# Market Definition and Dominance Report 2013

## Market Analysis Report on Telecommunications Network Services in Oman

**May 2013**

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# 1 Introduction

## 1.1 Purpose

This report is the Market Definition and Dominance Report ("Report") of the TRA pursuant to the Telecommunications Regulation Act, the Decision on ex ante Rules Governing Market Definition and the Regulation of Dominance and the Market Definition and Dominance Guidelines.

The Report contains the review undertaken by the TRA of markets for network services in the telecommunications sector in Oman. The review commenced in late 2010 and has been completed after substantial public consultation with industry stakeholders over that period.

## 1.2 Time Horizon of the Review

TRA has had regard to the following factors in considering an appropriate time horizon for the current market Report:

- Anticipating technological change is difficult at any time, and is particularly difficult beyond two years at present because of the imminence of mass broadband services using fixed and mobile technologies, and the accelerating convergence driven by the adoption of IP technologies at all levels in the sector;
- Network technologies are in the process of moving from circuit-switched platforms to systems that are based on Internet Protocols capable of processing a convergent range of services with much higher capacity;
- Broadband infrastructure is being deployed and broadband services are being taken up at an increasing rate, and broadband demand and usage is changing very rapidly;
- The cost structures and service profiles for mobile data services are undergoing change with the adoption of new technologies, such as WiMAX, HSDPA and LTE, and the increased demand for mobile data services; and
- New entrants have recently commenced, and others have recently been authorised to commence the commercial operation of their services, with consequences for competition in many services markets.

In the light of these factors, TRA has adopted a two year time horizon in preparing this Report. This means that in assessing the susceptibility of each relevant market to ex ante regulation for dominance the likely changes and developments in the market for the next two years have been taken into account as far as they can be reasonably foreseen. In principle, possible developments that occur beyond that timeframe have been regarded as less certain and have not been taken into account. They have been left to emerge more clearly and to be taken into consideration in the course of future reviews of this kind.

## 1.3 Structure of the Report

The Report is set out as follows:

- Various candidate markets identified in service, geographical and customer terms are examined in Chapter 2, and a final set of market definitions has been determined based on a range of considerations including the limits of demand-side and supply-side substitutability.

- In Chapter 3 the candidate markets are assessed in terms of their susceptibility to ex ante regulation for dominance and a final set of relevant markets is determined as a result of that assessment.
- In Chapter 4 each of the relevant markets are examined in terms of the criteria for single and joint dominance included in the Market Definition and Dominance Guidelines and conclusions are reached on whether dominance exists and, if so, on the identity of the service providers that are considered to be in a dominant position.
- In Chapter 5 the risks of harm from dominance are assessed in each of the markets characterised by dominance and ex ante remedies are considered having regard to the need for reasonable, appropriate and proportionate responses to the risks of harm that are posed. In addition Chapter 5 includes consideration of how the remedies might be shaped in terms of intensity of application in order to be no more onerous or intrusive than is necessary to address the risks of harm from dominance that are adjudged to exist.

## 1.4 Decisions

The decisions that the TRA has made as a result of the conclusions made in the course of this review are set out in summary form in the attached Figure 1.1.

**Remedies to be compliant with the Act and other subordinate legislation**

For the avoidance of doubt and to avoid needless repetition in relation to the remedies proposed to address the risks of harm to competition and consumer interests in markets in which one or more licensed operators has been found to be dominant, all of the remedies proposed shall be implemented in accordance with the procedures and other substantive requirements of the Telecommunications Act and other existing statutory instruments and regulations and will take account of, and where necessary amend or replace, existing obligations which address the same or similar issues.

## Decisions by the TRA as a result of this Review

Figure 1.1: Decisions by the TRA as a result of this review

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 1: Retail access to the public telephone network at a fixed location | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 2: Retail local and national voice call service from a fixed location | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 3: Retail international voice call service | No | | | |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 4: Retail broadband Internet access from a fixed location | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 5: Retail dial-up Internet access from a fixed location | No | | | |
| Market 6: Retail mobile services market | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 7: Retail national leased line services [and business data services at a fixed location] | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market.<br>[Market 9 has been merged in this market] |
| Market 8: Retail international leased lines | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 9: Retail business data services provided from a fixed location | | | | [This market has been merged with Market 7] |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location | Yes | Omantel | | • Omantel to be obliged to supply call origination services to all eligible licensees who request them;<br>• Omantel to be obliged to publish a current Reference Interconnection Offer in relation to the supply of wholesale call origination services in a form and with content approved by the TRA;<br>• Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation based on LRIC in the manner determined by TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location | Yes | Omantel<br>Nawras | | • Omantel and Nawras each to be obliged to supply call termination services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale call termination services in a form and with content |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to price control obligations based on LRIC in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 12: Wholesale network infrastructure access at a fixed location | Yes | Omantel | | • Omantel to be obliged to supply nominated access services and facilities to all eligible licensees who request them;<br>• Omantel to be obliged to publish a current Reference Access Offer in relation to the supply of wholesale network infrastructure access services and facilities in a form and with content approved by the TRA;<br>• Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA; and |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | • Omantel to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 13: Wholesale broadband access at a fixed location | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale broadband access services and related facilities to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Access Offers in relation to the supply of wholesale broadband access services and related facilities in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 14: Wholesale terminating segments of leased lines | Yes | Omantel | | • Omantel to be obliged to supply wholesale terminating segments of leased lines to all eligible licensees who request them;<br>• Omantel to be obliged to publish a current Reference Access Offer in relation to the supply of wholesale leased line terminating segments in a form and with content approved by the TRA;<br>• Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel to be subject to accounting separation (AS) obligations in relation to wholesale terminating segments of leased lines. |
| Market 15: Wholesale trunk segments of leased lines | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale trunk segments of leased lines to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish a current Reference Access Offer in relation to the supply of wholesale leased line trunk segments in a form and with content |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to wholesale trunk segments of leased lines. |
| Market 16: Wholesale IP international bandwidth capacity | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply IP international bandwidth capacity to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish a current Reference Access Offer in relation to the supply of wholesale IP international bandwidth capacity in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation for wholesale IP |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | international bandwidth capacity in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to wholesale IP international bandwidth capacity. |
| Market 17: Wholesale voice call termination on individual mobile networks | Yes | Omantel<br>Nawras | | • Omantel and Nawras each to be obliged to supply wholesale voice call termination services on their mobile networks to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale voice call termination services on their mobile networks in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to price control based on LRIC cost standard in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 18: Wholesale access and call origination on public mobile telephone networks | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to provide wholesale access and call origination on public mobile telephone networks and associated facilities to all eligible licensees who request them, in the manner determined by the TRA;<br>• Omantel and Nawras each to negotiate mobile access and call origination in good faith, on reasonable terms and conditions and in a reasonable time as determined by the TRA;<br>• Omantel and Nawras each to have obligations in respect of non-discrimination and transparency;<br>• Omantel and Nawras each to be required to publish a current Reference Access Offers in a form and with contents approved by the TRA;<br>• Omantel and Nawras each to be subject to price control obligations in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 19: Wholesale national | | | | [This market has been merged with Market 18, treating roaming as one of many forms of |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| roaming | | | | wholesale mobile network access.] |
| Market 20: Wholesale transit | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale transit services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale transit services in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to price control based on LRIC cost standard in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |

SOURCE: TRA

# 2 Definition of Markets

## 2.1 Candidate markets

The TRA has developed a list of possible candidate markets for consideration and definitional refinement using a number of sources including the markets adopted by regulators in other countries who have a similar approach to definition as that outlined in the Market Definition and Dominance Regulations and the Market Definition and Dominance Guidelines.

The list of candidate markets (as a starting point and with potential overlapping coverage) is:

Figure 2.1: Candidate Markets

| **Market title** | **Primary Service** | **Geographical scope** | **Customer segment** |
|---|---|---|---|
| Market 1: Retail access to the public telephone network at a fixed location | Retail narrowband fixed access | National | All segments (including business and residential) |
| Market 2: Retail local and national voice call service from a fixed location | Retail local and national voice calls | National | All segments |
| Market 3: Retail international voice call service | Retail international voice calls | National | All segments |
| Market 4: Retail broadband Internet access from a fixed location | Retail broadband access | National | All segments |
| Market 5: Retail dial-up Internet access from a fixed location | Retail dial-up access | National | All segments |
| Market 6: Retail mobile services market | Retail mobile access and use of all mobile services | National | All segments |
| Market 7: Retail national leased line services | Retail national leased lines both, digital and analogue | National | Business and Government segments |
| Market 8: Retail international leased lines | Retail international leased lines, both digital and analogue | National | Business and Government segments |
| Market 9: Retail business data | MPLS, IP, | National | Business and |

| | | | |
|---|---|---|---|
| services provided from a fixed location | Ethernet, ATM and Frame Relay based data services | | Government segments |
| Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location | Wholesale voice call fixed origination | National | Eligible licensees |
| Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location | Wholesale voice call fixed termination | National | Eligible licensees |
| Market 12: Wholesale network infrastructure access at a fixed location | Unbundled local loops | National | Eligible licensees |
| Market 13: Wholesale broadband access | Bitstream access and WLR services | National | Eligible licensees |
| Market 14: Wholesale terminating segments of leased lines | Wholesale terminating segments of leased lines | National | Eligible licensees |
| Market 15: Wholesale trunk segments of leased lines | Wholesale national and international trunk segments of leased lines | National | Eligible licensees |
| Market 16: Wholesale IP international bandwidth capacity | Wholesale international IP bandwidth capacity | National | Eligible licensees |
| Market 17: Wholesale voice call termination on individual mobile networks | Wholesale mobile call termination | National | Eligible licensees |
| Market 18: Wholesale access and call origination on public mobile telephone networks | Wholesale mobile call origination and access | National | Eligible licensees |
| Market 19: Wholesale national roaming | Wholesale national roaming service | National | Eligible licensees |
| Market 20: Wholesale transit | Wholesale transit service | National | Eligible licensees |

SOURCE: TRA

Each of these candidate markets has been tested to determine the appropriateness and robustness of the market definition and the boundaries in terms of demand-side and supply-side substitutability. The original list is maintained in the report as a record for future market analyses.

# 2.2 Retail Markets

## Market 1: Retail access to the public telephone network at a fixed location

### Services

The market scope covers the market of access to public telephone service at a fixed location. A number of market definition issues arise.

### (a) Possible inclusion of calls (or usage):

Typically a single operator provides access and calls as a bundled offering, even though they are charged separately. Conceptually fixed access should be distinguished from usage. Fixed access may be used to support a range of uses other than making calls, including as a service to provide internet access or fax operation. Call services have been regarded as relatively elastic and fixed access as relatively inelastic. Importantly customers may take fixed calls from other suppliers while retaining the access service. TRA considers that at this stage in the development of the sector voice calls should be treated as a separate market for the purposes of this review.

### (b) Possible inclusion of mobile access:

Mobile services have characteristics that are quite different from fixed services. Fixed and mobile access services are to be considered as complementary to each other rather than as substitutes for a number of reasons:

- Mobile services are a means of personal communication, generally used by a single subscriber. They are not considered to be shared services in residential or business settings. This aspect is enhanced by the mobility that the service offers as its defining characteristic. In contrast, fixed services are location-specific and found in family residential or business office settings. This suggests that while mobile services can be substitutable for fixed access, fixed access services are less likely to be substitutable for mobile access services.
- Multi-person families and firms will typically prefer to have a fixed connection available for all members of the family or firm. This will ensure overall control of costs plus a shared general amenity. The control of costs was a factor mentioned by fixed service customers frequently in the Consumer Survey conducted by the TRA for the purposes of this analysis.
- Many customers (both residential and non-residential) do not want to give up their fixed narrowband access line because they want to use it for internet connection. In the past this has applied to dial-up access but also applies where internet and broadband access is based on xDSL technology.
- TRA recognizes that with a relatively low penetration of fixed access in Oman many residential users are opting for mobile-only solutions without getting a fixed service. Sometimes this is because only mobile services are available. According to the most recent data available, the Omani telecommunications market is characterised by low fixed penetration rates in terms of subscribers and high mobile penetration rate, i.e. only 9.3% fixed penetration (although is much higher on a household basis) with approximately 306,441 subscribers (as of January

2013) against 169% mobile penetration and 4.69 million mobile subscribers at that time.

### Geographic scope of market

The circumstances that influence the availability and choice of services in some locations (for example in metropolitan areas in which infrastructure has been established and where the aggregation of demand has attracted one or more suppliers) may be absent or different from the circumstances in other areas (for example in rural areas).

It is therefore quite possible that as technology and choices develop the characteristics of markets may change in different ways on a geographic basis. But given the current level of market development, TRA has concluded that, for the time horizon of this analysis, the geographic scope for fixed access services is national and geographic dissection of the market would be inappropriate and serves no practical purpose at this stage. TRA will monitor developments in this market to determine whether and when any geographical dissection may become appropriate. For example the roll out of competitive fixed services may change the market characteristics in some areas well before others, and in those conditions the definition of separate markets may be appropriate. Even without definition of geographically determined fixed markets at sub-national level, in appropriate cases it remains open for the TRA to apply different intensities of ex ante regulation, assuming regulatory intervention is justified in the first place, depending on the characteristics present in various places.

### Customers

There is no differentiation by service providers in the provision of services in this market between business and non-business customers, or on the basis of any other customer segmentation. Both business and residential customers may avail themselves of the same fixed access service terms and conditions nationally.

### Conclusion

The retail narrowband access market, taken as including national fixed access services for residential and non-residential customers, is appropriately defined.

## Market 2: Retail local and national voice call service

### Services

This market includes the provision of local and national voice call services and related services to residential and non-residential customers from a fixed location.

A key issue is whether mobile and national calls should be included within its scope.

Fixed-mobile call substitution is the use of mobile services instead of fixed services to originate calls. As analysed for Market 1 there are functional differences between fixed and mobile services that are important to users. However these differences relate to the access characteristics of the services, not to the calls that originate from them. It is quite conceivable that mobile and fixed access services constitute separate markets but the issue is whether users in Oman consider fixed and mobile calls to be sufficiently substitutable so that the calls should be regarded as being in the same market.

Evidence from the customer survey undertaken on behalf of the TRA for the purpose of this analysis found evidence of a large proportion of residential customers willing to accept a small but significant increase in the price (SSNIP) for fixed calls. A further proportion claimed that they would, under these conditions, use mobile only or switch to another service provider of fixed calls. The combined reduction in demand of respondents who claimed they would use mobile only or another fixed operator is higher than the critical loss factor[1] calculated by TRA[2]. This suggests that a SSNIP would be unprofitable. On the basis of the SSNIP analysis, in turn based on the TRA's survey, the market definition should be extended to include mobile calls.

TRA, however, refrains from this conclusion and considers that the results of the survey must be treated with caution. The questions are of a hypothetical nature and the respondents are not speaking of the choices they have made in the past. In addition, survey respondents have personal motives and many would not endorse the concept of a price increase being meekly accepted, even in the context of a survey. In practice customers are more loyal than they indicate in surveys, where loyalty is measured in terms of inertia and tendency not to switch from service providers. TRA therefore considers that the survey responses should be considered as the maximum extent to which customers would react by switching and not necessarily a good predictor of future behaviour.

According to the survey results, the losses in demand that would be incurred by the hypothetical monopolist from a SSNIP of 5% to 10% are respectively46% and 65% as shown in the Table below.

Analysing the results of the survey at a disaggregated level, 29% of customers claim they would cancel and find another fixed operator. However, given the limited extent of fixed service competition in Oman such a result could not occur.

Figure2.2: Residential customers' reported responses to a SSNIP

| | SSNIP = 5% | SSNIP = 10% |
|---|---|---|
| Cancel the service and use mobile only | 17% | 33% |
| Cancel the service and find another fixed service provider | 29% | 32% |
| Make more calls from mobile but keep the fixed service | 45% | 26% |
| Other | 9.0% | 10% |

[1]According to the standard methodology (i.e. the Critical Loss Analysis), to calculate the critical loss factor (L), which represent the loss in demand that would leave the profit unchanged for a given level of price increase, the formula to be applied is the following: *[1]* $L < SSNIP / (1 + SSNIP - (MC/P))$

[2] TRA has estimated the relationship between Omantel's marginal cost and its prices. It has based its assessment on a proxy from an operator of similar size and cost structure to Omantel. On that basis the price per minute exceeds the marginal cost by between 31% and 57%. This gives a critical loss factor for a SSNIP of 10% in the range 15% to 24%.

SOURCE: TRA

Secondly, it is sensible to assume that only a proportion of the customers that have declared they would switch to mobile would in reality do so. One of the assumptions of the survey was that customers knew about prices, however, the extent of consumer awareness of actual prices was not specifically tested. It is therefore reasonable to argue the percentage of consumers that would switch to mobile is likely to be lower than shown in the survey once price considerations and price information is fully considered by them. On the information made available from Omantel and Nawras the mobile premium relative to the aggregate of local and national calls is around 9%. This is a modest premium.

In addition, there is a risk that the price the TRA has used for the analysis is not a competitive price. If the starting prices are not competitive then there is a risk of greater substitutability being assumed.

The TRA is well aware that there is fixed mobile call substitution occurring in Oman in the sense that the proportion of calls that originate from mobile services is increasing much faster than the growth in calls from fixed services. This is most pronounced in the case of subscribers who have cancelled their fixed services and considered that a single service can cover all of their calling needs. However, neither the recent history of telecommunications usage profiles in Oman nor the TRA consumer survey indicates that fixed mobile call substitution is a two-way street. For example, a significant proportion of residential customers (44%) have responded that fixed and mobile calls are not interchangeable and that they are not indifferent about whether calls are originated from fixed or mobile services. The substitution effect is uni-directional. This suggests that there is no likelihood at all that the pattern will be reversed, or that fixed calls can be regarded as a substitute for mobile calls. Fixed calls appear to be considered an appropriate service to adopt in certain situations such as (i) business premises; (ii) where price sensitivity is greater; (iii) where the emphasis is not on personal convenience and (iv) where mobile service not available or coverage is uncertain.

The economics of supply also suggest that if a hypothetical monopolist of fixed calls applied a SSNIP (say 5-10%) it is very unlikely that this in itself would be sufficient to attract mobile providers to provide a call services of similar prices and quality in this market within a reasonable time frame.

Concluding, TRA considers on balance that fixed and mobile calls as services in separate markets at this stage of service development in Oman.

### Geographic scope of market

Retail fixed local and national calls services are provided on a national basis. TRA regulations and licence requirements entail that the same supply conditions, including price, quality of service and terms of service apply nationally. It is not useful, in current circumstances, to define the market in geographic terms below the national level. However, the development of the market will need to be monitored by the TRA to establish if there are any major changes in the situation requiring re-consideration at a later date of the geographical dimension of the market definition.

### Customers

Fixed call services are provided on the same terms and conditions to residential and non-residential customers. TRA therefore considers that residential and non-residential customers are part of the same market.

### Conclusion

The definition of the retail fixed call market, being the national market for local and national calls by residential and non-residential customers at fixed locations, is appropriate.

## Market 3: Retail international voice call (fixed and mobile) service

### Services

The market includes the provision of international voice call services using both fixed and mobile services.

The key issue is whether mobile international calls should be regarded as being in the same or a separate market as international calls originated on fixed services. On the demand side, although international calling is available also from a mobile service, price packages do not typically include international calling. These calls are separately accounted for and priced.

One reason for operators treating international calls separately is that international callers are a different segment of the population and of business and need to be addressed with different pricing plan packages. Additionally, the control of the operators over the cost of international calls differs from their position in relation to national calls, and depends on the commercial arrangements they have been able to achieve with specific overseas correspondents. Special price plan offers for international calls are likely to be destination specific as a result.

Importantly the cost of calls to overseas locations only vary by fixed or mobile source if there are extra costs for conveyance within Oman. Once calls are delivered to the international gateway the costs of further conveyance are not affected in any way by whether the call has originated on a fixed or mobile service. In Oman, the international call tariffs offered for calls originating from fixed and mobile telephony are very similar. Therefore a small increase in price (say 5-10%) by the fixed service provider who is also a hypothetical monopolist would not be profitable since it would result in substitution by mobile international call services. Hence from a demand perspective mobile and fixed international call services are in the same relevant market.

The economics of supply also suggest a SSNIP (say 5-10%) to fixed international calls would be sufficient to attract new mobile suppliers to the market.

Another key question is whether the market is a single market or whether it would be better considered by route type or on a country-pair basis. TRA considers that even though different international routes have potentially different demand levels, cost and competition characteristics, all routes are better considered as constituting a single market. Service providers in this market reflect cost differences in the retail price schedule offered to their retail customers. There are no barriers to operators entering directly or indirectly all routes on which they wish to convey traffic.

### Geographic scope of the market

The market for international voice calls operates at a national level within Oman. The terms and conditions of international call services are consistent across the country.

### Customers

There is no differentiation in the provision of services in this market between business and non-business customers, or on the basis of any other customer segmentation.

### Conclusions

The retail international voice call services market is appropriately defined as including international calls originating from both fixed and mobile services.

## Market 4: Retail broadband Internet access from a fixed location

### Services

The market definition that is proposed is broadband access to the Internet. For the avoidance of doubt fixed location access includes copper (xDSL), fibre and wireless (WiMAX) access.

