulfilled in relation to the market for SMS wholesale termination, and that this market is thus not susceptible to *ex ante* regulation?

Market for Mobile Access and Call Origination (MACO)

Q10. Do you agree with the TRC's preliminary conclusion regarding the relevant product and geographic market definitions for wholesale MACO services?

Q11. Do you agree with the TRC's preliminary conclusion that, in the absence of any ex ante regulation for MACO, the three criteria are cumulatively fulfilled in relation to the wholesale market for Mobile Access and Call Origination (MACO), and that the MACO market is therefore susceptible to ex ante regulation?

Q12. Do you agree with the TRC's preliminary conclusion that Zain holds a dominant position in the wholesale MACO services market, based on its position in the retail services market, and that it should be designated as being individually dominant at the MACO level?

Q13. Do you agree with the TRC's preliminary conclusion about the potential competition problems related to the dominant position of Zain in the wholesale MACO services market?

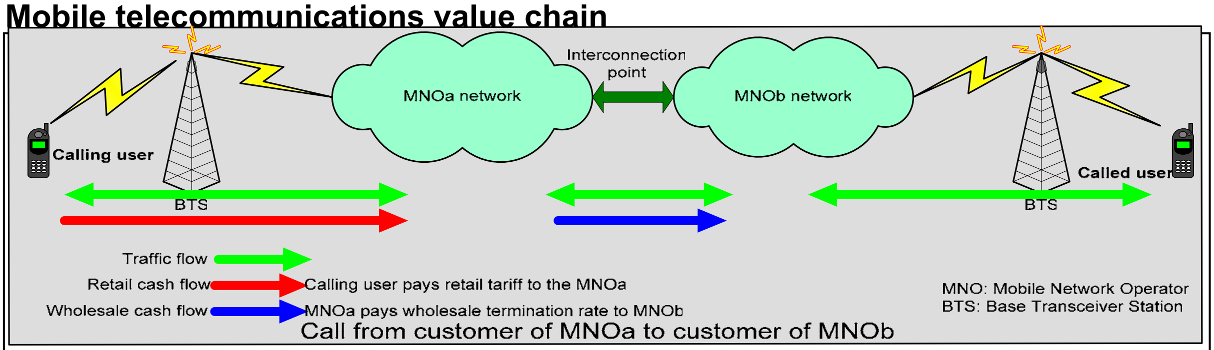
Q14. Do you agree with the TRC's preliminary conclusion about the appropriate remedies to be imposed on Zain, to deal with the identified competition problems?

Market for Retail Mobile Services with Remedies for Mobile Call Termination and Mobile Access and Call Origination (MACO)

Q15. Do you agree with the TRC's preliminary conclusion that in light of the proposed *ex ante* regulatory remedies (if implemented) put forward in this Public Consultation, the three criteria are not cumulatively fulfilled for the retail mobile services market and that, therefore, this market is <u>not</u> susceptible to *ex ante* regulation?

ANNEX 2: MOBILE VALUE CHAIN

Mobile telecommunications value chain



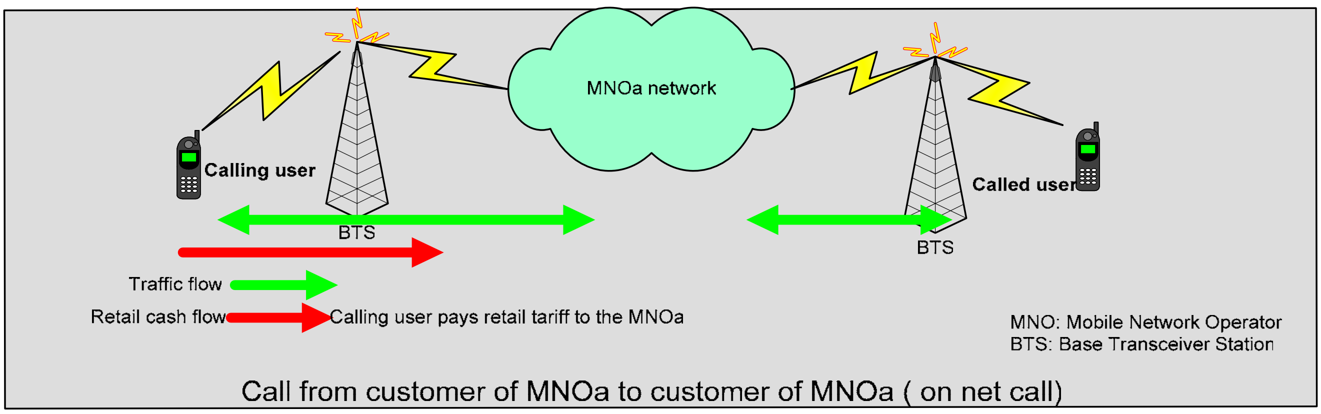
Scenario A - Customer of MNOa (calling user) calls a customer of MNOb (called user):

- MNOa provides call origination retail services to calling user
- MNOb provides wholesale termination services to MNOa