It is important to determine whether the boundaries of the market should include:

- Wireless broadband access: Functionally, ADSL and WiMAX offer similar features; always-on service, access speeds above 512 Kbps, tariffs structured according to access speed and data transfer allowance. Furthermore, it is understood, based on operator reports, that the WiMAX coverage has reached in excess of 90% of households by the end of 2012. The TRA considers that broadband wireless access is a competitive service offering in Oman and that a SSNIP of 5% to 10% will not be profitable for ADSL. That is, broadband wireless access will impose a strong competitive constraint to other forms of retail broadband internet access in a fixed location. Therefore, the TRA considers broadband wireless access to be part of Market 4.
- Dial-up Internet access: Although Dial-up and Broadband can both be used to access the internet, there is a set of functional characteristics of broadband that implies that certain applications (e.g. video streaming) are available with broadband but not available with dial-up access. The key differences in functional characteristics are lower access speeds, higher contention rates, higher delays and lower reliability for dial-up connections when compared to broadband. The broadband offer also differs substantially from dial-up offers in relation to the tariff structure. Broadband provides better control as the tariff packages specifies access speeds and data transfer allowances for a flat rate. The dial-up tariff is based on time metering. The TRA considers that a SSNIP of 5 – 10% applied to broadband access would be profitable as users of broadband Internet access would not be interested in reverting to dial-up access. Dial-up Internet access is therefore outside the scope of this market.
- Mobile Broadband access: At this initial stage of deployment of Mobile Broadband in Oman, there is some evidence that users perceive fixed and mobile broadband to be substitutable, however this is not substantial. In the residential customers survey only 19% of end users have reported using fixed broadband services but a significant proportion of customers, 43%, reported not having access to broadband services at

all[3];50% of surveyed business customers use fixed broadband and 20% use mobile broadband. In TRA's view, with the expected evolution of the market, in the near future a SSNIP of 5-10% would not encourage enough users of fixed broadband to migrate to mobile broadband (i.e. it would be profitable). Hence, the TRA considers that mobile broadband is not in the same market as fixed broadband. At the time of this review, Internet access over mobile networks is not an effective demand-side substitute for broadband internet access on fixed networks. Mobile phones offer considerably less functionality than a fixed broadband network. For example, there are a number of practical limitations that mean that there is certain internet content that can reasonably be considered to be inaccessible. These limitations include the screen size, screen resolution and interactivity. TRA is aware that mobile broadband access may be acquired via dongles and other dedicated mobile data offerings that can be using in conjunctions with laptop and other larger screen devices. However, taking the embryonic state of the market into account, an appropriate characterisation of fixed and mobile broadband at this time and into the future defined by the horizon of this study is that they are complementary, rather than substitutes.

- On the supply side a SSNIP of 5 – 10% would not encourage market entry from similar service providers in broadly defined adjacent markets during the timeframe of this review of this market. TRA notes that there are some initiatives, including from new entrants, for deployment of fibre, especially in the Muscat region, but does not expect fibre deployment to be an alternative available on a widespread basis to users of other forms of retail broadband Internet access during the next 2 years.

### Geographic scope of market

Broadband services are offered on a national basis. Both Omantel and Nawras are licensed on a national basis and terms and conditions, including pricing structures, are offered on a national basis. The market is national, notwithstanding that service is not available in all locations yet.

### Customers

Price packages have been used to address the needs of various customer segments for fixed broadband services. For example, there are price packages for schools, residential users and for businesses. The fundamental service characteristics are available to all segments and there would seem to be no point in separately identifying or considering a business market, a school market and a residential market.

### Conclusion

The market for fixed broadband access is appropriately defined as including xDSL, broadband wireless and fibre based services.

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[3]This has changed since the survey was administered.The total dial-up subscribers (both pre-paid and post-paid) declined from 23,212 in September 2010 to 12,747 in September 2011, a reduction of 45% in a single year, and to 5,749 in January, 2013, a further reduction of 55% in the following 16 months.

# Market 5: Retail dial-up Internet access from a fixed location

### Services

The market definition proposed includes retail dial-up access to the Internet through PSTN or ISDN lines or other means at a fixed location.

It is important to determine whether the boundaries of the market should include:

- Retail access to the public telephone network at a fixed location: These services are not substitutes, they complement each other. To be able to use dial-up services, the user needs to have access to a fixed line, but the services are recognised as separate and not as substitutes.
- Retail broadband access from a fixed location: As discussed in relation to Market 4, the service characteristics for dial-up access and broadband access services are dissimilar. Dial-up services are considered an entry level service for access to the internet whilst broadband access not only enables access to more advanced content and services (e.g. video streaming and video conferencing) but is also more cost effective for intensive use of the internet. For these reasons, the TRA considers that these services do not impose significant competitive constraints on each other and therefore belong to different markets.
- On the supply side a SSNIP of 5-10% would not encourage market entry from similar service providers in broadly defined adjacent markets. One important reason is that the market is shrinking rapidly and there can be no assurance that heavy investments would be recovered.

### Geographic scope of market

Dial-up services are offered on a national basis. The only provider offering this service, Omantel, is licensed on a national basis and offers its services on national terms and conditions.

### Customers

There is no differentiation in the provision of services in this market between business and non-business customers, or on the basis of any other customer segmentation.

### Conclusion

Market 5, taken as including only dial-up Internet access services from a fixed location, is appropriately defined.

# Market 6: Retail mobile services market

## Services

The market scope proposed is for retail services associated with access to and use of mobile services, including access, data and text applications and national voice calls.

These services are typically sold in Oman as service packages rather than as separate services. The service providers and the suppliers regard these services as 'natural' or expected bundles that are typically provided in a price-defined and service–defined package. As noted in relation to Market 4, above, there is a tendency to offer separately, as an option, some of the bundle elements, such as mobile data delivered via dongles, but generally the services are still offered as 'complete' packages.

It is important to determine whether the boundaries of the market should include:

- Access to services at a fixed location: The characteristics of the services are different and Omani customers have indicated that they value the personal aspect of mobile access and the mobility that this service provides. As discussed in relation to Market 1, there is fixed mobile service substitution in certain segments where the customer recognises that his or her communications requirements can be satisfied by a mobile service and that a fixed service is not required as well. However, the TRA considers that a price increase for mobile services of 5-10% could be imposed profitably by a hypothetical mobile service monopoly provider because the increase would not encourage a sufficient substitution by fixed services. This application of the Hypothetical Monopolist Test is more conjectural than usual because the customer experience of mobiles in Oman has been one of price stability, not increases.
- Fixed national calls: The impact of fixed-mobile call substitution has been addressed in the discussion above relating to Market 2. It is clear that fixed and mobile calls can be substituted and that the decision to do so is made having regard to urgency, location, convenience and price. Whether a SSNIP of 5-10% applied to calls originated from mobile services would be profitable is a matter that needs to be determined based on the starting price for mobile calls. Headline or average rates are inappropriate starting points because of the large number of price packages available in the Omani market. Some packages provide free or reduced priced calls in non-peak calling periods, for example. In response to a SSNIP of the level mentioned, mobile customers would adopt a range of strategies including changes in calling levels (at least for a time), time-shifting of calls and deferral of calls until there is access to a fixed service. Further, if the SSNIP turns out to be unprofitable it may not be entirely because of substitution by fixed calls, but because of aspects of customer response. Under these circumstances, the TRA is disinclined to regard national calls from fixed services as being in the same market as mobile services at this stage of overall market development. The average mobile price premium in 2010 was around 9% based on the information provided to the TRA by the Class I operators, and in terms of standard tariffs has remained at that level since. That premium may be understated because of the price packaging of mobile calls, but in any case it appears to be modest. The separation of mobile calls and national calls from fixed locations into separate market is therefore a function of perceived amenity and usage characteristics,

rather than based on price. Developments will continue to be monitored by the TRA.

- International calls: By contrast, although international calling is available from a mobile service, price packages do not typically include international calling. These calls are usually separately accounted for and priced. Importantly the cost of calls to overseas locations only vary by fixed or mobile source in Oman if there are extra costs for conveyance within Oman. Once calls are delivered to the international gateway the costs of further conveyance are not affected in any way by whether the call has originated on a fixed or mobile service in Oman. These matters have been discussed in more detail in relation to Market 3. Retail international calls are not part of Market 6.

- Mobile broadband access: Mobile service providers supply mobile broadband access both separately from and in conjunction with other mobile services. The market for separate access is developing rapidly in Oman and the separate nature of the market is emphasised by the separate offer of 'dongles' and other stores of mobile broadband value. The same facilities can be provided in conjunction with more standard forms of mobile access. The services (broadband and voice/text) can be bundled, but that is not determinative of whether they form part of the same market. The mobile broadband market is developing in Oman at this stage. The TRA recognises that when mobile broadband will become a separate market from mobile access will be a matter of judgment about the dynamics of substitution between fixed and mobile broadband on the one hand, and mobile broadband and other mobile services on the other. In the TRA's view the current state of market and service development suggests that mobile broadband, as currently provided, is part of the retail mobile services market (this market) in Oman.

- Fixed broadband access: The characteristics of mobile broadband and fixed broadband services, particularly in terms of effective capacity and therefore of current and potential applications is different. This is changing, and will be further examined in the next review of this market.

- On the supply side a SSNIP of 5-10% would not encourage market entry from similar service providers in broadly defined adjacent markets. The level of investment in a national mobile platform is substantial and would not be undertaken in response to such a price movement.

### Geographic scope of market

Mobile services are offered and expected to be offered on a national basis, with national terms and conditions, and the service providers (including the mandated resellers with Class II licences) are licensed on a national basis.

### Customers

Generally speaking there is no differentiation in the basic terms and conditions of service for services in this market that depend on whether the customer is business or non-business. However, some price packaging and free calling arrangements have been developed that are designed to appeal to certain business customers.[4]

### Conclusion

Market 6, taken as including all retail mobile access and national mobile call origination, is appropriately defined. At this stage separate voice and data markets need not be defined and customer segmentation does not affect market definition.

## Market 7: Retail national leased line services

### Services

The market definition that is proposed is for national retail leased lines—both digital and analogue—of all distance and bandwidths.

A leased line is a fixed, permanently connected communications link providing symmetric capacity between two locations and is dedicated to the exclusive use of the customer or customers involved. It is not a switched service or a call or session service. Retail leased lines are typically used by business and government users to connect office sites.

To confirm that this market is appropriately defined it is important to determine whether the market should include:

- International leased lines: An initial question for this market is whether market for international leased lines, which has one point (the 'A-end') in Oman and the other (the 'B end') outside Oman, differs from a market for national leased lines, which has two points within Oman. TRA considers that national and international leased lines do not exercise any competitive constraints on each other either on the demand side or the supply side and are therefore two separate markets. This is analysed further in Market 8.
- Leased lines of all distances and bandwidths (including both local and national): There are various bandwidths at which retail leased lines are provided in Oman, ranging from 64 kbit/s to 155 Mbit/s. Since the capacity of a leased line is determined by the electronic equipment attached to it, and through multiplexing and aggregation of leased line capabilities, it is reasonable to assume for present purposes that there is a significant degree of substitutability between leased lines of broadly similar capacity in the leased line range. From the user's perspective, very high-capacity leased lines are potentially not substitutable with low-capacity connections. A company that wants to connect two PBX telephone exchanges at two geographically separate locations will (depending on the size of the company) often not need a circuit with higher capacity than n*64 kbit/s or 2 Mbit/s. On the other hand, a large company or public agency wishing to connect to the Internet or connect local data networks at different addresses may, for example, require a leased line of at least 34 Mbit/s. Therefore from a purely functional perspective, high capacity leased lines are not substitutes for lower capacity services. However, there is a 'chain of substitutions' between leased

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[4]An example of this is the Nawras Business Mousbak service that allows free calls between services nominated as employees within a business.

lines of various bandwidths which implies that different capacity services are mutually substitutable and that all are in the same market. On the supply side there is also a chain of substitutability between lower and higher capacity leased lines and operators.

- Other business data services provided at a fixed location: Initially national leased line services were considered to be in a separate market from business data services, including managed data services such as internet leased lines and MPLS, as well as various legacy packet and other switched data services. The latter are referred to as Market 9. Information provided by the licensed operators makes it clear that the numbers of leased line services has stayed nearly unchanged for at least the past two years, and that corporate customers with leased line private networks are the primary target for selling managed data services. The market for MPLS managed data services has grown in terms of lines installed by 25% per annum over the past two years, fed partly by customers switching out of leased lines. On the demand side there is a clear substitution occurring facilitated by cost and other advantages associated with managed services.

In conclusion, TRA considers that the relevant retail market includes national leased lines services of all bandwidths and also retail business data services such as managed data services and legacy switched data services.

### Geographic scope of market

Leased line and business data services are offered on a national basis, subject to terms and conditions that apply nationally, and the service providers are licensed on a national basis.

TRA therefore takes the view that the relevant retail geographic market is national in scope at this time. However, it is conceivable that the development of alternative backbone networks and fibre deployment might change the competitive environment to one best understood on a regional basis, leading to different competitive conditions from location to location or by leased line route. The TRA will monitor market developments so that it can determine if and when this happens.

### Customers

These services are targeted at business customers only. Residential and consumer segments have no use or demand for these services.

### Conclusion

Market 7 is appropriately defined as including digital and analogue retail leased line services of all bandwidth capacities and for all distances together with business data services including managed data services and other specialised switched data services.

## Market 8: Retail international leased lines

### Services

The market definition proposed is for international retail leased lines—both digital and analogue—of various distance and bandwidths

To demonstrate this is the relevant market it is important to determine whether the boundaries of the market should include:

- Retail national leased lines: From the demand side international leased lines are not substitutes for national leased lines because, from an end user's perspective, the two lines are typically associated with different applications. For example, an international leased line used by a bank might connect to offshore or headquarter offices and be dimensioned for that purpose, whilst national leased lines might connect with onshore customers or suppliers and be dimensioned for those purposes.

  On the supply side the key question here is whether an operator of national leased lines would respond to a small but significant non-transitory price increase made by a hypothetical monopolist of international leased lines with a prompt and cost effective switch of production into international leased lines. TRA considers that this is very unlikely to occur given the significant network and marketing costs needed to offer retail international leased lines. These use different network inputs and need a different customer base. Furthermore, international leased lines are often provided as part of a broader regional or global contract with multi-national customers with different terms and conditions than for services provided at national basis.

### Geographic scope

This market is national in scope, for similar reasons as set out in relation to Market 7

### Customer

These services are targeted at business and government customers only. Residential and consumer segments have no use or demand for these services.

### Conclusion

Market 7 is appropriately defined as including both analogue and digital retail international leased line services.

## Market 9: Retail business data services from a fixed location

### Services

The market scope proposed is for business data services and includes managed connectivity services delivered via IP/MPLS, Ethernet, ATM and Frame Relay networks as well as Internet Leased Lines.

It is important to determine whether the market should include:

- IP/MPLS and Ethernet services: These are the main data services offered to business customers by Omantel (MPLS) and Nawras (NES – Nawras Ethernet Services). Both types of service offer similar functionality: point-to-point and point-to-multipoint connectivity, quality of service and traffic prioritisation, and are fully managed services. Where both services are available, a SSNIP of 10% in prices of one of these services would most certainly result in an appreciable number amount of users migrating to the other service, and this would likely make the SSNIP unprofitable. Therefore, the TRA considers that IP/MPLS and Ethernet services impose competitive constraints to each other and are effectively in the same market.
- Legacy data services (Frame Relay (FR) and ATM): Use of legacy data services such as Frame Relay and ATM can deliver some similar functionality as the use of IP/MPLS and Ethernet services. In particular, these services allow features such as VPN and quality of service differentiation. However, FR and ATM are based on ageing technologies and, for operational efficiency and commercial reasons, operators have an interest in migrating users from such legacy data services to IP/MPLS. If IP/MPLS prices are raised, fewer customers will decide to upgrade their connectivity services from ATM or FR to IP/MPLS and Omantel will continue to bear higher operational costs; hence the price increase would likely not be profitable. Therefore, the TRA considers that ATM and FR services impose competitive constraints on IP/MPLS services and are effectively in the same market.
- Business internet connectivity: Many of the applications used by corporate customers can be securely accessed via the internet. The CIOs of these companies face the alternative of restricting access to these applications to a virtual private network deployed using the data services discussed previously or to make them accessible via the Internet (e.g. by using Internet Leased Line services). Usually the decision will be based on the balance of costs and convenience: the cost/convenience of using managed and secure Internet leased lines vs. the cost/convenience of using VPNs. Commonly corporate customers will use both connectivity solutions (managed VPNS and managed connectivity to Internet) but relative costs will determine usage and throughputs for each of them. As relative costs determine usage volumes, the TRA considers that these services impose a competitive constraint to each other and are in the same market.
- Other business data connectivity services (such as retail leased lines): As noted earlier in relation to Market 7, there is a substantial level of migration of business customers from leased line arrangements to managed data services. Indeed, a key target audience for vendors of MPLS and other managed data services are business customers who already have leased line private networks. Managed data services are sold on the basis of improved amenity and flexibility and reduced overall cost. There is a clear substitution occurring within this total service group. Therefore the TRA considers that retail leased lines are within this market.

On the supply side a SSNIP of 5-10% would encourage market entry from similar service providers in broadly defined adjacent markets. The service offering that is cost effective is MPLS managed data service.

### Geographic scope

Retail business data services are offered on a national basis, and the service providers are licensed on a national basis. To reinforce this, many of the customers operate on a national basis as well and expect the same terms and conditions of service to apply nationally, and the same service solutions to be available at all of their business locations.

### Customers

These services are targeted at business customers only. The residential and consumer segments have no use or demand for these services.

### Conclusion

Market 9 is appropriately defined as managed business data services taken as including managed data services such as internet leased lines and MPLS services and also other legacy data services such as ATM and packet switching. As noted above the market also includes national leased line services for which the various data services mentioned may be, and are, substituted.

# 2.3 Wholesale Markets

## Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location

### Services

The market that is proposed comprises wholesale voice call origination services on the public telephone network provided at fixed location.

This service is not operational at this time. It could become operational in the time horizon of this analysis

Origination services provide switching and routing functionality at the origination of the call. Unlike fixed voice call termination service (where the customer receiving the call does not control or pay for the call), with call origination, if the calling customer does not accept the price charged for call origination, he may seek to transfer his access service to another provider, if there is one. Thus, at the wholesale level the originating network service provider does not have an automatic monopoly as in the case of call termination.

For example, a typical call origination situation would be where a customer elects to have national long distance calls conveyed by a service provider other than the one providing the fixed access service – that is, Carrier Pre-selection Service (CPS). If in such a case the provider of the fixed access service increases the costs for call origination to the pre-selected carrier, that increase would most likely be passed on to the customer. The customer is therefore directly impacted by the originating service provider’s actions at the wholesale level, and may have the option of switching to another fixed access provider.

### Geographic scope

The geographic scope for this market is national.

### Customers

The customers who are eligible to have wholesale voice origination on a fixed network are other licensed service providers.

### Conclusion

This market is appropriately defined.

## Market 11: Wholesale voice call termination on fixed networks

### Services

This is the market for voice call termination services provided on a fixed network to interconnected service providers. Under the Calling Party Network Pays (CPNP) regime that operates in Oman (and the majority of other countries) the wholesale service provider has a monopoly in relation to termination services. Each fixed network is a separate market for the purposes of voice call termination. The reason is that, if a calling customer wants to call another customer on a particular service, the only route to the called service is via the network to which that service is directly connected. The wholesale voice termination service is a conveyance service that commences at the point of interconnection and finishes at the network boundary associated with the called customer's service. This call route is entirely on the network of the terminating network operator and there is no demand-side or supply-side substitute.

### Geographic scope of the market

The service is offered on a national basis and the terms and conditions are national.

### Customers

The customers who are eligible to have wholesale voice termination on a fixed network are other eligible licensees.

### Conclusion

The definition of the market is appropriate.

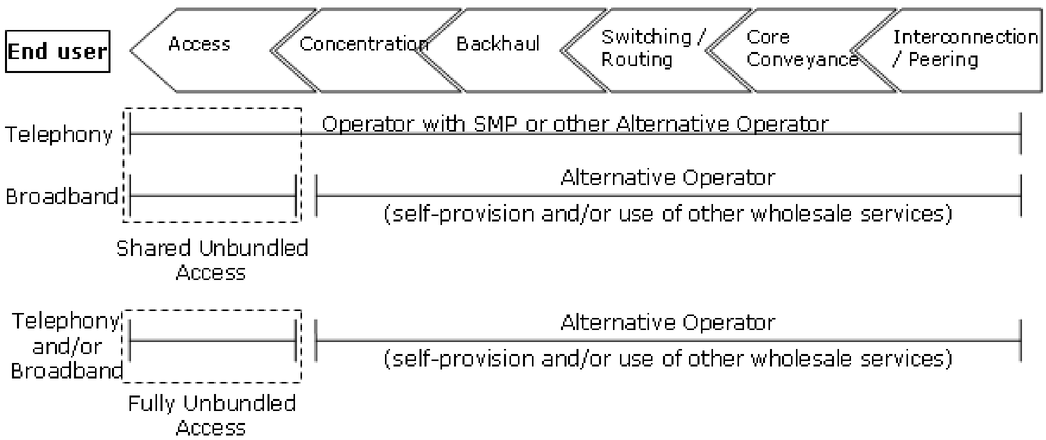
# Market 12: Wholesale network infrastructure access at a fixed location

### Services

The network infrastructure access services included in Market 12 are those services which it is uneconomic to duplicate and which are needed by an eligible licensee to provide services at retail level. The primary service in contemplation is ULL (unbundled local loops) that connect customer premises to a switching or other node of the wholesale operator's network. Shared line service is also included as noted later.

Figure 2.3 shows the position in the wholesale value chain extending from the retail customer to interconnection (or peering) occupied by ULL.

Figure 2.3: Value chain - alternative provider using unbundled access




SOURCE: TRA

Market 12 focuses on the part of the value chain that is closer to the end user; that is, the physical access that provides connectivity between the end-user premises and the first point of concentration in the network.

This market comprises wholesale services for the provision of physical access to end users, also referred to as unbundled local loop. Two sub-products are identified: 1 - partially unbundled local loops where access is provided to the higher frequency bands in the copper access line, enabling the alternative operator to deploy xDSL based broadband services (called 'line sharing' in many other countries); 2 – fully unbundled local loops where full access is provided to the unbundled local loop.

On the demand side in response to a SSNIP of 5-10% by a hypothetical monopolist, wholesale ULL customers would likely accept the impact of the increase themselves. The ULL costs are a relatively small portion of the total costs faced by an alternative operator seeking to provide telephony and/or broadband services to customers in a fixed location. In addition to access to the local loop, these operators also need to self-deploy or buy wholesale a number of other functions in the value chain (e.g. backhaul, switching/routing, core traffic conveyance, etc.). A SSNIP of 5-10% in the ULL charges would therefore involve a smaller impact in the overall costs faced by the alternative operator. Additionally, the alternative operator will have incurred a reasonable amount of sunk costs deploying DSLAMs or MSANs and potentially other equipment (in the case of self-deployment) and would likely compare the loss of profitability due to the SSNIP with the cost to exit the business model based on ULL. The viability of the alternative to users of partial ULL to migrate to bitstream services (Market 13) depends on an assessment of end to end costs between the two alternatives. An alternative operator would also consider the ability to differentiate that is enabled by the self-provision of DSLAM and how this could have an impact on customer acquisition and retention in relation to a broadband service provided by means of bitstream. TRA considers that, because of sunk costs and the additional flexibility for differentiation provided by shared ULL, there would not be a sufficient potential level of demand substitution to make a SSNIP of 5-10% on shared ULL unprofitable for the hypothetical monopolist. .

On the supply side the question is whether alternative sources of wholesale network infrastructure access exist or could potentially exist, including the self-supply of wholesale physical access infrastructure access services.  In TRA’s view the costs associated with providing physical network access at fixed location are high and deployment would take a considerable amount of time. A SSNIP of 5-10% would therefore be insufficient to attract new entrants or self-supply to the timely provision of an alternative to ULL.

### Geographic scope of the market

The service is considered to be on a national basis but the TRA notes that it may not be economically viable to unbundle local loops in MDFs that have a small number of PSTN lines currently connected. The TRA has looked at the distribution of lines per central exchange and concluded that approximately 85% of the PSTN lines are connected to approximately 25% of the larger MDFs in Oman. The other 75% MDF locations in Oman have fewer than 750 PSTN lines currently connected and are less likely to be economically viable for unbundling. TRA concludes that, although ULL is available at national level, it may only be economically feasible in the larger urban centres

### Customers

The customers who are eligible to have wholesale physical network infrastructure access are other licensed service providers.

### Conclusion

The definition of the market is appropriate

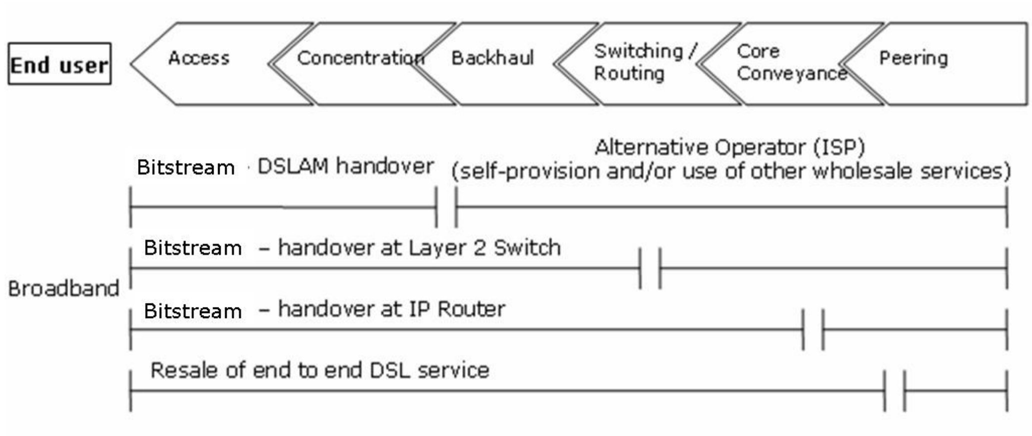
## Market 13: Wholesale broadband access at a fixed location

### Services

The service that defines Market 13 is wholesale bitstream access.  The definition of Market 13 is assisted by examining the value chain at Figure 2.4 showing alternative operators providing broadband service providers at fixed locations to retail customers using wholesale services as inputs.

Market 13 focuses on the wholesale services that enable the alternative service provider to have connectivity with broadband users (e.g. ADSL users) from a remote location. This remote connectivity can be provided at the level of concentration node (e.g. immediately after a DSLAM), at the level of a layer 2 switch (e.g. at an ATM or Ethernet switch) or at one or more points in the IP network of the player with SMP. This wholesale service can also be provided as a resale service relating to end to end DSL access.

Figure 2.4: Value chain - alternative provider using wholesale broadband access




SOURCE: TRA

This market comprises wholesale services for the provision of broadband access to end users and conveyance of internet traffic to a point of presence for handover to an ISP. This wholesale service is commonly known as "Bitstream".

- Demand-side substitution: In response to a SSNIP of 5-10% by a hypothetical monopolist, wholesale broadband access customers would seek to pass the increase onto their own customers or would otherwise accept the impact of the increase themselves. The TRA has considered whether a retail provider of broadband services based on bitstream access would switch to ULL in response to a SSNIP. Unbundling local loops takes a considerable amount of time and requires investment in infrastructure, potentially along with access to other wholesale services such as backhaul (see analysis in Market 12). Therefore to change a business model from bitstream access to ULL-based would be a major change and not one that would be expected to occur in response to a SSNIP of 5-10%.Such a SSNIP would therefore be likely to be profitable.

- Supply-side substitution: A 5-10% increase in price would likely be insufficient to attract other suppliers from adjacent markets or to support a business model for self-supply, given the substantial investment required to be in this market, and the costs of changing business models.

### Geographic scope of the market

The service is offered through points of interconnection on a national basis and the terms and conditions are national.

### Customers

The customers who are eligible to have wholesale broadband access are other licensed service providers.

### Conclusion

The definition of the market is appropriate

## Market 14: Wholesale terminating segments of leased lines

### Services

The terminating segments of leased line services comprise dedicated capacity between a customer's premises and the first switching node on which the line terminates at the service provider's premises. In practice the LTE and NTE (line and network terminating equipment) establish the end points of the service. The services may comprise any bandwidth using any transmission medium and cover any distance, although typically terminating segments in urban and semi-urban areas will be less than 10 km. For the avoidance of doubt the market includes the terminating segments of both national and international leased lines. They are effectively the same service, differentiated only by whether the retail leased lines concerned terminate in Oman or overseas.

The terminating segments are used as inputs into the provision of retail telecommunications services, such as retail end-to-end leased line services, by wholesale customers. This limits the alternatives that they might consider as substitutes. The main potential substitutes are discussed below:

- Demand-side: If terminating segment leased lines were subjected to a price increase of 5-10% it is likely to be profitable for the wholesale service provider. Wholesale customers would have a number of options, including accepting the increase or switching their mode of operation to various types of Switched and/or Managed Data Services. Being retail service providers themselves, the wholesale customers would seek, in the short to medium term, to pass on all or some of the cost increase to their own retail customers. Either way, this response would assist in the profitability of the SSNIP. However, some wholesale customers might consider reorganising their businesses around alternatives such as switched data services or managed data services. For example, instead of concentrating traffic from DSLAMs in the wholesaler's exchanges via leased lines, a wholesale customer might do so using IP-VPN or ATM services. However these are likely to be supplied by the same wholesaler and therefore be at risk of a similar price increase either at the same time or in the future. In any case the retail customer will have expectations about the type of service it requires for its business, and these will determine whether something other than a dedicated 'unmanaged' transmission service is an acceptable substitute. Taking all of these factors into account, and recognising that the equation is by no means certain in some situations, the TRA concludes that a SSNIP would be profitable and therefore that the managed and switched data service options are not part of the terminating segment leased line market.

- Supply-side: For short distances a retail service provider may consider the alternative of self-supply using, for example, microwave delivery technology. Whether this is a viable and economic alternative will depend on the distance to be covered and the capacity required. It would not necessarily be economic to establish a full transmission system in order to use it for voice grade capacity (nx64 kbit/s) leased lines. It might be argued that the retail service provider could re-sell the excess capacity from self-supplied systems, subject to suitable licensing, but this may not be the market the service provider wishes to be in or consistent with its business model. In addition self-supply of terminating segments that connect to trunk segments will require physical interconnection to the network of the wholesale service provider and this will have logistical challenges including, potentially, co-location in the latter's premises. It is reasonable to assume that, where there are benefits in self-supply and no regulatory barriers, then that form of supply will already be in place. In principle, self-supply should be included as part of the market, recognising that it is not a viable alternative in all or even most cases.

### Geographic scope of the market

Terminating segments of leased lines are offered on the same terms and conditions nationally in Oman. This is the result of direct price regulation over a long period, and need not necessarily reflect the price outcomes and other terms that would apply if a service provider were not regulated on these matters. However for now there is a national approach to service provision and this is consistent with the (conditioned) expectations of the customers. Even though a uniform price regime applies for the whole of Oman the costs of service will vary with the regional location in which the service is provided. The terms of competition may also vary from place to place as competitive backbone fibre systems are being rolled out to major towns and cities and some intermediate places. For this reason the TRA will need to keep the geographic dimension of the definition of this market under scrutiny in future market analyses.

### Customers

The customers who are eligible to have wholesale leased line terminating segments are other licensed service providers.

### Conclusion

The definition of the market is appropriate.

## Market 15: Wholesale trunk segments of leased lines

### Services

The service that comprises the trunk segment leased line market is the capacity between the public switching nodes of the wholesale service provider. The capacity could be of any kind and the distances involved could vary from a few kilometres between exchanges in urban locations to thousands of kilometres. For the avoidance of doubt the market includes wholesale national trunk segments and wholesale international trunk segments of leased lines. The rationale behind this approach is that wholesale customers seeking to acquire dedicated international capacity would typically purchase an end-to-end service. A SSNIP implemented for one of the wholesale trunk segments of leased lines would not result in switching from one wholesale trunk segment to the other.

The trunk segments are used as inputs into the provision of retail telecommunications services by the wholesale customers. This limits the alternatives that they might consider as substitutes. The main potential substitutes are discussed below:

- Demand-side: Similarly to Market 14, if the trunk segment leased lines were subjected to a price increase of 5-10% it would likely be profitable for the service provider. Wholesale customers would have a number of options including accepting the increase or switching their mode of operation to various types of Switched and/or Managed Data Services. Being retail service providers themselves, the wholesale customers would seek, in the short to medium term, to pass on all or some of the cost increase to their own retail customers. Either way, this response would assist in the profitability of the SSNIP. However some wholesale customers might consider reorganising their businesses around alternatives such as switched data services or managed data services such as IP-VPN or ATM services. It is likely that, even before a SSNIP, the wholesale customer would have considered the merits of a leased line solution compared to a data services solution. In fact, leased line customers are the primary sales target audience for managed and switched data services at the retail level and, to a lesser extent, at the wholesale level. The issue is whether a 5-10% SSNIP would induce a sufficient number of the residual trunk segment leased line users to move to render the SSNIP unprofitable. On balance, the TRA considers that this is not the case. The increase is likely to be too small for a sufficient number of the wholesale customers to change their business model and delivery platform. Taking all of these factors into account, and recognising that the equation is by no means certain in some situations, the TRA concludes that a SSNIP would be profitable and that therefore the managed and switched data service options are not part of the trunk segment of leased line market.
- Supply-side: For short distances a retail service provider may consider the alternative of self-supply using, for example, microwave delivery technology, as already discussed in relation to Market 14. However self-supply would be less of an option in the case of trunk segment leased lines (which can range up to hundreds or thousands of kilometres). Self-supply is a more attractive option where the distance is within a single hop radio distance (depending on line of site, this could be up to 35 km). Whether this is a viable and economic alternative will depend on both the distance to be covered and the capacity required. It would not necessarily be economic to establish a full transmission system or even a single link in order to use it for voice grade capacity (n x 64 kbit/s). It might be argued that the retail service provider could re-sell the excess capacity from self-supplied systems, subject to having an appropriate licence to do so, but this may not be the market the service provider wishes to be in. In addition self-supply of trunk segments will require physical interconnection to the network of the wholesale service provider and this will have logistical challenges including, potentially, co-location in the latter’s premises. It is reasonable to assume that where self-supply is feasible with no regulatory barriers, and where there are benefits in self-supply, and then that form of supply will be already in place. In

principle, self-supply where feasible should be included as part of this market. In practice this may not be significant.

### Geographic scope of the market

Trunk segments of leased lines may be taken to be offered on the same terms and conditions nationally in Oman. This outcome does not necessarily reflect the price outcomes and other terms that would apply if a service provider had not been regulated closely. However for now there is a national approach to service provision and this is consistent with the (conditioned) expectations of the customers. Even though a uniform price regime applies for the whole of Oman the costs of service will vary with the regional location in which the service is provided and by route. The terms of competition may also vary from place to place and by route as competitive backbone fibre systems are being rolled out to major towns and cities and some intermediate places. For this reason the TRA will need to keep the geographic dimension of the definition of this market under scrutiny and review this aspect in future market analyses.

### Customers

The customers who are eligible to have wholesale leased line trunk segments are other licensed service providers.

### Conclusion

The definition of the market is appropriate.

## Market 16: Wholesale IP international bandwidth capacity

### Services

This market comprises wholesale access to bandwidth for connectivity with other networks outside Oman.

- Demand-side substitution: In response to a SSNIP of 5-10% by a hypothetical monopolist, wholesale international capacity customers would seek, so far as they could, to pass the increase onto their own retail customers. The only other solution, given the hypothetical monopoly, would be to accept the impact of the increase themselves. In either case they would be making the SSNIP profitable. There is no other service that wholesale customers could use.
- Supply-side substitution: A 5-10% increase in price would likely be insufficient to attract other suppliers from adjacent markets or to support a business model for self-supply, given the substantial investment required to be in this market and the lead-times involved in making and implementing commercial arrangements for new capacity to be created. Cable consortia contracts also would be an obstacle preventing some potential alternative suppliers from entering the wholesale market.

### Geographic scope of the market

The service is offered on a national basis (through points of interconnection) and the terms and conditions are national.

### Customers

The customers who are eligible to have wholesale international capacity are other licensed service providers.

### Conclusion

The definition of the market is appropriate.

## Market 17: Wholesale voice call termination on individual mobile networks

### Services

This market comprises the termination of voice calls from interconnected service providers on a mobile network. Each network is a separate market. If a calling customer wants to call another customer on a particular mobile service the only route is via the mobile network to which that called service is directly connected. Therefore each mobile network must be considered to be a separate call termination market. The wholesale voice termination service is a conveyance service that commences at the point of interconnection and finishes on the called customer's service. This call route is entirely on the network of the terminating network operator and there is no demand-side or supply-side substitute.

### Geographic scope of the market

The service is offered on a national basis and the terms and conditions are national.

### Customers

The customers who are eligible to have wholesale voice termination on a mobile network are other eligible licensees.

### Conclusion

The definition of the market is appropriate.

## Market 18: Wholesale access and call origination on public mobile telephone networks

### Services

This is the wholesale market for access to and call origination on mobile networks in Oman.

Origination services provide switching and routing functionality at the origination of the call. Unlike mobile voice call termination service (where the customer receiving the call does not control or pay for the call), with call origination, if the calling customer does not accept the price charged for call origination, he may seek to transfer his access service to another provider, if there is one. Thus, at the wholesale level the originating network service provider does not have an automatic monopoly as in the case of call termination.

For example, a typical call origination situation would be where a customer elects to have national long distance calls conveyed by a service provider other than the one providing the mobile access service – that is, Carrier Pre-selection Service (CPS). If in such a case the provider of the mobile access service increases the costs for call origination to the pre-selected carrier, that increase would most likely be passed on to the customer. The customer is therefore directly impacted by the originating service provider's actions at the wholesale level, and may have the option of switching to another mobile access provider.

Access services in this context include:

- MVNO services (where service providers are licensed to be MVNOs)
- Sale of airtime through mobile resellers
- CS/CPS (call selection and carrier pre-selection) from mobile networks
- National roaming

The above are not substitutes for one another although they could be regarded as constituting various degrees or levels of access.

A SSNIP of 5-10% of a hypothetical monopolist would not trigger supply-side substitution because spectrum licenses are not readily available to new entrants and the investment required for establishing a nationwide mobile network represents a very high barrier to entry. In theory Class II operators (mobile resellers) could have the ability to switch between wholesale providers but in practice this possibility has not arisen and may not be consistent with a viable reseller/host commercial partnership.

### Geographic scope of the market

The service is offered on a national basis and the terms and conditions are national.

### Customers

The customers who may have wholesale access and call origination on a mobile network are eligible licensees.

### Conclusion

The definition of the market is appropriate.

## Market 19: Wholesale national roaming services

### Services

National roaming is a service that is not offered at present but may be offered if there is a new entrant or if one of the existing operators provides the other with this service in areas where there is single network coverage only.

Initially TRA considered whether this service constitutes a separate market. On balance, however, TRA considers that national roaming is one of a suite of wholesale mobile network access services and should be considered as included in Market 18.

## Market 20: Wholesale transit

### Services

This is a wholesale service for the conveyance of traffic between points of interconnection ("POI") for other service providers. This market also covers self-provision of transit interconnection service.

The question arises whether wholesale transit is sufficiently covered by call origination and call termination interconnection services. The answer is 'no'. An example might occur where a licensed operator, 'A', establishes an international gateway service and seeks to attract traffic from retail customers whose services are directly connected to the networks of other fixed and mobile operators. 'A' would need to have in place CS/CPS call origination arrangements with the operators of the other networks. The operators of those other networks would be obliged to deliver the originating calls to a POI. It is unlikely because unfair, that a regulator would require that the traffic be delivered for an originating interconnection charge to a single POI within the country, one that could be a long distance from the call origination points for some or most calls. It would be a matter for 'A' to arrange for the transit of traffic to its local POI. Some options, such as leased lines, would not be economic or appropriate to changing levels of traffic. Nor would a requirement that 'A' should build out a backhaul network of its own when its business is to operate an international gateway and to provide retail international call services. In these circumstances it is appropriate to oblige established trunk network operators to provide a wholesale transit service. This solution is likely to impose the least additional cost on the industry as a whole, and to provide the service required in the most efficient manner. For the sake of clarity, the wholesale transit service covers both national and international calls.

### Geographic scope of the market

The service is offered on a national basis and the terms and conditions are national.

### Customers

The customers who may have wholesale transit service are other licensees.

### Conclusion

The definition of the market is appropriate.

# 3 Susceptibility of Relevant Markets to ex ante regulation of dominance

## 3.1 The meaning of susceptibility

The definition of each of the candidate markets considered in Chapter 2 of this Report has been assessed, and, where appropriate, revised. The final list of markets defined after the assessment and substitution-testing processes in Chapter 2 are now considered to be 'Relevant Markets' for the purposes of the analysis in this Report.

In this Chapter the Relevant Markets are assessed in terms of their susceptibility to ex ante regulation for dominance. This means whether, having regard to the three criteria test set out in the Market Definition and Dominance Guidelines ("the Guidelines"), each market should be assessed in detail for dominance or whether such regulatory intervention is not needed to address concerns arising from the risk of harm from dominance. 'Susceptibility' means no more than that ex ante regulatory intervention for dominance may be appropriate to the Relevant Market under consideration; it is a coarse filter that may enable some markets to not be considered further in the present analysis. Put another way, it is a means of ensuring that ex ante regulation is avoided if the market or ex post regulation are reasonably available to constrain market behaviour.

The three criteria are set out in Section 4.2 of the Guidelines, as follows:

> *When considering whether or not to impose ex ante regulation, the TRA will apply the so-called three-criteria test. This states that a market is susceptible to ex ante regulation in cases where:*
>
> *(a) there are high and non–transitory barriers to market entry;*
>
> *(b) there is no tendency towards competition behind such barriers; and*
>
> *(c) ex post control by competition rules is insufficient to address market failures. At this scope the TRA will take into account number of conditions including*
>
> - *the degree of generalisation of non-competitive behaviour*
> - *the degree of difficulty involved in addressing non-competitive behaviour*
> - *the degree of risk that non-competitive behaviour might result in irreparable damage in related or connected markets*
> - *the need for regulatory intervention to ensure the development of effective competition in the long run*
>
> *The three-criteria test is cumulative in its application. That means that if any one of the three criteria is no longer satisfied in a market, ex-ante regulation is likely to be removed in the course of a market review and that the ex post competition framework will be relied on to address anti-competitive behaviour in the market.*

*In applying the three-criteria test the TRA will apply the following detailed interpretations:*

- *Barriers to market entry include structural, economic, legal or regulatory barriers (such as licensing barriers).*
- *The tendency towards competition that may or may not exist behind barriers to entry will be considered over the forecasting horizon of the review and the Report.*
- *If there is a tendency towards competition it will need to be one that is material within the forecasting horizon of the review and the Report.*

For convenience the criteria will be referred to by their letter (a), (b) or (c) (above) and short title for the purposes of this Chapter.

# 3.2 Retail Markets

## Market 1: Retail access to the public telephone network at a fixed location

### Criterion (a): High and non–transitory barriers to market entry

Entry to the market requires a licence from the TRA. Entry has been liberalised and licensing is not a high barrier. The high entry barriers to this market are economic. Wireline infrastructure required to connect premises to the network is not generally economically replicable, so there is a significant first-in advantage in favour of the incumbent due, amongst other factors, to the presence of economies of scale, scope and density that the access network provider enjoys under monopoly or quasi-monopoly conditions. In particular, it is not generally economic to replicate easements, ducting systems and conduit. However, the market also includes fixed wireless access provision of such services, and existing operators are using wireless technologies to establish themselves in the market.