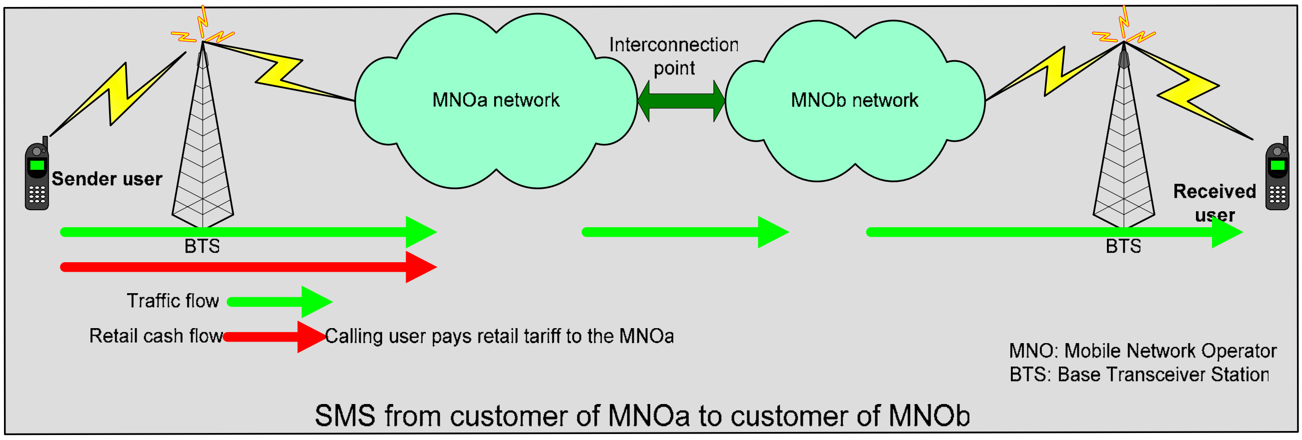
Scenario B - Customer of MNOb (calling user) calls a customer of MNOb (called user) while MNOa provides mobile access services to MNOb:

- MNOa provides mobile access services to MNOb
- MNOb provides call origination retail services to calling user
- MNOb: self-supply of termination services

Retail mobile voice call service (on-net call)



Provision of SMS



ANNEX 3: MARKET INDICATORS TO ASSESS DOMINANCE / EFFECTIVE COMPETITION

TRC Competition Safeguards	**Market Shares** ⇒ *Licensee with **> 50% presumed to be dominant**.* ⇒ *Licensee with **between 25%-50%** subject to classification as dominant based on Impact Factors.* ⇒ *Licensee with **< 25% presumed to be non-dominant**.* **Impact Factors:** • **Size** (by revenue, subscribers number, and network capacity) compared to the size of other competitors • **Control** of essential facilities • **Network effects**, including the geographic availability of services • **Conduct in the market** with respect to competitors and customers, including end users • **Technological advantages** or disadvantages with respect to competitors • **Countervailing power**, if any, of competitors and customers, including end users • **Access to capital markets**/financial resources compared to such access by competitors • **Bundling** of products or services and the effect of such bundling on competition • **Economies of scale** and/or scope, including relationships with affiliated Licensees • **Vertical integration**, including relationships with affiliated licensees • Characteristics of **distribution network**, • **Absence or presence** of competitors and potential competition • **Barriers to expansion** • **Barriers to entry**
Market Review White Paper	**Impact Factors:** • Number of market participants • Concentration ratio and HHI of market concentration • Market shares • Changes in market shares over time • Barriers to expansion • Network effects • Barriers to entry • Price rivalry • Non-price factors (including profitability) **Countervailing Buyer Power:** • Size and commercial significance to suppliers • Presence of alternative suppliers and/or ability to sponsor upstream market entry/ expansion (through purchasing commitments) • Absence of switching costs • Credibility of the purchaser's threat • Extent to which costs can be imposed on suppliers (*e.g.*, delaying purchases) • Incentive to exercise purchasing power

Annex 4: OECD Profiles for Mobile User Baskets

Call Volumes per year			
	Voice	SMS	MMS
Low usage	360	396	8
Medium usage	780	600	8
High usage	1680	660	12

Time of day variation			
	Peak	Off-peak	Weekend
Low usage	48%	25%	27%
Medium usage	50%	24%	26%
High usage	60%	19%	21%

Call and message destinations									
	Local	National	(local and national)	Mobile On-net	Mobile Off-net	Voice mail	total voice	SMS On-net	SMS Offnet
Low usage	15%	7%	22%	48%	22%	8%	100%	65%	35%
Medium usage	14%	7%	21%	48%	24%	7%	100%	65%	35%
High usage	13%	7%	20%	47%	26%	7%	100%	65%	35%

Call durations (minutes)				
	Fixed	Mobile On-net	Mobile Off-net	Voicemail
Low usage	1,5	1,6	1,4	0,8
Medium usage	1,8	1,9	1,7	0,8
High usage	1,7	1,9	1,8	0,8