These barriers to entry are continuing. They have been in place for a long time and will remain effective for the time horizon of this report.

### Criterion (b): No tendency towards competition behind such barriers

The access component of the local network has bottleneck characteristics, in that it is not economically feasible to duplicate it, and these characteristics are unlikely to change over time. New wireless and broadband technologies are enabling alternative service providers to address demand for fixed access service on a commercially sustainable basis. However the process of providing a range of competitive alternatives and to gain significant market share takes time and may not match the service characteristics associated with PSTN services. In Oman, the processes of market assessment and service mobilisation are now under way and it will take considerably more time for the nascent competitive forces to be sufficient to protect the interests of customers. Therefore there is no tendency towards effective competition in the time period of this review.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

Ex-post competition controls are unlikely to adequately address market failure. Most residential and business customers who rely on this service have no alternative means of communication short of moving to mobile services. They therefore have no practical choice under the same or similar terms and conditions, and, in the absence of *ex ante* regulation would potentially be exposed to reduced quality of service or increased prices until evidence of any anti-competitive behaviour can be assembled and acted upon. Considerable damage to consumer interests may occur in that time. In this case it is important that any exercise of dominant market power be prevented at source rather than addressed after the event.

### Conclusion

This market has high entry barriers, is not now and will not within the time horizon of this report be subject to competitive market forces sufficient to protect the interests of customers, and is one where *ex-post* controls are unlikely to address the potential harm from dominance.

This market is susceptible to ex ante regulation for dominance.

## Market 2: Retail local, national voice call service from a fixed location

### Criterion (a): High and non–transitory barriers to market entry

In a market of the size of Oman with limited growth potential due to small population size there are structural barriers arising from the level of demand and the resulting cost structure, which create asymmetric conditions between the incumbent and the new entrant and further inhibit entry into this market. The market is served by only two licensed fixed service providers one of whom has only recently launched its portfolio of fixed services. The effective barrier is economic. The market has matured and may well be saturated. This is an effective barrier to market entry which is non-transitory and unlikely to be reduced in the short to medium term.

### Criterion (b): No tendency towards competition behind such barriers

TRA notes that Nawras has a presence in this market based on its WiMAX network coverage. However competition is limited given Nawras's commercial focus, and is not reflected in, for example, robust price competition. This is not likely to change in the short term—that is, within the time horizon of this study. The development of broadband services, with convergent applications including voice-mode services, will inevitably impact on the way in which customers use and manage voice calls. However, TRA does not expect those developments to be significant within the time horizon of this review.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

*Ex-post* competition controls alone are unlikely to address concerns related to dominance in this market. Such controls are unlikely to be timely because of the requirement to assemble and act upon evidence of anti-competitive behaviour, and therefore unlikely to be effective in protecting consumer welfare. The fragility of competition is a key reason why controls other than *ex-post* measures need to be applied in this market. The experience in other developed countries suggests that *ex-ante* remedies may be appropriate for a number of years after the introduction of network services competition in this market to ensure that the competition is taking hold.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 3: Retail international voice call service

### Criterion (a): High and non–transitory barriers to market entry

At present there are three operators licensed to provide international gateway facilities. Only two of the licensed operators have commissioned their gateway facilities so far. In addition to infrastructure providers, the mobile resellers, four of whom remain in operation, are competing for international call traffic. Licensing is not a barrier to entry. Nor are there any economic barriers to entry. Criterion (a) does not apply to this market. On that basis alone it is not susceptible to ex ante regulation.

### Criterion (b): No tendency towards competition behind such barriers

This market is already effectively competitive. Apart from competition between licensees there is also competition from VoIP offerings from unlicensed sources.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

*Ex post* controls provide the TRA with means to address anti-competitive conduct, if and when it occurs, in this market. It is an untested matter whether these controls will be sufficient to address market failures in the international voice service market in a timely manner.

### Conclusion

This market is not susceptible to ex ante regulation for dominance, because criteria (a) and (b) have not been met.

## Market 4: Retail broadband Internet access from a fixed location

### Criterion (a): High and non–transitory barriers to market entry

This market has high and non-transitory economic barriers to entry. The economic barriers take the form of substantial capital requirements to establish a national broadband network and related support systems, or to use alternative wholesale inputs to create other delivery systems. These systems involve substantial economies of scale that act as substantial barriers to entry. Although Oman has a liberalised operator licensing regime no licensing or other regulatory arrangements are in place to facilitate service-based competitive entry. That situation may be addressed as a result of the current review, but implementation will not occur in the short term time horizon for this study.

### Criterion (b): No tendency towards competition behind such barriers

Haya Water is now building out a regional access fibre network which will in time have the capacity to provide competition to Nawras and Omantel in this market. However the development of that competitive facility is on-going and the TRA is not prepared to anticipate the competitive situation at the time when it is completed. Therefore the TRA is not prepared to conclude that there will be a position of sustainable competition in the time horizon of this report. In any case, such competition appears to be of a regional nature and not national, and, if and when it becomes established, is likely to stay regional for some time. Service-based retail competition is yet to be facilitated and will take some time beyond the short term horizon of this study to be effective.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide retail broadband access at fair and reasonable prices if infrastructure-based operators act conjointly. The time lost in becoming aware of the situation and then assembling cogent evidence and acting on it leads TRA to consider that ex post controls may be insufficient to prevent long term and substantial damage to competition in the relevant retail market.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 5: Retail dial-up Internet access from a fixed location

### Criterion (a): High and non–transitory barriers to market entry

This market has low barriers to entry. Operationally, an ISP willing to provide dial-up services can readily obtain a Class II ISP licence and to replicate Omantel dial-up services through use of 0800 numbers (or any other reverse charging short dialling code) and Internet peering services. There are potential economic barriers as the ISP may not be able to obtain sufficient margins to justify a business case for competition with Omantel. This is not a barrier but a lack of incentive. The market does not meet criterion (a).

### Criterion (b): No tendency towards competition behind such barriers

To date competition in dial-up services has not developed in Oman. Given the use of mobile data services for internet access it is unlikely that there will be any incentive for new entrants to enter the dial-up market. In addition the rapid decline in the numbers of dial-up internet subscribers suggests that more recently available alternative services, especially mobile broadband access services and WiMAX based fixed internet access services constitute an effective constraint on what can be done by a dial-up service provider. An alternative way of viewing the matter is that Omantel dial-up has suffered through inter-modal competition rather than through direct competition from other dial-up providers.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

Ex post controls provide the TRA with means to address issues such as excessive pricing, predatory pricing and refusal to supply. The TRA considers that these controls, combined with regulation at wholesale level, are sufficient to address market failures in the retail Dial-up market.

### Conclusion

This market is not susceptible to ex ante regulation for dominance.

## Market 6: Retail mobile services market

### Criterion (a): High and non–transitory barriers to market entry

This market has high and non-transitory economic barriers. The economic barriers take the form of substantial capital requirements to establish a national mobile network platform and related support systems, and to establish appropriate reseller operations. Resale entry is a matter for commercial negotiation between the mobile network operator and the intending reseller. Until wholesale regulation is established and begin to have effect, new entry at retail level is effectively barred, being a matter for the existing infrastructure based operators.

### Criterion (b): No tendency towards competition behind such barriers

There is a tendency towards competition behind such barriers, but it is a tendency that is propelled by only two network competitors with some limited assistance from mandated resellers (Class II licensees). The competition is of recent duration and is unlikely to become effective within the time horizon of this Report. The issue is how effective the competition is and is likely to become, given the stability of standard price terms over a long period. (Note that detailed considerations by the TRA about whether there is effective competition in this market or some form of dominance appears later in Chapter 4 of this report.)

### Criterion (c): Ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from the actions of either of the Class I licensees acting alone to seriously damage their own mandated resellers or the other Class I licensee, or if they act conjointly to defer competitive outcomes and the consumer welfare benefits that would then result. If any of these situations were to be realised the TRA believes that ex post controls would be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency may be misplaced or premature. This adds to the time and effort to assemble compelling evidence and to act on it.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 7: Retail national leased line services and business data services at a fixed location

### Criterion (a): High and non–transitory barriers to market entry

The underlying technology used to supply retail leased lines and business data services requires substantial investment in fixed network infrastructure in situations where the first mover advantage is significant. This is because replication of infrastructure is generally uneconomic. Pending the arrangements in relation to mandated wholesale leased line segments as part of this review, there is no regulatory provision for entry on a reseller basis. Even when established these arrangements will require time to become effective and gain traction in the retail market.

This market therefore has high economic barriers to entry and they will remain high for the time horizon of this review.

### Criterion (b): No tendency towards competition behind such barriers

Real advantages resulting from economies of scale and scope accrue to Omantel in supplying retail leased lines and business data services. Omantel's backbone network infrastructure was significantly greater than that of its competitors, in terms of coverage and reach, until 2010-11. During 2010 and 2011 Nawras laid over 5,200 km of broadband optic fibre cable and now has a capacity and coverage that compares with Omantel's. However the point remains – entry barriers are high – and the tendency towards competition behind these barriers is limited to Omantel and Nawras, with the latter's interest in this market being unclear.

There are no characteristics of this market that would lead to the conclusion that in the short to medium term there is likely to be competition of a sufficient level to protect the interests of consumers. TRA does not expect the development of robust competition to be significant within the time horizon of this review. It expects that competition levels may increase as a result of Nawras' build-out of broadband cable, but that this could take time and will remain limited for the duration of the period covered by this review.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

There are some upstream wholesale markets – such as the market for wholesale termination segments and wholesale trunk segments (Market 14 and 15) – in which *ex-ante* regulation will assist in a reduction of the risk of potential harm from dominance in the market under consideration. However, this market will remain uncompetitive until upstream wholesale remedies have had the time to take effect. TRA considers that *ex-post* remedies alone in relation to the market in its present state of development will not be sufficient to address concerns related to market dominance at this stage of market development. The time and resource to assemble cogent evidence of anti-competitive behaviour and then to act on it creates a risk that damage to competition and consumer interests will be enduring.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 8: Retail international leased lines

### Criterion (a): High and non–transitory barriers to market entry

This market has high and non-transitory economic barriers to entry. They take the form of substantial capital requirements to establish a network platform and the related commercial arrangements to enable access to international bandwidth and overseas correspondent carriers. Service-based competition is effectively barred by the lack of mandated wholesale level service provision. This matter is being addressed through the current study, but it will not have traction and effect immediately or even in the short term time horizon of this study.

### Criterion (b): No tendency towards competition behind such barriers

This criterion is concerned with whether or not there is a tendency towards effective and sustainable competition in the market amongst the existing service providers. Nawras established its international gateway facility and it became operational in 2011. Nawras has the capacity to enter this market and has done so to a limited extent. It is still too early to determine whether Nawras intends to be a significant participant in this market. Therefore TRA cannot say that there will or might be effective competition in this market in the time horizon of this study

### Criterion (c): ex post control by competition rules is insufficient to address market failures

TRA considers that *ex-post* remedies alone in relation to this market will not be sufficient to address concerns related to market dominance at the current stage of market development. This is an on-balance judgment because it depends on the type of anti-competitive behaviour that might occur in this market. If there are no ex ante regulatory requirements, such as the price control and publication, then there must be concern about the manner in which anti-competitive behaviour would be made known, even to the extent of being subject to a competitor complaint. The market is for services that are only sought by corporate and government customers, many of whom would be inclined to treat such purchases as commercially confidential. This factor may well obscure the behaviour in question and make ex post regulation even more difficult to apply.

**Conclusion**

This market is susceptible to ex ante regulation for dominance.

### Market 9: Retail business data services provided from a fixed location

This market has been merged with Market 7 for the purposes of competition analysis and will not be considered further in this Report.

## 3.3 Wholesale Markets

### Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location

#### Criterion (a): High and non–transitory barriers to market entry

Wholesale access infrastructure required to connect premises to the network is not generally economically replicable, so there is a significant first-in advantage in favour of the incumbent. These barriers to entry are non-transitory. They have been in place for a long time and are unlikely to be reduced in the short to medium term.

#### Criterion (b): No tendency towards competition behind such barriers

The access component of the local network has bottleneck characteristics, in that it is not economically feasible to duplicate it, and these characteristics are unlikely to change over time. Suitable mandated wholesale regulatory access arrangements are not in place but that will be rectified following this review. However the efficacy of the measures is uncertain. They will not be implemented and take effect immediately or even in the short term time horizon of this study.

#### Criterion (c): ex post control by competition rules is insufficient to address market failures

In these markets the issues that arise relate to the price and other conditions of access to the origination service. These issues can be readily anticipated and are generally addressed through *ex-ante* remedies. *Ex-post* remedies alone are insufficient to address issues or to prevent them from recurring, although their efficacy will improve with experience and use over time. In the absence of *ex-ante* remedies there could be serious commercial consequences for new entrant service providers who seek to attract information services to their networks or to provide alternative long distance or other services to an established service provider’s customer base. These consequences could become entrenched or enduring given the time needed to assemble evidence of anti-competitive behaviour and to take action as a result.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location

### Criterion (a): High and non–transitory barriers to market entry

Entry barriers to the market are high and non-transitory. No competitive service providers can provide this service, so no entry is possible.

### Criterion (b): No tendency towards competition behind such barriers

The market will always have a single service provider, because each network constitutes a separate market. Therefore there is no trend towards competition in this market.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

In these markets the issues that arise relate to the price and other conditions of access to the termination service. These issues can be readily anticipated and are generally addressed through *ex-ante* remedies. *Ex-post* remedies alone are insufficient to address issues or to prevent them from recurring. The absence of *ex-ante* remedies service providers could have serious commercial consequences for new fixed network operator entrants and effectively delay or prevent both their entry and continued operation in the market.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 12: Wholesale network infrastructure access at a fixed location

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory economic barriers to entry into the wholesale network infrastructure access market. The wholesale services that are included in this market are those which it is generally uneconomic to duplicate. This very fact constitutes the barrier.

### Criterion (b): No tendency towards competition behind such barriers

No other operator is able to replicate the access network at a national level. The TRA notes that there are some localised implementations of fibre access networks which may potentially, in the future, provide wholesale services similar to ULL (e.g. unbundled fibres or unbundled wavelength). The TRA does not consider that any of these fibre access network implementations will be able to provide sustainable competition in the time horizon of this report.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide unbundled access at fair and reasonable prices to enable retail competition by wholesale customers. If that occurs the TRA believes that ex post controls may be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the relevant retail market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency (especially timeliness in the circumstances of a market like Market 12) may be misplaced or premature. The window of opportunity for ULL is running out. Delay seriously reduces the remaining economic life for such services.

### Conclusion

This market is susceptible to ex-ante regulation for dominance.

## Market 13: Wholesale broadband access at a fixed location

### Criterion (a): High and non–transitory barriers to market entry

The primary service focus of this market is bitstream access. To provide this service requires a next generation network based on IP technologies. The capital cost of such networks is very high and the economies of scale are large relative to the market demand. As a result many countries have re-established regulated monopoly arrangements to provide these wholesale broadband services to retail operators. There are high and non-transitory barriers to entry into the wholesale broadband access market.

### Criterion (b): No tendency towards competition behind such barriers

Nawras is now building out a national backbone fibre network which, combined with WiMAX or fibre access to the premises, provides Nawras with the capacity to compete with the incumbent network operator in this market. However it is not at all clear that the oligopolistic market that will result will be characterised by effective competition or some lesser degree of competitive rivalry. If the market is not subject to any regulation both outcomes are equally possible.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide bitstream access. If that occurs the TRA believes that ex post controls may be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the relevant retail market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency may be misplaced or premature.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 14: Wholesale terminating segments of leased lines

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory economic barriers to entry into the wholesale market for terminating segments of leased lines. It requires a significant capital investment to establish a fixed network capable of providing these services on a national basis. The scale economies of such networks are large and represent a significant part of the total market demand. Self-supply is included in this market but the costs of establishing and operating transmission systems may well be significant and, relative to the valuation of the need, may be uneconomic in many situations.

### Criterion (b): No tendency towards competition behind such barriers

Nawras is now building out a national backbone fibre network which will in time have the capacity to provide competition to the incumbent network operator in this market. However this network is a backbone network and not particularly designed for the provision of terminating segments to customer premises. In other words there is no evidence that third operators will be able to rely on competition at the wholesale market level between Omantel and Nawras in the provision of the wholesale terminating segments of leased lines that they need as inputs for their retail service offerings. Therefore the TRA is unable to conclude that there will be a position of sustainable competition in the time horizon of this study.

#### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide terminating segments of leased lines at fair and reasonable prices to enable retail competition by wholesale customers. If that occurs the TRA believes that ex post controls may be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the relevant retail market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency may be misplaced or premature.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 15: Wholesale trunk segments of leased lines

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory economic barriers to entry into the wholesale market for trunk segments of leased lines. There is significant capital investment required to establish a fixed network capable of providing these services on a national basis. Self-supply is included in this market but the costs of establishing and operating transmission systems may well be significant and, relative to the valuation of the need, may be uneconomic. Self-supply is likely to be relatively even more capital intensive and uneconomic for trunk segments than for the terminating segments discussed in Market 14, above.

### Criterion (b): No tendency towards competition behind such barriers

Nawras is now building out a national backbone fibre network which will in time have the capacity to provide competition to the incumbent network operator in this market. However the development of that competitive facility is on-going and Nawras's interest in the leased line market is unclear, and the TRA is not prepared to anticipate that the availability of alternative facilities will translate into effective competition at the wholesale level during the time horizon of this study. In other words there is no evidence that third operators will be able to rely on competition at the wholesale market level between Omantel and Nawras in the provision of the wholesale trunk segments of leased lines that those third operators need as inputs for their retail service offerings. Therefore the TRA is unable to conclude that there will be a position of sustainable competition in the time horizon of this report.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide trunk segments of leased lines on fair and reasonable terms to enable retail competition by wholesale customers. If that occurs the TRA believes that ex post controls may be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the relevant retail market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency may be misplaced or premature.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 16: Wholesale IP international bandwidth capacity

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory barriers to entry into the wholesale market for international capacity. Market participants must be granted a Class I licence allowing them to operate and provide services from a fixed network. To date three such licences have been granted – to Omantel, Nawras and Samatel, although the latter has only recently commenced operations. The significant capital investment required to develop the infrastructure to provide such services (e.g. landing stations for submarine cables, earth stations for satellite connections, etc.) constitutes a high economic barrier to entry. It is not an insurmountable barrier but is likely to remain effective for the time horizon of this study.

### Criterion (b): No tendency towards competition behind such barriers

In November 2011 Nawras launched its international cable service to Mumbai as a participant in Tata II Cable. The development of alternative services on the back of competitive facilities is on-going and it would be reasonable to anticipate that the market for international wholesale capacity will be significantly more competitive within the time horizon of this study than prior to Nawras's recent initiatives. However, although there is a discernible move towards competition between Omantel and Nawras with inevitable adjustment of overall market share between the two operators, it is not at all clear whether this is going to be effective competition or whether it will reflect the oligopolistic structure of the market.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm from dominance is that either international capacity will be denied to third party operators or will not be provided on fair and reasonable terms. The damage that could be caused to competition in downstream retail markets would be immediate and severe if other operators are unable to have direct access to international capacity, with severe disadvantage to the interests of consumers generally. The risk of this harm can be readily foreseen and may not be capable of control or limitation by ex post action after the event. As already noted, the ex post controls are untried and untested and may be insufficient in any case, even assuming timely response and application.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 17: Wholesale voice call termination on individual mobile networks

### Criterion (a): High and non–transitory barriers to market entry

By definition, the network operator, whose network defines each separate market, has a 100% market share. There can be no competitive entry.

### Criterion (b): No tendency towards competition behind such barriers

There can be no competition in this market by definition.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm from dominance is that either interconnection service will be denied or will not be provided on fair and reasonable terms. The damage that could be caused to competition would be immediate and severe if new entrants or other operators are unable to interconnect calls, with severe disadvantage to the interests of consumers. The risk of this harm can be readily foreseen and may not be capable of control or limitation after the event. As already noted, the ex post controls are untried and untested and may be insufficient in any case, even assuming timely response and application.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 18: Wholesale access and call origination on public mobile telephone networks

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory economic barriers to entry into the wholesale market for access and call origination on public mobile telephone networks. Establishing national mobile networks requires significantly large investments. Mobile networks have economies of scale that extend to a large part of the market demand. There are two network based operators at present and the economies of scale of their two networks combined represent the better part of total market demand. A third entrant is possible but the 145% plus level of service penetration provides a further barrier to such entry.

### Criterion (b): No tendency towards competition behind such barriers

As noted in the market definition, mobile resellers are restricted in switching to a different host network or being served by both networks due to the length of the contract and the need to develop a partnership with the host. The weakness of the mobile resellers in this related retail market is a very important consideration when assessing whether there is or will be a tendency towards competition between wholesale service providers. There is no countervailing power sufficient to facilitate competition. If the mobile resellers were strong competitors in their own markets they could, individually or as a group, leverage that position by providing countervailing pressure on the existing wholesale service providers. However, the indications available suggest that this is not the case. The TRA is not prepared to conclude that there will be a position of effective competition in this market in the time horizon of this report.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm from dominance is that access and call origination services will be denied to retail service providers or will not be provided on fair and reasonable terms. The damage that could be caused to competition would be immediate and severe if other retail market operators were unable to access the specific wholesale service needed for their business strategy, with severe disadvantage to the interests of consumers. The risk of this harm can be readily foreseen and may not be capable of control or adequate compensation after it has occurred. As already noted, the ex post controls are untried and untested and may be insufficient in any case, even assuming timely response and application.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## Market 19: Wholesale national roaming services

This market has now been merged with Market 18.

## Market 20: Wholesale transit

### Criterion (a): High and non–transitory barriers to market entry

There are high and non-transitory economic barriers to entry into the wholesale market for transit services. Significant capital investment is required to establish a backbone network capable of providing these services on a national basis. It is this barrier that typically leads to demand for such services by retail operators in the first place. They either have no network backbone infrastructure or it is limited in coverage. The barriers are high and are ongoing – at least for the time horizon of this study.

### Criterion (b): No tendency towards competition behind such barriers

Nawras is now building out a national backbone fibre —an infrastructure comparable to that of Omantel. However, it is one thing to have alternative network platforms capable of providing wholesale services to third operators, but it is quite another to see that situation converted into actual competition at the wholesale service level. Therefore the TRA is not prepared to assume that there will be a position of effective competition in the time horizon of this report, or to discern a tendency towards effective competition in this market.

### Criterion (c): ex post control by competition rules is insufficient to address market failures

The risk of harm to competition in this market could result from a refusal to provide wholesale transit services on fair and reasonable terms to enable effective interconnection and therefore effective retail competition by wholesale customers. If that occurs the TRA believes that ex post controls may be insufficient in terms of effectiveness or timeliness to prevent long term and substantial damage to competition in the relevant retail market. It is relevant that the ex post controls that exist are largely untried and untested and reliance on their sufficiency may be misplaced or premature.

### Conclusion

This market is susceptible to ex ante regulation for dominance.

## 3.4 Summary

Based on the analysis above the following markets are assessed by the TRA as being susceptible to ex ante regulation for dominance. The original market reference numbers have been retained throughout this report for convenience.

Figure 3.1: Summary of markets susceptible to ex ante regulation for dominance

| Market | Susceptible to ex ante regulation for dominance |
|---|---|
| Market 1: Retail access to the public telephone network at a fixed location | Yes |
| Market 2: Retail local, national voice call service | Yes |
| Market 3: Retail international voice call service | No |
| Market 4: Retail broadband Internet access from a fixed location | Yes |
| Market 5: Retail dial-up Internet access from a fixed location | No |
| Market 6: Retail mobile services market | Yes |
| Market 7: Retail national leased line services and business data services at a fixed location | Yes |
| Market 8: Retail international leased lines | Yes |
| Market 9: Retail business data services | [Merged in Market 7] |
| Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location | Yes |
| Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location | Yes |
| Market 12: Wholesale network infrastructure access at a fixed location | Yes |
| Market 13: Wholesale broadband access at a fixed location | Yes |
| Market 14: Wholesale terminating segments of leased lines | Yes |
| Market 15: Wholesale trunk segments of leased lines | Yes |
| Market 16: Wholesale IP international bandwidth capacity | Yes |
| Market 17: Wholesale voice call termination on individual mobile networks | Yes |
| Market 18: Wholesale access and call origination on public mobile telephone networks | Yes |
| Market 19: Wholesale national roaming services | [Merged in Market 18] |

| Market | Susceptible to ex ante regulation for dominance |
|---|---|
| Market 20: Wholesale transit | Yes |

SOURCE: TRA

Only those markets considered to be susceptible to ex ante regulation for dominance will be further considered in Chapter 4 following.

# 4 Market Analysis of Dominance

## 4.1 General approach to analysis of each relevant market

The TRA has adopted extensive lists of criteria for single dominance and joint dominance which appear at Attachments A and B, respectively, to this report. The lists of criteria will not be repeated in the body of this report as they were in the Public Consultation document used in August 2012. The criteria are non-exclusive and may overlap in their application. For logistical reasons it is important to concentrate on those criteria which appear to be most relevant in each market context, but also to ensure that a holistic approach is taken in each case. By this is meant considering the case for dominance and the case against and making a judgment on which appears to be the best and most compelling characterisation of the market in its current stage of development. The TRA believes that it is inappropriate to base conclusions on a count of the criteria that may be relevant and important and on 'ticking the boxes'.

The second aspect of the TRA's approach is to consider first whether there is an operator that is singly dominant in a market. If the case for single dominance cannot be made out, the issue of joint dominance is then considered.

A participant is singly dominant in a market when it is in a position to implement its own polices, especially in relation to price and production, without undue concern about the response of its competitors and customers.

A finding of joint dominance, where it is made in relation to a relevant market, is based on the structure of the relevant market in Oman. To determine that two competitors are jointly dominant is to conclude that the structure of the market gives rise to a reasonable anticipation that they may act in pursuit of a common purpose. A determination of joint dominance in a market is not to be taken as an assertion that there has been or will be anti-competitive behaviour, but, rather, that the structure gives rise to a reasonable apprehension that anti-competitive behaviour might occur in the absence of ex ante regulation. A determination of joint dominance should not be confused with any suggestion of present or past collusion, either explicitly or tacitly.

Finally, being in a position of dominance, whether single or joint, in a market is not unlawful. In many cases the position has arisen through wise investment, good management and good service delivery all of which are to be encouraged and commended. The question at that point is what, if any, regulatory intervention is reasonable and appropriate, to address risks for consumer welfare that arise because of the nature and extent of the dominance. These are matters considered in the next Chapter on remedies.

# 4.2 Retail markets

## Market 1: Retail access to the public telephone network at a fixed location

### (a) Discussion on single dominance

Considerations of the application of the criteria most relevant criteria to this market are set out below:

- *Control of infrastructure not easily duplicated*

It is not feasible for any other operator to replicate Omantel's access network, nor would it make commercial sense to try to do so when copper networks are being changed out for fibre around the world. However using WiMAX technology, Nawras has now rolled out its platform covering around 90% of the population of Oman and providing fixed services in competition to Omantel in both the consumer and business segments of this market.

- *Sunk costs*

Omantel has a substantial sunk investment in its fixed network. The level of sunk costs has not been assessed for this review. These sunk costs ensure that, in the absence of ex-ante regulation, Omantel would be able to deter competitive commercial entry. However, Nawras has now completed a substantial part of its WiMAX coverage and related investment. Together they represent a formidable obstacle for other potential entrants to this market.

- *Market share and market concentration*

Nawras's share of the fixed service was around 9.5% at March 2013. This share is expected to grow in future, but it will likely be well below the rate expected in 2011 by some industry forecasters.[5] Nawras and Omantel are the only two service providers. The market is therefore very concentrated. The fixed service access market is growing by in excess of 2-3% annually, driven largely by the WiMAX rollout and marketing initiatives of Nawras (and Omantel's response) after a considerable period of limited growth.

- *Product / services diversification*

Nawras' entry into this market has meant that a market that was exhibiting commodity characteristics has been energised through the use of various forms of price/service packaging.

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[5] See for example, NBK Capital expected the market share to rise to 28% by 2016 from an estimated level of 6% in September 2011. This forecast no longer looks likely.
http://www.nbkcapital.com/BR/Research/MER/Telecom%20Sector/Oman/Nawras/NBK%20Capital-Oman%20Telecoms%20Update-07December2011.pdf

- *Economies of scale*

Substantial economies of scale provide important advantages in terms of lower unit costs achieved as a result of fixed costs being spread across a larger network operation. A smaller operator will have to recover a higher level of fixed and common costs over a smaller customer base.

But scale economies do not continue indefinitely. They are exhausted at various levels of production or output or can be matched by operators adopting alternative technologies. For this review the TRA has not carried out an analysis to quantify the point at which economies of scale might be exhausted. However, on the basis of a "*Study on EU Regulatory Framework in Microstates*"[6] carried out by Ovum and Indepen, the TRA considers that the relative impact of size is greater for smaller operators and proposed that economies of scale start to have a reduced impact at around 1 million lines. In the context of Oman this suggests that Omantel still enjoys significant economies of scale and will do so until it has reached that level of subscribers, or until Nawras has reached a customer base of sufficient size to achieve the benefit of broadly equivalent scale economies on its network.

- *Economies of scope*

Economies of scope are the efficiency gains from having a range of services or businesses rather than a single service or business. Economies of scope occur when an enterprise is able to recover its fixed and common costs from its full range of business operations, thereby reducing the unit costs that would otherwise result for any single business or service.

Omantel has potentially significant economies of scope resulting from its range of businesses, including fixed, mobile and broadband businesses at retail and wholesale levels. However, these are likely to be matched over time by Nawras, which also has an expanding range of businesses.

- *Vertical integration*

Both Omantel and Nawras are vertically integrated in the sense that they operate at both the wholesale and retail levels of this market. Lack of effective wholesale regulation allows both to influence retail competition by controlling the access to and usage of relevant wholesale services by potential competitors.

The TRA considers that vertical integration, and potential market dominance at the wholesale level, deter entry into this market and are potential sources of dominance for Omantel and Nawras in the market for retail fixed narrowband access. The advantage is considered to be more pronounced and more firmly established in the case of Omantel.

- *Barriers to expansion*

Saturation in mature markets is a barrier to further expansion that discourages competitive entry. In Oman, fixed access penetration at March 2013 was 9.2% of

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[6] Source: http://ec.europa.eu/information_society/policy/ecomm/doc/info_centre/public_consult/review/comments/athk_cyta_ptlux_malta_final_report_v4.pdf

population, and growing at 2-3% per annum. These results are affected by the coverage of the fixed service networks nationally. The fixed access market in Oman has some limited potential for expansion. Current growth is roughly the same as population growth in the areas with coverage already. Without access to wholesale inputs potential or existing alternative operators to Omantel and Nawras will not be able to expand their customer base in a competitive manner. The potential for fixed service expansion is difficult to assess because mobile service coverage has addressed communications needs in areas not served by fixed networks, and the potential demand for fixed may have been transformed to mobile and effectively reduced. If so, the future for fixed services may in delivering broadband access.The recent introduction by Nawras of its Home Internet & Voice service and various bundles for business tends to support that outlook.

- *Ease of market entry*

Economic barriers to entry have been discussed in Chapter 3 on susceptibility. Substantial capital and other resources are required to enter this market and to achieve a viable scale of operation. Certain infrastructure required to connect premises to the network is not generally economically duplicable, so there is a significant first-in advantage in favour of Omantel as incumbent. In particular, it is not generally economic to replicate easements, ducting systems and conduit.

- *Excess profitability*

Retail regulation of fixed access prices has been in place for a long time. This regulation is based on social factors such as perceived affordability rather than on strict cost and profitability considerations, but has had a constraining effect on potential entry of other operators. No evidence is available to the TRA to suggest excess profitability in this market as a whole.

- *Lack of active competition on non-price factors*

Fixed access services have commodity characteristics. Therefore it is very difficult for operators to compete on non-price characteristics. Since mid-2011 the market has seen increasing competition based on price/service packaging and bundling. A convenience factor has therefore been introduced, but otherwise the primary dimension for competition remains price.

- *Price competition*

Standard price levels have been remarkably constant over a long period and not affected by the entry into the market of Nawras in 2010. Omantel's monthly rental was OMR 3.000 from 2003 to 2007. From 2008 to the present the monthly rental has been and remains OMR 4.900 and includes 75 call minutes. Since its introduction in 2010 the Nawras tariff has been OMR 2.000 (with no 'free' minutes). Nawras has been prepared to sit within the shadow of Omantel's price structure. This history suggests that price competition is, at best, marginal and confined to promotions and special offers. It reinforces the view that Omantel is dominant in this market.

- *Switching barriers for consumers*

Until Nawras's market entry, there were no options for switching from Omantel to another fixed call service provider in Oman. Nawras' entry into the market does not immediately change anything in this regard. An option to switch to Nawras only exists where Nawras has an operational presence and has been able to market its services on the back of that presence, but this will take time to develop. A major factor for many customers who might switch, assuming there is a practical option available, is the ease of doing so and the ability to port their service number. This is especially important for business customers and others who may have significantly invested in the promotion of their service numbers. Fixed number portability has only been available from the second half of 2012, but it reduces barriers to switching substantially.

### (b) Conclusion on single dominance

TRA concludes that Omantel remains singly dominant in this market. This is an on balance judgment and the market will need to be kept under close scrutiny at the next market review.

### (c) Relevance of joint dominance

Under the circumstances Omantel is dominant as a single operator. It follows that, absent regulation, it is able to operate independently of customers and competitors to an appreciable (albeit declining) extent, and that this precludes the need to consider joint dominance in this market.

## Market 2: Retail local, national voice call service from a fixed location

#### (a) Discussion on single dominance

- *Market share*

In this market, for the whole of 2012 Omantel has 99% share of outgoing call minutes from a fixed location.[7]The new fixed operator, Nawras, has only recently launched its fixed retail services. It is expected that Nawras will encourage new take up and also attract customers from Omantel, but its growth rate in the market is slower than was originally forecast.[8]

Although market share alone is not determinative of dominance, the high market share currently enjoyed by Omantel is the result of the combined effect of other factors (referred to below) which suggests continued dominance at least for the short term. The issue is whether Nawras' small but significant and growing market share acting as a constraint on Omantel's power to set prices and performance levels in this market. TRA's view, taking the existence of mobile alternatives into account, is that Nawras acts as a further constraint.

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[7] TRA traffic statistics

[8] See above footnote 7. The market share for the last quarter of 2012 was 1.3%, which suggests growth but from a low base.

- *Control of infrastructure not easily duplicated*

Local and national fixed call services are supported by circuit-switched network platforms. The switching systems are economic to replicate, but the customer access transmission systems and the infrastructure platforms on which they operate are not replicable on a national basis at this time. In the absence of the wholesale regulation to provide direct and indirect access such as CS, CPS or WLR, an alternative provider who wanted to enter the call services market would have to duplicate the existing core network in some form, which would require considerable investments that are unlikely to happen in the timeframe of this review. Nawras is pursuing such a course and has extensive coverage with its WiMAX platform. This factor is therefore no longer a criterion pointing to Omantel single dominance.

Competition in the resale market for national and local calls could be effectively achieved by appropriate reseller arrangements. These do not exist and if they are to be encouraged through regulation, it will be at the wholesale level, and will take time to be implemented and gain traction.

- *Economies of scale*

Omantel's network scale economies provide it with a unit cost advantage in relation to both access (as already discussed) and calls. Unless a competitor was able to access the scale economies enjoyed by Omantel (as a reseller) or develop its own equivalent economies (as an alternative network operator), it would be unable to profitably compete. This then is a source of dominance for Omantel in the market for the time being, pending greater use by Nawras of its WiMAX network to address this specific service market.

- *Economies of scope*

As already mentioned in relation to Market 1, Omantel has an advantage in its ability to recover common and overhead costs through the supply of a greater range of services. These economies can be passed to customers for local and national calls. Competitors without Omantel's scope do not have this advantage and may find it difficult to compete profitably. However the advantage that this gives Omantel over Nawras, given that Nawras is increasing the scope of its business in the sector, may be marginal and is reducing as Nawras expands.

- *Vertical integration*

Omantel is a vertically integrated operator in the provision of access and retail calls and by leveraging its market power at the access level can potentially adversely impact competition in the retail market of national and local calls by price and non-price strategies. Nawras is also a vertically integrated operator and has similar ability to leverage this against retail-only operators.

- *Ease of market entry*

Competitors have a choice on the way they operate in the market for local and national call services. They can do so by developing their own alternative network platforms as a means of delivering the services or they can adopt a reseller strategy. Both are difficult paths to take. The facilities-based approach requires substantial investment and takes time to build up a presence and coverage that allows for effective competition. The absence of suitable wholesale regulation means that reseller (or services-based) competition is also difficult and relies on a commercial agreement with the incumbent – an agreement that might not happen, and, if it does, that will not favour competition.

- *Switching barriers for consumers*

In September 2012 Nawras introduced fixed number portability thereby reducing the switching barriers for customers, especially business customers, who may have made substantial investment in their service number.

### (b) Conclusion on single dominance

Omantel is dominant as a single service provider in this market. This is an on-balance conclusion. Nawras has a presence in this market but it has signalled that its priorities lie elsewhere by achieving a market share of subscribers (and therefore likely less in terms of calls) on only 9.5% at March 2013. At that market share level Nawras exercises only weak constraint on Omantel in terms of price and performance. Clearly regulation is the major constraint and will likely remain so for the short to medium term.

### (c) Relevance of joint dominance

The interests and purposes of Omantel and Nawras in this market would appear to be quite different and it is hard to see that they could be the basis of a common purpose, at least in the short to medium term. If Nawras wishes to provide limited competition in this market and to pursue priorities in the mobile and broadband markets, thereby leaving the field largely to Omantel, this is the result of independent decision-making and not collusive in the least. The market shares of the Omantel and Nawras are too dissimilar to conclude that there is a material risk of a joint approach to this market in the time horizon of this report.

### (d) Conclusion

TRA concludes that Omantel is singly dominant in this market.

## Market 3: Retail international voice call service

### (a) Discussion on single dominance

- *Market shares*

Figure 4.1 shows the respective market shares of Nawras and Omantel for outgoing international traffic at their gateways for 2011 and 2012.

Figure 4.1: Market Shares of Total International Outgoing Minutes

| Operator/ Year | 2011 | 2012 | Proportion of traffic originated on own networks (2012) |
|---|---|---|---|
| Omantel | 66.4% | 55.9% | 94.9% |
| Nawras | 33.6% | 44.1% | 100% |

Source: TRA, Operator returns

In Oman there are two International Gateways or International Switching Service Centres (i.e. ISC1 and ISC2) that belong to Omantel and are connected to several routes. Prior to 2011 Nawras used the service from the Omantel's International Gateway, but in 2011 commissioned its own gateway. Nawras is therefore better positioned than earlier to control the costs of its international calling services and to compete in the provision of voice call services. Samatel is also licensed to operate an international gateway service, but has only recently done so—in February 2013.

Market 3 is a call market. At present there are six operators generating international calls from mobile services and two generating international calls from fixed services. A number of the mobile resellers have targeted foreign workers in Oman and they therefore provide more competition for international calls than elsewhere. Friendi's rates for major destinations are below both Omantel and Nawras for both peak and off-peak, but also include further discounts for the second and third minutes of a conversation.

### (b) Conclusion on single dominance

No operator is singly dominant in this market. In the case of Omantel its previous position has been eroded by Nawras's share of the mobile services market and by its more recent incursion into the fixed voice market. The position has also been affected by the market share gain of mobile resellers since their entry into market from 2009. Omantel is no longer the sole international gateway operator in Oman and appears to have no ability to leverage control of costs in the gateway market into the retail international voice call.

Under these circumstances the TRA concludes that Omantel is not dominant as a single service provider in this market, and that no other service provider is singly dominant in this market.

### (c) Discussion on joint dominance

- *Market structure and concentration*

This is a very concentrated market. Between them, Omantel and Nawras have around 85% of the international outgoing traffic originated on mobile services and all of the traffic originated on fixed services. The balance is originated by resellers. This situation is unlikely to change materially in the time horizon of this study. The market share growth of the mobile resellers combined is declining. The main pricing constraints on Omantel and Nawras in this market are from each other. However, as noted above, some of the mobile resellers have especially foreign workers and residents and offer attractive price options to some destinations, including in terms of super off-peak prices and discounted second and subsequent minute prices.

- *Market maturity and scope for expansion*

The market is generally considered to be mature and competition is effectively in price terms. However, there is still growth potential and this has been demonstrated in recent years by price offers that are addressed to customer segments who are price sensitive, such as foreign workers and foreign residents. Even allowing for the impact of the global financial crisis international outgoing minutes grew by an average of 13.75% over the four years to 2012.

These conditions are, on balance, unlikely to provide the circumstances in which the two infrastructure-based operators might develop and implement a common purpose. In this market the mobile suppliers have greater potential to undermine such an approach. In addition, the position of Samatel, which has only recently commenced operating its international gateway, has yet to be made clear and is therefore a disruptive factor for potential collusion.

### (d) Conclusion

No operator is singly dominant and no combination of operators is jointly dominant in this market.

## Market 4: Retail broadband Internet access from a fixed location

### (a) Discussion on single dominance

The most relevant criteria for single dominance in this market are:

- *Market Share*

Omantel's market share in this market is now being eroded by competition from Nawras which is providing service from its recently established WiMAX platform. Nawras's share at the end of 2012 is estimated at 37.7% and growing. This is a significant share and must have an impact on the capacity of others to unilaterally determine a price policy or performance levels in the market.

- *Market growth and potential for expansion*

Much of the activity in the broadband market is taking place in the mobile sector. At the moment the growth in fixed broadband is strong, but from a low base. It is fair to say that the fixed broadband market is in its early growth phase, with a total of 117,922 subscriptions at the end of 2012. This represents only 3.75 subscriptions per 100 population. This market has a long way to go in Oman and both operators and ISPs will be seeking to grow it into the future.

- *Price competition*

Price competition has occurred in recent years and reflects the behaviour one might expect in a competitive market. Neither Omantel nor Nawras has been anxious to reduce prices absolutely. Competition has taken the form of offering a greater range of price /service packages and offering more functionality for the same price. In addition some price components of offerings have been reduced.

For example, the entry level service is offered at a download speed of 512 kbit/s to 2 Mbit/s. In 2010 Omantel offered 2 Mbit/s service at a monthly rental of OMR29, including 5 GB of download, with additional usage at OMR1 per GB and no price cap. Although capped services are available, in 2011 and 2012 an unlimited capacity 2 Mbit/s service was offered at OMR20 per month (which is the price cap as well). Not only has the basic rental been reduced, the functionality of the service has been increased. Similar improved pricing has occurred in Nawras' tariff schedule.

- *Control of infrastructure not easily duplicated*

It is not feasible for other service providers to replicate Omantel's copper access network. Nor would any new entrant seek to do so. Omantel is now undertaking replacement of copper by fibre within its network. However Nawras has used WiMAX technology to establish in a short period a comprehensive alternative service platform. It can no longer be said that Omantel has control over non-duplicable essential facilities for the purposes of serving this market.

- *Vertical integration*

Both Omantel and Nawras control infrastructure relevant to the provision of broadband internet access that is not easily duplicated. Consequently both have the capacity to control access to wholesale services by rivals and to enhance its competitive position in the retail market. However, this is a matter for wholesale level rather than retail level competition and regulation.

### (b) Conclusion on single dominance

Nawras's recent entry into this market, providing services from its own platform, means that it is no longer open to argue that Omantel is singly dominant and that its decisions about service and price can be made independently. Nawras is a constraint on such decision-making, and an increasingly compelling one given its current, significant market share of 37.7%. Therefore Omantel is not singly dominant in this market. No other operator is singly dominant in this market.

### (c) Relevance of joint dominance

Clearly there is a case for joint dominance in this market, because Omantel and Nawras effectively need not be concerned about any third parties in the short to medium term. Upstream wholesale markets are not competitive and this means that the ability to control outcomes in this retail market is increased. The structure of the market means that Omantel and Nawras need only be concerned about the decisions that the other takes on price and service. The incentives for a joint approach or a common purpose towards the market exist but there are pointers in the opposite direction as well, such as:

- The market is not mature and there is substantial room for further customer take-up;
- The market shares of Omantel and Nawras at 63.3%:37.7% are not equal, so the incentives, particularly for Nawras, to establish and maintain equilibrium are not immediately present. On the other hand, Nawras's market share has developed over a short period and is growing, so the inequality gap is closing fast;
- Demand growth remains robust. The growth for the 12 months to December 2012 was 45%; and
- The cost structures of Omantel and Nawras will be different, being based on different technologies. This underlines their potential for differentiated pricing.

### (d) Conclusion on joint dominance

Some of the factors that would normally suggest a significant risk of harm from joint dominance are weak in this market. However the absence of competition in the related wholesale market is a vital matter and means that Omantel and Nawras each have the power, in the absence of regulation mandating access, to determine if new entrants shall be permitted to enter in this retail market. Both have an interest in coordinating their refusal of access. Either can permit entry, but it would take both to effectively refuse.

This analysis would normally suggest regulatory intervention in the wholesale market and that is proposed later in this Report. However such regulation will take time to have an impact, leaving the retail market as it now is. There is a strong case to put in place ex ante regulatory protections until the structure of the wholesale market makes this unnecessary.

### (e) Overall conclusion

In Chapter 3 some doubts were expressed about whether ex post regulation would be adequate to address the risks associated with dominance in this market. That consideration, together with those set out above, lead TRA to conclude that, on balance, Omantel and Nawras are jointly dominant in this market.

## Market 6: Retail mobile services market

### (a) Discussion on single dominance

The most relevant criteria for single dominance in this market are:

- *Market Share*

Market share data is set out in Figure 4.2 below:

Figure 4.2: Market share based on subscriptions ('000s active services)

| Service Providers | Dec-07 | Dec-08 | Dec-09 | Dec-10 | Dec-11 | Dec-12 |
|---|---|---|---|---|---|---|
| Omantel | 1,483,115 | 1,708,483 | 1,869,848 | 2,133,414 | 2,277,481 | 2,553,515 |
| Nawras | 1,016,885 | 1,510,866 | 1,860,764 | 2,013,560 | 1,933,061 | 2,148,768 |
| Resellers | 0 | 0 | 239,951 | 459,159 | 598,706 | 575,308 |
| Total | 2,500,000 | 3,219,349 | 3,970,563 | 4,606,133 | 4,809,248 | 5,277,591 |
| Omantel Market share | 59.3% | 53.1% | 47.1% | 46.3% | 47.4% | 48.4% |
| Nawras market share | 40.7% | 46.9% | 46.9% | 43.7% | 40.2% | 40.7% |
| Resellers market share | 0.0% | 0.0% | 6.0% | 10.0% | 12.4% | 10.9% |

SOURCE: TRA

Market shares based on revenues are approximately the same.

These data suggest that Omantel and Nawras are approximately evenly matched in terms of market share and that the reseller share has come from a low base and, for the past three years has hovered between 10% and 12%.

So far the high point of Nawras's market share has been in 2009. Omantel has set out in its submission in response to the Public Consultation Report that it has recovered much of its market share since then by using its resellers to address market segments that the Omantel brand might not be best suited to pursue. Omantel's share has stabilised since

2009 and since then the reseller share has grown largely at the net expense of Nawras's share.

- *Market structure and concentration*

At present there are two infrastructure-based (Class 1) licensees and four operational mobile resellers in the market. One of the original five mobile resellers has withdrawn from the market and another has substantially reduced its activity. The market is concentrated with Omantel and Nawras having 89.1% of the subscribers as at December 2012.

- *Impact of mobile resellers*

Only one mobile reseller made a submission in response to the Public Consultation document and that reseller noted the many ways that it felt constrained in the market as a result of its reseller agreement and the general conditions under which it was operating.

When resellers were separately interviewed in the course of this project they all considered that they were constrained by the contractual and licensing conditions under which they were operating. They considered that they did not have countervailing power in dealings with their various host operators, including the ability to establish themselves as resellers for more than one operator or to demand services at cost. Technically some of these concerns may be overcome, but the need to establish a workable commercial relationship with at least one host is a very big barrier in practice to taking robustly competitive initiatives in the market.

- *Price competition*

Both network platforms are modern and provide effectively the same service with similar coverage. The main medium for competition in this market is price, supported by brand image through advertising. Standard tariff offerings have remained constant for a long period, suggesting that neither the main operators nor the mobile resellers are seeking to take a price leadership role with the standard price levels.

For example, Omantel post-paid rates have been 39 bz/minute (peak) and 29 bz/minute (off-peak) since 2006, and its pre-paid rates have been 55 bz/minute (peak) since 2005 and 39 bz/minute (off-peak) since 2010. Nawras also has had long periods of constant price levels. For example, its pre-paid rates have been 55 and 39 bz/minute for peak and off-peak respectively since 2005. The Nawras pre-paid rates have been identical to Omantel's since 2010.

Clearly the approach to mobile price competition is via targeted special and promotional offers. This is typical of oligopolistic price competition generally. The benefits do not go to existing customers or to the mainstream of customers but to those with an imminent decision to subscribe or make calls.

The mobile resellers have not taken radical pricing initiatives and have lived within the pricing umbrella of their respective host operators. They have not been as innovative in pricing as in branding and advertising. They have tended to retain the price discounts offered in their contracted wholesale schedules rather than share with end customers through robust price discounting. This is understandable, given that they may be reluctant to precipitate a price war that they may not see themselves winning and given that they need to maintain on-going good relations with their host network operators,

- *Sunk costs*

TRA does not have information from the current mobile network operators on the proportion of their capital costs that is represented by sunk costs. However, there is a substantial level of sunk costs associated with establishing a viable business organisation and in the commissioning of a mobile network that cannot be recovered except through the operation of the business. The extent of the sunk costs is significant because of the need, absent domestic roaming, to provide substantial and ubiquitous network coverage.

- *Economies of scale and scope*

Economies of scale and scope are important for viable mobile service competition. The resellers have the *potential* to enjoy the economies of scale (and possibly of scope) that their respective Class I MNO partners have achieved, and may extend those economies if they are able to attract new subscribers to the networks. However, as already noted, one reseller has ceased business operations and at least one other is understood to be struggling commercially. The resellers consider that they are effectively constrained by the reseller agreements and the terms under which they operate in the type of competition that they can provide to each other and to their own wholesale partners.

Under the terms of their contracts all resellers take their wholesale inputs from their respective Class I partners on the basis of a retail price less a negotiated discount. The discount varies between service circumstances outlined in the contracts and between resellers. In competition terms this means that the resellers have not so far been able to differentiate their offerings in terms of physical service characteristics from those of their wholesale partners. They are subject to the same quality of service performance, the same network parameters and even the same billing arrangements.

If customers complain about network aspects of their service quality, the resellers need to represent this to their wholesale partners. They are unable to introduce solutions themselves. The resellers cannot develop new physical products and services and to innovate in terms of the characteristics of existing services. Mobile data service competition is additionally curtailed because of the limited availability of suitable spectrum. However, it is open to the resellers to present themselves as different and to use non-networking parameters to create a separate brand identity.

The conclusion to be drawn is that the level of competition from resellers is limited and is to some extent controllable by their wholesaler partners.

In addition the resellers have entered the market recently and the medium to longer term impact of their presence is yet to be felt and assessed.

TRA is of the view that economies of scale operate in the retail mobile market, and are currently enjoyed by the two Class I licensees to the exclusion of the resellers and, potentially, any potential new infrastructure competitors.

- *Vertical integration and new entry*

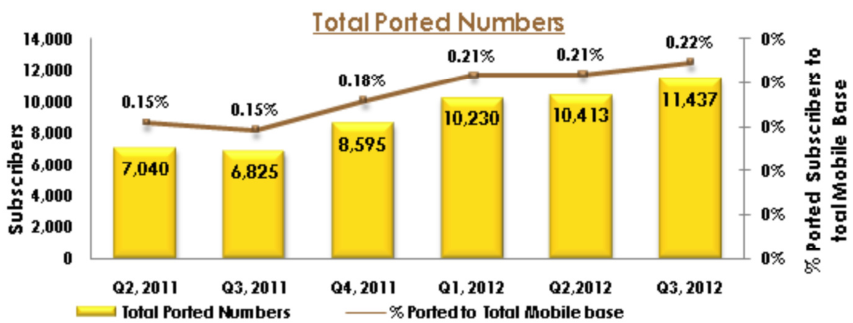
The major mobile competitors, Omantel and Nawras, are vertically integrated. They operate networks and therefore have a wholesale level presence, as well as provide services at the retail level of the market. Vertical integration is a source of significant advantage in the Omani retail mobile services market. As noted already there are limits to the number of separate and independent mobile network platform operators that a market with the size and potential of Oman will sustain. Whether the number of operators that can be sustained is two or three (or even more) is in some ways beside the point because potential entrants see it as limited and note that there are two well established entrants with some scale advantages operating in it already. This means that entry on some form of reseller or mobile virtual operator basis is the only practicable alternative. In turn, this means that the position of the incumbent network operators is very important because, under current regulatory arrangements, they have the power to control through commercial negotiation the conditions of entry of their retail competitors.

- *Market expansion*

As at March 2013 the total number of mobile services in operation – including post-paid and active pre-paid subscriptions was 5,282,187, which represents a penetration level of 145% based on population. This suggests a mature market and even a saturated market. However the active mobile broadband level was 1,899,519 at the end of March 2013 (or 58% penetration based on population) and therefore mobile data and broadband have further upside growth potential. Nevertheless any potential new entrant would recognise that gaining commercial traction after entry will be very difficult. They will see the experience of the mobile resellers and, unless they have a business model that is very different and which will be supported commercially by the MNOs, they will likely not be encouraged to enter. In addition they will see that service penetration is at very high levels suggesting that there are no unaddressed customer segments.

Gaining customers will therefore mean encouraging existing customers to switch. Figure 4.3 below shows recent quarterly mobile number porting levels in Oman. Although the number of ports is growing the annual rate is still below 1% and therefore low. A potential new entrant may not be encouraged by such levels.

Figure 4.3: Mobile number portings in Oman




SOURCE: TRA

- *Switching barriers*

Mobile Number Portability was introduced between Nawras and Omantel in August 2006 for a nominal fee to the subscriber of OMR3. Published comments by Nawras suggest that this process is working and that it was a factor in early take-up of services immediately after it entered the market. There are no switching barriers. However the figures of usage in Figure 4.3 suggest that porting numbers is at a low level in Oman.

### (b) Summing up on single dominance

TRA is not prepared to conclude that either Omantel or Nawras is singly dominant in this market. It seems clear that neither can take action in this market to increase prices or reduce services without taking into account the other. Neither is therefore able to pursue policies or a course of action independent of each other to an appreciable extent, and this is the requirement for a conclusion that there is individual or single dominance.

### (c) Discussion on effective competition

Some of the important criteria that one would expect to find in an effectively or substantially competitive market are not satisfied. One might speculate about whether the market is tending in that direction, but there is no evidence that effective competition will be an inevitable outcome in the time period of this review. One of the important unmet criteria relates to the absence of competitors who are able to provide more robust and effective form of competition than the tied resellers have been able to do so far. Even if the current reseller arrangements can provide more effective competition with the passage of time that can hardly be an argument that there is effective competition now or in the timescale of this review. TRA is not prepared to forecast that the current reseller form of competition will be effective within the time period of this review. It has no grounds for doing so.

The important unmet criteria for effective competition are:

- Price levels reducing towards cost as would be expected in a competitive market
- Difficulty of effective new entry via new network operators or MVNO / mobile resale arrangements
- Lack of active competition on non-price factors – the MVNO / mobile resellers cannot differentiate their service offering

TRA concludes that the market is not effectively competitive. Before deciding that there might be an impasse (neither single dominance nor effective competition) it is necessary to examine whether there is joint dominance.

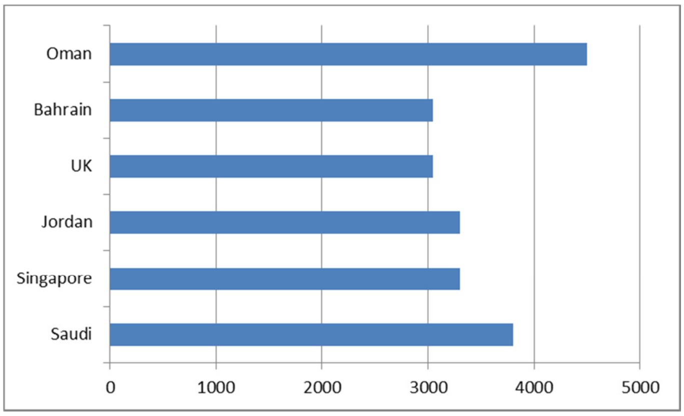
#### (d) Discussion on Joint Dominance

The main factors in this market that relate to joint dominance are discussed below:

- *Market concentration*

As already noted the market is very concentrated. Omantel and Nawras account for over 89% of the market by subscriptions if the resellers are treated as competitors rather than as channels to market. This gives a HHI of around 3,900, which is very high in absolute terms and also when compared to other countries.

Figure 4.4:Mobile HHI Index for a number of selected countries




SOURCE: WCIS, TRA

The concentration may well be higher than 89% when measured by revenue since the mobile resellers have attracted later customers who may be more marginal than average.

- *Transparency*

In an essentially two player market the actions of each competitor are extremely visible to the other. Anything happening in the market will have been effected by one Class I licensee or its resellers or by the other Class licensee or its resellers. The competitors know from any market aggregated data how to calculate the data relating to their competitor. In addition normal consumer feedback and retail market sales and promotion activity is very visible. The competitors will have a clear view of the other's strategies at work in the market.

- *Mature market*

With a penetration of 161% at the end of January 2013[9], the market is mature, particularly for voice calling. There is further room for expansion in mobile data and broadband services. Overall TRA is prepared to accept the views expressed to date by the resellers and others that there is further room for expansion in the market and that it is not yet saturated. However it is mature. It is therefore reasonable to assume that, at the time of this review, an operator in the position of Omantel or Nawras would have no incentive to compete aggressively on voice service pricing in order not to erode existing revenues, which currently account for the largest share of mobile revenue. It is consistent with these market circumstances that competition will be in terms of shorter term tactical promotions of various kinds, the pricing for which may be withdrawn or further adjusted more readily as required.

- *Stagnant or moderate growth on the demand side*

The growth of mobile service subscriptions year on year as at December is shown at Figure 4.5.

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[9] As calculated by TRA

Figure 4.5: Annual growth in Mobile Subscriptions – Oman

| December | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|
| Subscriptions | 2,500,000 | 3,219,349 | 3,970,563 | 4,606,133 | 4,809,248 | 5,277,591 |
| Annual growth | | 28.8% | 23.3% | 16.0% | 4.4% | 9.7% |

SOURCE: TRA

Figure 4.11 shows that although the mobile services growth rate is declining, as would be expected as the customer base grows, the growth rate remains strong and exceeds population growth.

- *Low elasticity of demand*

Formal studies have not been conducted on elasticity of demand for mobile retail services. The service is a combination of both access and services. It is possible therefore that price increases will be reflected in lower usage rather than cancellation of services. The Customer Survey undertaken on behalf of the TRA indicates that there would be a high level of response to price increases of 5-10%. However, the response would mainly be about seeking to change mobile service providers, not to abandon mobile altogether. TRA considers that the growth of mobile services indicates that mobile is ceasing to be regarded as any form of value-added or optional service and has now become a mainstream (even 'basic') service in Oman. Some individuals and households have adopted mobile as their sole or primary communications service.TRA concludes that mobile access has a low elasticity of demand and that mobile usage has a higher elasticity.

- *Homogenous product*

Mobile services are packaged and presented as different in sales and marketing programs. However, beneath the branding and packaging, the services are essentially homogenous. There is nothing that Omantel has to offer that Nawras cannot and does not offer and vice versa. Access service, call services and text and data services are essentially homogenous. This applies to the mobile resellers as well, whose services have performance characteristics determined by the network of the host Class I operator.

- *Similar cost structure*

Both Omantel and Nawras have modern networks from competitive international vendors. In the absence of demonstrative evidence that one or other is carrying a significant cost disadvantage TRA considers it reasonable to conclude that Omantel and Nawras have similar cost structures for network and back-office functions. No information provided in the course of the Public Consultation suggests otherwise.

- *Similar market share*

At December 2012 Omantel and Nawras had similar market shares in terms of subscribers and similar shares in other terms– at 48.4% and 40.7% respectively. The market shares have been no more than 8% apart, in total market terms, since December 2008. Neither has a market share advantage to leverage.

- *Lack of technical innovation, mature technology*

2.5G and 3G mobile technologies are mature. This is not the generation of technology in which further break-through innovation is being introduced. Both Omantel and Nawras are matched in technology terms and neither has an advantage through this kind of innovation.

- *High barriers to entry*

That the market has high barriers to entry has already been discussed and noted in relation to single dominance.

- *Lack of countervailing buying power*

Countervailing buying power on the part of resellers and/or customers might force more competitive responses from the network operators. However the resellers are in a weak position and customers have limited choices. Neither group has countervailing or any buying power as such.

- *Lack of potential competition*

Potential competition to Omantel and Nawras is unlikely to come from their own resellers or from any other source. The ability of resellers to develop truly independent marketing strategies and to offer data and other innovative services is very limited. Their actions are very visible to their own wholesale partners through the shared call accumulation and billing systems. In their present form it is unlikely that the resellers will develop to become effective competitors threatening the position of Omantel and Nawras. The withdrawal of one of the resellers from the market and the commercial difficulties claimed by some of the others is not a good sign for the future. They may need to adjust their business models. Nor is it likely that a virtual operator (MVNO / mobile reseller) will emerge because there is no requirement for the Class I operators to provide wholesale services at cost.

- *Various kinds of informal and other links between the undertakings concerned*

There is considerable opportunity for informal links between Omantel and Nawras, including the movement of staff in the normal course of the labour market, feedback to the operators from customers in the course of seeking to gain and retain their patronage, and through industry forums and functions. The TRA considers that links of this nature might play a part in forming their behaviour. However, it is the structure of the mobile market rather than the opportunity for linkage or communication that provides the basis on which joint dominance will rest.

- *Retaliatory mechanisms*

The primary potential retaliatory mechanism if competition becomes too robust or aggressive for one of the service providers is to retaliate with equal vigour. Given the nature of the market, competition will be mainly in price terms. The result of new across-the-board price reductions by one operator can be easily anticipated – namely a price war with the prospect of reduced outcomes for both parties, which may extend well beyond the customer segment in which the contest commences. The TRA is proceeding on the basis that the operators know the market very well, know which customers they wish to acquire and retain, know how to control the zeal of their sales forces, and are generally rational in their thinking and behaviour. Any other assumptions would be hard to justify. A rational approach in the context of a mature service market would be to proceed with limited special and promotional offers, exercising a degree of caution, and refrain from creating the circumstances for a general price war. This version of a rational approach appears to the TRA to be consistent with what is in fact happening.

- *Lack of or reduced scope for price competition*

This is relevant and potentially important. The pricing arrangements in the reseller agreements, based on discounted retail pricing, mean that the price structures of the wholesalers predominate and also limit the scope for independent pricing, and therefore for price competition, by the resellers.

- *Existence of incentives for tacit collusion*

There are many incentives for tacit collusion, including avoidance of robust price competition, the lack of decided advantages in terms of cost, position or service by Omantel and Nawras, the maturity of the market and the decelerating demand. If either operator recognised that it had definite advantages along one or more dimensions then it might seek to exploit those rather than to tacitly collude, but there is no evidence of such recognition or of such an advantage.

### (e) Conclusion

Taking the assessment of the market situation and structure as a whole, the TRA concludes that there is limited competition in Market 6 and apprehends that there is an appreciable risk of harm from the position in that market occupied by Omantel and Nawras.

There are clear incentives for tacit collusion in Market 6. The existence of incentives for tacit collusion is not, of course, the same as the existence of tacit collusion: the former is concerned with the opportunities inherent in a market situation while the latter is concerned with actual behaviour. The TRA considers the *existence* of incentives for tacit collusion is sufficient when assessing the need for ex-ante regulation even if actual collusion would need to be found when determining ex post anti-competitive behaviour.

Further, the TRA has concluded that the risk of harm from joint dominance is substantial and is likely to result in a continuation of the poor levels of mobile retail competition that are being experienced by customers in Oman at present.

The TRA has studied the available economic and legal literature on the subject of joint dominance, much of it from European sources and cases, including the criteria laid down in the *Airtours* case. The TRA notes that the literature mostly deals with the assessment of behaviour and evidence of tacit collusion and of anti-competitive agreements. Apart from *Airtours*, there is little guidance from cases that are concerned with the existence of joint dominance rather than its abuse. However this literature has been considered alongside the relevant Market Definition and Dominance Guidelines already adopted by the TRA and the TRA is satisfied that the literature, such as there is, supports the TRA's conclusions: there is a high level of market transparency; given problems with market entry and the limitations placed on MVNO / mobile resellers, there is an ability to sustain a situation of collusion; and no foreseeable counter-reaction from consumers or competitors is likely to undermine the situation, if it were to arise, in the near future.

The appropriate remedies will be considered in the next Chapter. It is to be noted however that the solution to joint dominance in this market may well be to facilitate greater competition through changes at the wholesale level, and to retain remedies in the retail market only for so long as the wholesale market remains unchanged or is still in the process of responding to planned wholesale remedies.

## Market 7: Retail national leased line and business data services at a fixed location

### (a) Discussion on single dominance

- *Market share*

The market shares as at December 2012 are set out in Figure 4.6 below:

Figure 4.6: Market Shares in National Leased Line and Business Data Service market

| **Service** | **Omantel** | | | **Nawras** | | |
|---|---|---|---|---|---|---|
| | **Dec 2010** | **Dec 2011** | **Dec 2012** | **Dec 2010** | **Dec 2011** | **Dec 2012** |
| Managed Data Services in operation (Lines) | 1,674 | 2,173 | 2,615 | 191 | 541 | 1,709 |
| Market share of Managed Data Services (lines) | 89.8% | 80.1% | 60.5% | 10.2% | 19.9% | 39.5% |
| National leased line services in operation | 453 | 477 | 475 | 2 | 15 | 61 |
| Market share of National Leased Line services | 99.6% | 97.0% | 88.6% | 0.4% | 3.0% | 11.4% |

SOURCE: TRA, Omantel, Nawras

The data in the figure above shows that Nawras is concentrating on the managed data service segment of this market and that its shares in the managed data services segment have grown quickly from a small base to nearly 40% in two years. Leased line services are increasing very slowly and are likely to be switched out for managed data services provided by both operators.

- *Overall size of the undertaking*

Until recently Omantel's backbone network infrastructure is significantly greater than that of its competitors in terms of coverage and reach. However during the course of 2011 Nawras has laid approximately 5,200 km of backbone optic fibre cable between areas where business customers are present in force. Although the overall size of undertakings might be potentially relevant and important, in the Omani market it is not practical to make a distinction on that basis between Omantel and Nawras, since both have immediate capability to participate in the retail leased line market.

- *Control of infrastructure not easily duplicated*

The underlying technology used to supply retail leased lines requires substantial investment in fixed network infrastructure. Nawras has, during the course of 2011 and 2012, been able to duplicate the capacity that Omantel has between major locations—that is, the trunk capacity of the network.

- *Economies of scale and scope*

There are real advantages to both Omantel and Nawras in this market in terms of economic efficiencies resulting from economies of both scale and scope in supplying retail leased lines services. The economies arise from Omantel's and Nawras's multi-service networks and businesses. For example, the transmission capacity for switched network services can be used also for dedicated services such as leased lines. The result is that shared network costs and fixed and common costs can be recovered over a greater service base and be lower on a unit basis as a result. Omantel and Nawras are price competitive against smaller scale competitors, including some self-providers.

- *Vertical integration*

Omantel and Nawras operate the network and infrastructure as well as provide services at retail level. This vertical integration gives them substantial advantages over resellers and self-providers.

The current lack of regulation at wholesale level and the market position enjoyed by Omantel in the corresponding wholesale markets for terminating segments adds further risk of harm to customers and competition in the retail market.

- *Ease of market entry*

Licensing and investment requirements constitute substantial barriers to entry. Market entry is not easy.

- *Absence of potential competition*

There is no realistic opportunity for new competitors to enter this market in the time frame of this review. Nawras has established an alternative backbone access network, this will not be of the same scope of Omantel's' s network because it will not include the ready availability on a ubiquitous basis of terminating segments needed to complete the dedicated transmission associated with the leased line service between customer locations. Nawras's backbone is based on IP/MPLS technology and will not therefore be an appropriate choice for leased line services in all circumstances.

TRA notes that Nawras's core network will mainly be NGN with a number of shared elements with the mobile network. To complement the national backbone Nawras is also developing metro rings and has started connecting enterprise customers with FTTB. Nawras is also deploying FTTH to green field residential developments and infra residential areas.

- *Barriers to switching*

As already noted, in many locations and in many situations involving low capacity services, there is no alternative to Omantel, and switching to alternative suppliers is not an option that customers have. Omantel's leased lines discount scheme could also become a potential barrier to switching. Under the scheme a customer can obtain a significant price discount by making volume and contract duration (from one to three years) commitments. These together with the high upfront set-up fees constitute a barrier to switching for consumers and a constraint on competition in the market. The scheme also augments the advantage derived from Omantel's ubiquity in the market. Customers are unlikely to want multiple sourcing if the result is a reduced discount and increased supplier management in the customer's organisation.

Figure 4.7: Omantel's retail leased line current tariffs

| Speed | Set up Fees (RO) | 1 Year Plan (Monthly fees) | 2 Year Plan (Monthly fees) | 3 year Plan (Monthly fees) |
|---|---|---|---|---|
| 64KB | 200 | 257 | 218 | 193 |
| 128 KB | 200 | 310 | 263 | 232 |
| 256 KB | 200 | 561 | 476 | 420 |
| 512 KB | 200 | 944 | 802 | 708 |
| 1 MB | 400 | 1,725 | 1,466 | 1,294 |
| 2 MB | 400 | 3,105 | 2,639 | 2,329 |

SOURCE: TRA

However, as indicated in Figure 4.6 above, Nawras has acquired a significant market share of managed data services. The switching barriers are clearly not preventing some customer movement in all cases.

### (b) Conclusion on single dominance

It is clear that Nawras is gaining some traction in the leased line market, although with 11% market share it is not competing with Omantel robustly. It has a larger, but still minority share of the managed data service market. Nawras can impose some constraints on Omantel's ability to institute its own price and performance policies in this market. However, on balance, TRA considers that Omantel remains singly dominant.

### (c) Relevance of joint dominance

Under the circumstances Omantel is dominant as a single operator for the time horizon if this study. It follows that, absent regulation, Omantel remains able to operate independently of customers and competitors to an appreciable extent, and that this precludes the need to consider joint dominance in this market.

## Market 8: Retail international leased line services

### (a) Discussion on single dominance

- *Market share*

Omantel has an overwhelming majority market share of international leased lines. However, Nawras now has the capacity to enter the market. It has sought and received permission to provide a full private circuit service to a major bank headquartered in Qatar. Although the service provided is a high capacity service it remains to be seen how Nawras intends to compete in this market more fully.

- *Control of infrastructure not easily duplicated*

The underlying technology used to supply retail leased lines requires substantial investment in fixed network infrastructure. This provides a significant advantage to Omantel as first mover into this market. Omantel's network and leased line capability, together with its arrangements with international counterparts, is not readily duplicated. Nawras has made significant relevant investments and appears to be in a position to enter the market in a general manner if it wishes. The position of both operators, viewed collectively, would constitute a major barrier to new entrants and may well dissuade them from further considering the market.

- *Economies of scale and scope*

Omantel enjoys economies of scope and scale in this market. The economies arise from Omantel's multi-service network and businesses. For example, the transmission capacity for international call services is used also for dedicated services such as international leased lines. The result is that shared network costs and fixed and common costs can be recovered over a greater service base and be lower on a unit basis as a result. Nawras also has economies of these kinds.

- *Vertical integration*

Omantel operates the network and infrastructure as well as provides international leased line services at retail level. This vertical integration gives it substantial advantages over potential competitors who may seek to enter the market as resellers. Nawras has the capacity to enter the market as a vertically integrated operator in the same manner as Omantel, but has not yet shown an inclination to do so.

The current lack of regulation at wholesale level and the market position enjoyed by Omantel in the corresponding wholesale market for international capacity adds further risk of harm to customers and competition in the retail market.

- *Ease of market entry*

The provision of international services on a half circuit basis requires the development of a range of correspondent relationships with overseas operators. This is not easily or quickly done. As noted Nawras has the requisite capacity and infrastructure to enter the market, but it is not clear that it intends to do so. The well entrenched position of Omantel and the clear capabilities of Nawras act as barriers to entry by third operators.

**(b) Conclusion on single dominance**

Omantel is dominant as a single service provider in this market. No other service provider is dominant in this market. This is an on-balance conclusion, given that Nawras has potential to enter this market. Nawras is positioned to enter the market if it wishes to do so, but its intentions are yet to become clear. The existing uncertainty would therefore provide some constraint on Omantel. If it were to increase its prices or reduce its outputs to an extreme degree the opportunity for Nawras may become too attractive to refuse. However in the normal course Omantel can act independently, short of extremes. In particular, it would seem that Omantel can maintain current prices and not pass on cost savings to customers.

### (c) Relevance of joint dominance

Under the circumstances Omantel is dominant as a single operator. It follows that, absent regulation, it is able to operate independently of customers and competitors to an appreciable extent, and that this precludes the need to consider joint dominance in this market.

# 4.3 Wholesale markets

## Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location

### (a) Discussion on single dominance

- *Market share*

Omantel retains a share of the voice call origination market that exceeds 80%. Omantel's own published data indicates that it has 96.8% of the fixed market share by services and 85.8% share by revenue.[10]

- *Control of infrastructure not easily duplicated*

Control over local access is an essential factor for the provision of call origination services. Omantel's ownership over the fixed customer access network confers a significant advantage over alternative operators. As highlighted in the analysis of the narrowband access market there is little substitution with other forms of access. The access market is not economically duplicable in its wireline form. Nawras has rolled out its WiMAX network and this covers over 90% of the population. However the main purpose of this service is to provide broadband services. In the fixed telephone market Nawras has only 9.5% market share based on services.

- *Sunk costs*

Alternative service providers who want to enter this market would need to invest significant resources which are not recoverable if the entrant decides to exit from the market. The high level of Omantel's sunk costs is also an important factor in considering its ability to compete on price if required to.

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[10] *Omantel Performance 2011 Q4* (May 2012) pdf on Omantel website

- *Economies of scale and scope*

The high level of fixed and common costs associated with the access network platform that supports the provision of this service generates significant economies of scale. The use of a number of platforms for even larger numbers of services and business operations is a basis for scope economies, especially in the recovery of joint and overhead costs. These provide substantial advantage to Omantel over competitors with smaller scale and lesser scope.

- *Vertical integration*

Omantel is a vertically integrated operator providing services for this market at different level of the value chain both at upstream and downstream level. In the absence of effective regulation, this provides opportunities for Omantel to leverage its power in the wholesale market to gain advantage in the retail market. Nawras is also vertically integrated. However it has few fixed voice customers and for that reason would be of secondary concern to service providers seeking to gain mass call origination access.

- *Absence of potential competition*

Omantel is the only operator that is able to provide ubiquitous wholesale call origination services to other service providers during the period covered by this review because it is the only operator with a large retail customer base. Nawras will be only able to offer limited wholesale call origination services based on the take-up on its own network at retail level. At present the take-up represents only 4.6% of the retail market. Omantel will continue to be the price leader for call origination, and is unlikely to be unduly constrained by Nawras in this respect.

### (b) Conclusion on single dominance

Omantel is dominant as a single service provider in this market. No other service provider is dominant in this market.

### (c) Relevance of joint dominance

Under the circumstances Omantel is dominant as a single operator. It follows that, absent regulation, it is able to operate independently of customers and competitors to an appreciable extent, and that this precludes the need to consider joint dominance in this market.

## Market 11: Wholesale voice call termination on individual public telephone networks provided at a fixed location

### (a) Discussion on single dominance

- *Market share*

Each service provider that operates a fixed network has 100% share of the market for call termination on its own network, irrespective of its share in other markets, including retail markets. The only way to access a customer via a service directly connected to the operator's network is via the operator's network. Logically there can be no competition.

- *Control of infrastructure not easily duplicated*

The transmission path between a point of interconnect (POI) on the terminating network and the called service cannot be duplicated by any other operator.

- *Countervailing buyer power*

Countervailing buyer power exists when a particular purchaser (or group of purchasers) of a good or service is sufficiently important to its supplier to influence the price charged for that good or service.

Interconnection and the termination of calls is a two-way process and this fact might cause an operator to exercise restraint in the terms and conditions, particularly price, which it seeks to apply to the service. However, the history of terminating interconnection strongly suggests that incumbent fixed operators see themselves as access providers (that is providers of call termination and other access services) rather than as access seekers. In all likelihood the countervailing buying power is not seen to exist where smaller and new entrant firms are concerned. Small and new entrant service providers rely on interconnection to be able to market their services and to gain traction in the market. Without the amenity of being able to call all subscribers including those on other networks it is unlikely that small and new entrant service providers could market their services and gain a customer base from which to operate and grow. Under these circumstances they may well accept terms that are unfavourable in order to commence operations earlier. Therefore countervailing buying power may be more theoretical than real in this market.

### (b) Conclusion on single dominance

Both Omantel and Nawras are dominant as single operators in this market, because the network of each constitutes a separate market. Strictly speaking there are two markets of the same kind, rather than one.

### (c) Relevance of joint dominance

Under the circumstances both Omantel and Nawras are dominant as single operators. It follows that, absent regulation, they are both able to operate independently of customers and competitors to an appreciable extent, and that this precludes the need to consider joint dominance in this market. Indeed, given the discussion above, the notion of joint dominance makes no sense in this market.

## Market 12: Wholesale network infrastructure access at a fixed location

#### (a) Discussion on single dominance

- *Market share*

The infrastructure to which access is being considered comprises towers, ducts and rights of way, as well as passive infrastructure such as copper or other electronically inactive infrastructure. A substantial part of these assets are in the hands of Omantel, although Nawras has also established substantial assets in recent times. It is difficult to measure common market share of such a diversity of infrastructure assets. The focus is therefore on those infrastructural assets that were established under conditions of privilege the circumstance so which cannot be replicated by new or recent entrants to the market. In these assets Omantel has a high market share.

- *Control of infrastructure not easily duplicated*

In developing its copper access network, Omantel has obtained rights of way and planning permission to build physical infrastructure (e.g. trenches and ducts) up to user premises. This was done on a national level and this infrastructure is not easily duplicated. Although there are plans for regional fibre deployment in Oman, it is unlikely that even on a regional basis the coverage of the fibre access network will match that of the copper access network within the time period of this review.

- *Vertical integration*

Because Omantel is a vertically integrated operator it has the ability and the incentive to refuse to provide access to non-duplicable facilities on reasonable terms. By doing so it would deter entry at retail level and protect its position in the retail market.

- *Absence of potential competition*

There is no potential competition for the provision of access to unbundled local loops and other fixed network facilities in Oman. The plans for fibre deployment in Oman will not yield competitive pressure in the short to medium term. Because Omantel has no potential competition in this market, it can leverage its market power and refuse to provide access on reasonable terms.

- *Ease of market entry*

Even though market entry is possible, as attested by Haya Water's initiative to develop a wholesale access network based on fibre, development of the access network is a lengthy process and coverage is unlikely to be extended beyond a regional level in the time period relevant to this review. Haya Water is in a unique position of being able to leverage its water and sewerage pipeline network and avoid most of the sunk costs that other potential competitors would have digging trenches and laying ducts. Omantel benefits from this situation and is not faced by competitive constraints forcing it to offer access on reasonable terms.

- *Other issues*

It has been noted by Omantel in its response to the First Public Consultation Document of 23 October 2010 relating to dominance regulation and guidelines that there is a tension between access regulation and new investment. In particular, Omantel is currently undergoing a major upgrade of its fixed investment and is replacing many street cabinets with multi-service units connected to higher levels in the network via optic fibre cabling.

The purpose of this section of the report is not to determine complex issues such as the trade-offs that exist between regulation and investment or whether the commercial viability of competing business cases ought to be determined by the regulator or the market. The purpose of this section of the report is to determine if Omantel is dominant in this market. Appropriate remedies that are sensitive to trade-off conditions are matters for later consideration.

### (b) Conclusion on single dominance

Omantel is dominant as a single service provider in this market. No other service provider is dominant in this market.

It is a matter for Omantel to argue that access should not be permitted to *specific* infrastructure and to raise the matter for TRA determination on a case by case basis.[11]

### (c) Relevance of joint dominance

Given the discussion above in relation to single dominance at a market level, issues associated with joint dominance need not be pursued at a market level. If two or more operators have joined together to establish infrastructure that they both use, then issues associated with access by third party operators may arise. TRA intends for the time being to deal with such matters on a case by case basis as they arise.

## Market 13: Wholesale broadband access at a fixed location

### (a) Discussion on single dominance

- *Market share*

Omantel has a majority but declining share of the fixed broadband access market in Oman. Omantel and Nawras both have the capacity to offer bitstream services nationally.

- *Control of infrastructure not easily duplicated*

In developing its access network, Omantel has obtained rights of way and planning permission to build physical infrastructure (e.g. trenches and ducts) up to user premises. This was done on a national level and this infrastructure is not easily duplicated. Nawras has based its presence in this market on a national WiMAX platform which also represents a significant investment.

- *Technological advantages and superiority*

Omantel is progressively transforming its network to NGN and, in this process, is installing MSANs in cabinets closer to end users and connecting these MSANs with fibre (FTTC). This will enable Omantel to provide broadband access services at higher speeds and with better control over quality of services. These improvements will result in more advanced services being provided to end users. Optic fibre deployment by Nawras has also been significant during 2011.

Both Omantel and Nawras are deploying fibre networks for their own use, not for wholesale service supply to each other or to third party operators and service providers. The existence of self-supply is evidence that this market exists.

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[11] For example, on the basis that the capacity of specific facilities is fully used or occupied or that spare capacity has been reserved for network expansion in the short to medium term.

Market positioning and advantage, particularly in terms of first mover status, gives Omantel and Nawras the opportunity to impose terms and conditions for access to bitstream services that would be more advantageous than the terms to be gained in a fully competitive wholesale market. It also gives the incentive for both to offer only standard bitstream and other wholesale broadband services which would not enable ISPs to compete on a par with their retail broadband offers.

- *Vertical integration*

Both Omantel and Nawras are vertically integrated operators that have the ability and the incentive to refuse to provide access to the various types of bitstream services on reasonable terms. By doing they deter entry at retail level and protect their own interests and position in the retail market.

- *Absence of potential competition*

Neither Omantel nor Nawras face new competition in this market in the period of this study. No third national entrant to the market can be identified at this stage.

- *Ease of market entry*

Even though localised market entry is possible, as attested by Haya Water's initiative to develop a wholesale access network based on fibre, development of the access network is a lengthy process and coverage is unlikely to be extended beyond a local or regional level. Omantel and Nawras benefit from this situation and are not competitively constrained to offer the various types of wholesale broadband service on reasonable terms. In the first instance the major issue is whether they would, in the absence of ex ante regulation, provide a full range of wholesale broadband services at all. They have not moved to do anything like that so far. The answer must therefore be 'no'.

### (b) Conclusion on single dominance

Neither Omantel nor Nawras is dominant as a single service provider in this market. Both must have regard to the market behaviour of the other and neither can take independent action on price, performance or other dimension of service provision with little or no concern about the potential response of the other.

### (c) Discussion of joint dominance

Some of the key requirements that accompany joint dominance are not present in this market. For example, the market shares (in terms of self-supply) are still significantly different, and the benefits from non-competition may not be proportionately shared in the short term in the market development.

The second characteristic of the market at this stage of its development is its high growth rate. This is not a stagnant or moderately growing market of the kind that would normally attract joint dominance concerns.

If there are no more entrants into the market at the wholesale level, then over time, equilibrium might develop that creates a market structure more conducive to being characterised as joint dominance.

The above discussion is about the prospect of the kind of interdependent position that develops in mature, low growth oligopolistic markets. However, there are other aspects of this market that suggest that joint dominance is the most appropriate description. The market is highly concentrated and the position of the established operators constitutes a high entry barrier for any new entrants. Both operators have major incentives to refuse wholesale access to other operators and to prevent the competitive entry of those operators into retail markets.

### (d)Conclusion on joint dominance

Some, but not all, market characteristics that support an overall conclusion of joint dominance are present in this market. The TRA concludes that, on balance, Omantel and Nawras are jointly dominant in this market. Omantel and Nawras have the ability and the incentive to deny bitstream access services to other operators and to rely entirely on self-provision for their own requirements. The risk of this happening is sufficiently material for TRA to take pre-emptive action and require both of them to make bitstream access services available to other operators where it is technically feasible to do so. Indeed, if this market were not so regulated TRA would need to reconsider its approach to Market 4 at the retail level.

## Market 14: Wholesale terminating segments of leased lines

### (a)Discussion on single dominance

- *Market share*

Omantel has close to 100% share of this market and this has not been impacted by Nawras's recent rollout of a fibre backbone network of over 5,200 km or Nawras's recent rollout out of an extensive WiMAX platform. Although Nawras now has the transmission infrastructure to provide alternatives for certain fixed services, including trunk segments of leased lines, it is not equally well placed to provide the terminating segments of leased lines to the wholesale market.

- *Control of infrastructure not easily duplicated*

The underlying technology used to support leased lines terminating segments requires substantial investment in fixed network infrastructure. A competitor could conceivably seek to cherry pick the wholesale market in low cost, high density major locations, but it would have to arrange for ducting and entry and access to customer premises. Nawras is not particularly well placed to provide ubiquitous wholesale services of this kind, nor has it shown any interest in doing so to date.

- *Economies of scale and scope*

There are advantages to Omantel in this market in terms of efficiencies resulting from both economies of both scale and scope in supplying leased lines terminating segment services. The economies arise from Omantel's multi-service access network and from the scope of the services that it provides. For example, the transmission capacity for access services to the switched network is used also for dedicated services such as leased line terminating segments. The result is that shared network costs and fixed and common costs can be recovered over a greater service base and be lower on a unit basis as a result. New entrant competitors do not have these scale and scope advantages and would likely take some time to achieve them, if at all. Of course, they can achieve them if there is mandated access to Omantel's network.

- *Vertical integration*

Omantel operates the network and infrastructure as well as provides leased line services at retail level. This vertical integration gives it substantial advantages over resellers who operate, if at all, only in the retail market.

- *Ease of market entry*

Capital investment requirements and the commanding existing position o Omantel in the market constitute substantial barriers to entry. Market entry is difficult. However, given its position in associated and adjacent markets, it would be much easier for Nawras to enter this market than for other operators without those advantages.

- *Absence of potential competition*

There is no realistic potential for brand new competitors to enter this market in the time frame of this review. Nawras may be inclined to enter the market if its sees advantage in doing so to support leased line services to its own retail customers. Evidence of this on a scale that amounts to significant, continuing and widely-based competition is yet to emerge.

### (b) Conclusion on single dominance

Omantel is dominant as a single service provider in this market. No other service provider is dominant in this market.

### (c) Relevance of joint dominance

Under the circumstances Omantel is dominant as a single operator. There are no other providers in the market at present nor will there be for the time period of this review. Therefore joint dominance is not an issue at this time.

## Market 15: Wholesale trunk segments of leased lines

### (a) Discussion on single dominance

- *Market share*

Omantel has effectively 100% market share of third party services at present. However this market share reduces if self-supply is taken into account. As a potential large user of wholesale trunk segments Nawras can now largely self-supply from the extensive optic fibre cable network that it has completed during 2011-12.

- *Control of infrastructure not easily duplicated*

The underlying technology used to support leased lines trunk segments requires substantial investment in fixed network infrastructure. Meshed transmission networks are required for an effective national coverage. This provides a significant advantage to Omantel and Nawras because they have effectively each deployed the infrastructure required.

- *Economies of scale and scope*

There are real advantages to both Omantel and Nawras in this market in terms of economic efficiencies resulting from economies of both scale and scope in supplying leased line trunk segment services. The economies arise from their multi-service network and businesses. For example, the transmission capacity for switched network services can be used also for dedicated services such as leased lines. The result is that shared network costs and fixed and common costs can be recovered over a greater service base and be lower on a unit basis as a result. New entrant competitors do not have these scale and scope advantages and would likely take some time to achieve them, if at all.

- *Vertical integration*

Both Omantel and Nawras are vertically integrated operators with wholesale and retail operations. Self-supply ensures that a wholesale element exists within each business. This vertical integration gives them substantial advantages over service providers who operate only in the retail market, including certainty of supply at cost.

- *Ease of market entry*

Capital investment requirements and the established position of Omantel and Nawras constitute substantial barriers to entry and to gaining traction with a national footprint after entry. Market entry is therefore difficult.

- *Absence of potential competition*

There is no realistic potential for new competitors to enter this market in the time frame of this review. Nawras is an actual, not a potential, competitor in this market. .

### (b) Conclusion on single dominance

Omantel is not dominant as a single service provider in this market. TRA bases this conclusion on its expectation that Nawras has immediate capacity to extend beyond self-supply to address the needs of third party providers if it wants to. Nawras is therefore an effective price constraint on Omantel in this market.

### (c) Discussion and conclusion on joint dominance

Only Omantel and Nawras have the capacity to be in this market. Neither provides wholesale trunk segments to each other or to other service providers to enable the provision of retail business services. Both Omantel and Nawras have the incentive and the market position to deny wholesale trunk segments to other service providers and to foreclose that form of competition at retail level. This can only be the outcome if they both refuse to provide wholesale services. TRA apprehends that there is a material risk that this might occur and further that the risk should be managed by requiring service provision on fair and reasonable terms to eligible operators. Therefore TRA considers that it is reasonable in all of the circumstances to conclude that Omantel and Nawras are jointly dominant in this market.

## Market 16: Wholesale IP international bandwidth capacity

### (a) Discussion on single dominance

- *Market structure*

Entry is open in this market and Nawras has been operational in this market since 2011. Samatel has been licensed and is authorised to enter the market at any time of its choosing. It has only recently commenced operations—in February 2013.

- *Market share and market concentration*

Omantel has signed exclusive deals, in some occasions through acquisition of shareholding, for the following submarine cables:

- TWA-1
- FLAG Falcon
- MENA
- EIG

In November 2009 Nawras announced an exclusive deal to land a cable connecting to Tata Global Network (TGN-Gulf) in Oman. This international connectivity became operational in 2011. At present Omantel has presence in six consortia cable systems and Nawras has presence in one. In addition Nawras leases capacity from Nawras to deal with overflow requirements.

At present Omantel and Nawras have 100% of the international cable capacity into and out of Oman between them.

- *Control of infrastructure not easily duplicated*

Arrangements such as those entered into by Omantel and Nawras are costly and may take many years to come into operation – as in the case of the Tata Gulf cable consortium with which Nawras is affiliated. The TRA notes that no plans for investment in submarine cable systems have been announced or acted on by other operators. Even if this changes the timescales involved may leave any operational impact outside the time horizon of this report.

- *Economies of scale and scope*

Omantel and Nawras need international capacity for their own telecommunications services, and for expected growth. Additional capacity which is not used by Omantel and Nawras retail divisions has a relatively low marginal cost. International capacity costs to Omantel and Nawras reflect scale and commitment. These operators therefore have a relative scale advantage over new entrants.

- *Vertical integration*

International capacity is required for both international telecommunications services and for internet services. By controlling the terms of supply to competitors for international capacity Omantel and Nawras have the opportunity, subject to regulation and to the constraint provided by each other, to take profits at wholesale level and to squeeze the margins available for service providers for provision of competing services to end users in the retail market.

- *Absence of potential competition*

Samatel's strategy is not yet clear. It has recently commenced to operate in the international market based on calling card access. However its ability to enter the broader capacity market, and to do so expeditiously, must be questioned. Samatel could enter the market relatively quickly if mandated wholesale access arrangements were in place. Apart from Samatel, there are no other potential entrants on the horizon in the timescale of this report.

The question arises as to whether Samatel's potential entry might be reasonably expected to act as a constraint on Omantel and Nawras in the interim. The TRA has concluded based on all the information available to it that the constraint must be assessed as weak given all of the circumstances.

- *Ease of market entry*

Key problems for entrants are the need to negotiate with cable consortia (as both Omantel and Nawras have secured preferred deals) and the amount of investment required to develop submarine cable systems and to build landing stations.

- *Customers' ability to access and use information*

At present, international capacity services are not part of the Reference Offers available from Omantel. As such, wholesale customers do not benefit from transparency and clarity of conditions.

### (b) Conclusion on single dominance

Neither Omantel nor Nawras is singly dominant in this market, given the effective constraint that they are able to impose on each other in terms of price and performance. No other service provider is dominant in this market.

### (c) Relevance of joint dominance

Many of the factors that have been considered in relation to single dominance are equally relevant for joint dominance, and will therefore not be repeated. The argument for joint dominance is that the market is highly concentrated with only two operators. Because of the vertical integration of the international capacity service providers on their own retail outgoing traffic and that of their mobile resellers, we know that the capacity utilisation is broadly similar, notwithstanding Nawras's recent entry into the market.

Samatel has a licence to enter this market. Samatel has commenced its gateway operations using calling card access to customers. This may be a step towards entering the wider international capacity market. If it does so it will need to commit to substantial capital investment and will need to overcome the effects of a series of preferential agreements entered into between Omantel and Nawras and submarine cable operators. If it becomes a member of a new consortium it will need to have a long lead time for its operating plans, given the experience of others in the region. There is little chance of any third party entering the market in the time horizon of this report.

If the outcomes for Omantel and Nawras in the fluid and emerging broadband services market are markedly different, this would tend to undermine the tendency of this market (Market 16) structure to translate into non-competitive behaviour. However, those outcomes are in the future at this stage and cannot be anticipated.

TRA apprehends that Omantel and Nawras have a common interest in denying wholesale services to third operators on reasonable terms and, absent regulation, the opportunity to foreclose the wholesale market, with negative impacts on consumer welfare and competition generally in the downstream retail markets. The risk is material.

### (d) Conclusion on joint dominance

The TRA concludes that Omantel and Nawras are jointly dominant in the market for wholesale IP international bandwidth capacity.

## Market 17: Wholesale voice call termination on individual mobile networks

### (a) Discussion on single dominance

- *Market share*

Each service provider that operates a mobile network has 100% share of the market for call termination on its own network, irrespective of its share in other markets, including retail markets. The only way to access a customer on a service directly connected to the operator's network is via the operator's network. Logically there can be no competition.

- *Control of infrastructure not easily duplicated*

The transmission path between a point of interconnect (POI) on the terminating network and the called service cannot be duplicated by any other operator.

- *Countervailing buyer power*

Countervailing buyer power exists when a particular purchaser (or group of purchasers) of a good or service is sufficiently important to its supplier to influence the price charged for that good or service.

Termination of calls between interconnected networks is a two-way process and this fact might cause an operator to exercise constraint about the conditions, particularly price terms, which it seeks to impose with the service. However, the history of terminating interconnection strongly suggests that incumbents and established mobile operators see themselves as access providers (that is providers of call termination and other access services) rather than as access seekers. In all likelihood countervailing buying power is not perceptible where smaller and new entrant firms are concerned. Small and new entrant service providers rely on interconnection to be able to market their services and to gain traction in the market. Without the amenity of being able to call all subscribers including those on other networks it is unlikely that small and new entrant service providers could market their services and gain a customer base from which to operate and grow. Under these circumstances they may well accept terms that are unfavourable in order to commence operations earlier. Such cases are well documented and indicate that countervailing buying power may be more theoretical than real in many situations that occur in this market.

### (b) Conclusion on single dominance

Both Omantel and Nawras are dominant as single operators in this market, because the network of each constitutes a separate market. Strictly speaking there are two markets of the same kind, rather than one.

### (c) Relevance of joint dominance

Under the circumstances both Omantel and Nawras are dominant as single operators. It follows that, absent regulation, they are both able to operate independently of customers and competitors to an appreciable extent, and that this precludes the need to consider joint dominance in this market. Indeed, given the discussion above, the notion of joint dominance makes no sense in this market.

## Market 18: Wholesale access and call origination on public mobile telephone networks

### (a) Discussion on single dominance

- *Market share*

Omantel and Nawras have broadly similar market shares in the retail mobile services market. As noted earlier in this report, as at the end of 2012, Omantel had 48.4% share of subscribers, Nawras had 40.7% and mobile resellers collectively had 10.9%. Retail market share reflects very closely call origination market share.

The similarity of market shares supports the view that neither of the Class I operators (MNOs) is singly dominant in retail mobile markets, because each will need to act with substantial regard to the other. The same constraints would seem not to apply at wholesale level, where the risk of their resellers moving to the other is low or non-existent because of the nature of their contracts, the contract duration and the need for the resellers to foster a partnership with the host operator.

Additionally, the market share and customer base of its own resellers is entirely known to each through billing records. This knowledge potentially places both of the network operators in a position of market power and enables them to influence the way downstream market shares might move in future.

- *Control of infrastructure not easily duplicated*

The radio access network of mobile operators is not easily replicated because it requires spectrum licensing and heavy investments in base stations and backhaul links. Nawras, the second mobile operator in Oman, has over time replicated the infrastructure of Omantel.

In terms of control of infrastructure that is not easily duplicated it can be said that Omantel and Nawras are competing on an equal footing and there is no basis to believe that either of these operators is able to leverage control of infrastructure to act independently of competition or customers (i.e. service providers using MACO services).

- *Absence of or low countervailing buying power*

TRA conducted interviews with all operating mobile resellers. A common concern raised was that commercial negotiations were dominated by the MNOs and that mobile resellers, as new entrants, did not have the bargaining power to negotiate commercial terms more beneficial for themselves. In part this is reflected in the protracted period that most negotiations took. Resellers considered that they had to compromise in order for their entry to the market not to be further delayed.

In this scenario, both Nawras and Omantel could, in theory, act with little regard of competition from their respective wholesale customers (i.e. service providers using MACO services).

- *Product/services diversification*

The MACO services available from Omantel and from Nawras are very similar in functionality. In both cases, the maximum level of functionality enabled to resellers is that of an Enhanced Service Provider, a service provider that has its own IN platform but is not able to manage its own users directly (through its own HLR function) or have its own interconnection with other national/international carriers.

- *Economies of scale and scope*

Both Omantel and Nawras have developed mobile radio access and core networks to provide services to their own subscribers. These networks are sensibly dimensioned to cater for growth and peaks of usage. Provision of "spare" capacity to mobile resellers represents a marginal cost to both Omantel and Nawras.

The mobile resellers expressed the view that, as MACO services are priced on a *retail minus* basis (in contrast to *cost plus*), Omantel and Nawras are able to control the extent of the competition by limiting the level of discounts that they agree with resellers. Resellers consider that they have little choice but to accept whatever is offered.

- *Vertical integration*

Both Omantel and Nawras are vertically integrated and thus have potentially an incentive to exploit market power at wholesale level to protect their businesses at retail level. They also have an incentive to keep new entrants out of the wholesale market itself.

However, in many markets in which mobile resellers have thrived, the segmented approach used by mobile resellers is beneficial to the host because it attracts customers from rival MNOs. In such a case there is an incentive for MNOs to work with MVNO mobile resellers and the end result is pro-competitive. Omantel especially noted that this strategy had been successful and that the brands of its resellers had often gained resonance and been successful in segments where the Omantel brand had not.

- *Absence of potential competition and ease of market entry*

Class I and Class II entry is regulated and requires a licence. There are no potential competitors at wholesale level because the resellers are finite and are locked into resale contracts with one Class I operator or the other. There is no inclination by the MNOs to supply wholesale services on cost-based terms and, most importantly, no competition or regulation in the wholesale market for MACO services that might force them to do so.

- *Switching barriers*

As mentioned before in the analysis of 'countervailing buying power, mobile resellers are severely limited in their ability to switch between host MNOs because of minimum duration terms of their contracts. The exclusivity conditions mean that mobile resellers are completely constrained in their ability to switch between providers of MACO services. If the wholesale MACO market was operating in a competitive manner one might expect that one or more reseller might have contracts with both MNOs. None have.

- *Customers' ability to access and use information*

Users of wholesale MACO services are subject to confidential contracts. Relative to both Omantel and Nawras the mobile resellers are in a weak position to negotiate detailed terms and conditions (for instance, detailing SLAs to be observed by the host MNOs).

This means that there has been a degree of information asymmetry, with a resulting power imbalance between the MNOs and their respective resellers in negotiating contracts, and this would be the case in any future negotiations with the same or additional resellers. The MNOs have the advantage of being the other party in multiple negotiations – the resellers have only their own case to learn from. (This information asymmetry is one of the reasons that regulators require publication of approved reference offers in certain wholesale markets.)

A practical example of information asymmetry and disadvantage raised by a number of mobile resellers when interviewed was their inability to benefit from and to respond to the MNOs retail promotional offers. Although the resellers have a need and expectation that they would be informed by the MNOs on future promotions—and by nature of the retail minus arrangements, mobile resellers could in theory be able to benefit from lower MACO rates during the period of the promotions—they consider that notice is insufficient time to enable them to implement their own competitive promotions or to maximise benefit from the reduced rates.

### (b) Conclusion on single dominance

Omantel and Nawras are unable to proceed without appreciable regard to each other in this market. However they appear to have been able to have similar due regard to their wholesale customers to date. The TRA cannot conclude that Omantel or Nawras or are singly dominant in this market.

### (c) Discussion on joint dominance

- *Market concentration*

Market concentration indicates whether a small number of undertakings account for a large share of the relevant market without any single operator being in an individual dominant position. Omantel and Nawras account for 100% of the wholesale MACO market. In the wholesale market the Herfindahl-Hirschman Index score is around 5,100. There are no other wholesale market competitors. This is a very strong consideration in determining whether there is a risk of harm to consumer and competition from joint dominance.[12]

- *Transparency*

Omantel and Nawras have a clear ability to monitor each other's activities and offers to mobile resellers. They know each other's business by being able to deduct their own metrics from industry information that is in the public domain. Sales and marketing programmes place much price and other information into the public domain. In addition retail customer feedback will provide a running commentary on competitive channels to market. Information from other sources is readily available and it is reasonable to assume that the two MNOs collect and analyse it.

- *Mature Market*

Interviews with the mobile resellers indicate that there is a potential strong demand for wholesale MACO services, such as access to services on MVNO / mobile resale terms. However this demand is not being addressed under the current framework. Demand for wholesale services on a reseller basis is being met, but, apart the negotiations that may have occurred in the course of finalising the reseller contracts, currently there is no competition between wholesale suppliers. The resellers have made their choice, it seems, and have no further opportunity to exploit the competitive possibilities in the market. This would have been different had the resellers had contracts with both MNOs and could have shifted their on-going traffic and business between the MNOs.

- *Homogeneous product*

The wholesale MACO services provided by Omantel and Nawras are very similar. This has two consequences. It makes comparison of offers and monitoring of the market easier than if there had been a complex of characteristics and packaging to consider. It makes it harder for the resellers to differentiate their offerings from their MNOs and from each other than might otherwise have been the case.

- *Similar cost structure*

Omantel and Nawras have established similar network coverage and use similar technology. It is reasonable to assume that the cost structure of both operators is broadly similar. Given that the scale of operations is similar, it is unlikely that one or the other would enjoy a significant cost advantage in the wholesale market.

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[12] *Gencor Ltd v Commission* [1999] 4 C.M.L.R.971

- *Similar market share*

As indicated in the assessment of single dominance, the market shares of Omantel and Nawras are similar.

- *Lack of technical innovation, mature technology*

There is no technical advantage or technical innovation that is available to one operator but not the other. The technology being employed by both Omantel and Nawras is mature and readily available to through international equipment vendors.

- *High barriers to entry*

As already discussed in the assessment of single dominance there are high barriers to entry. Market entry is restricted because of spectrum limitations and significant investments to build and deploy a mobile network.

- *Lack of countervailing buying power*

As already discussed in the assessment of single dominance of the resellers do not have countervailing buying power and therefore no ability to encourage competition for their business between Omantel and Nawras in the wholesale market for MACO services. Lack of countervailing buying power will also apply if other wholesale mobile access services are sought, such as national roaming.

- *Lack of potential competition*

As of end of March 2013, there were four potential full retail competitors to Omantel and Nawras in operation in Oman - namely the mobile resellers who remain operational. If the terms governing their relationship with their partner MNO remain in place these four resellers are likely to remain as resellers only and have no ability to achieve a bigger and more significant role in the wholesale market. It is unlikely that one or more of them would seek to enter the market with a full mobile platform like Omantel and Nawras in the time horizon of this review. No other potential competitors can be identified.

- *Existence of incentives for tacit collusion between service providers*

Nawras and Omantel have a common interest in protecting their retail operations from further competition. Omantel saw benefit in having mobile resellers able to penetrate market segments that might not be as open to the Omantel brand. No similar comment was forthcoming from Nawras, which has enjoyed lesser success through its resellers. Neither of the MNOs wants to see each other open up the MVNO market by offering more favourable terms to resellers, by increasing their commercial freedom, by allowing them to switch from one Class I provider to another or by allowing them to expand the range of products they may resell. The single reseller-MNO relationships and their dealings with the resellers to date are consistent with maintaining the power imbalance.

- *Ability to enforce terms of collusive understanding*

It is not necessary to show that any collusive understanding or agreement exists in order to find that there is joint dominance in a market. However, for there to be a risk of collusive anti-competitive behaviour it is necessary for there to exist credible means of enforcing the terms of any collusive understanding. This is a different matter from showing the existence of a collusive understanding, which is a matter for ex post regulatory enforcement. It is sufficient that the structure of the market and the other factors discussed above create an appreciable risk that such an arrangement might result in the absence of ex ante regulation.

In this case there is a clear means of enforcement open to both Omantel and Nawras. If one of these operators were to become competitively pro-active in the wholesale market and seek to encourage resellers and other (future) retail service providers to come to it for all or a larger share of their wholesale MACO service requirements, the other operator would recognise the change in the market situation and inevitably respond. A wholesale price war might well result. It would be difficult to control the extent of such competition once started. The overall result would be to transfer value to the retail level in the market, and, ultimately to end users of mobile services. Both Omantel and Nawras are well aware of this possibility, and it is this knowledge of mutually assured disadvantage that would serve to sustain any collusive understanding. This is a rational approach in light of Omantel's and Nawras's commercial interests.

### (d) Conclusion on joint dominance

The TRA has studied the available economic and legal literature on the subject of joint dominance, much of it from European sources and cases, including the criteria laid down in the *Airtours* case. The TRA notes that the literature mostly deals with the assessment of behaviour and evidence of tacit collusion and of anti-competitive agreements. Apart from *Airtours*, there is little guidance from cases that are concerned with the existence of joint dominance rather than its abuse. However this literature has been considered alongside the relevant Market Definition and Dominance Guidelines already adopted by the TRA and the TRA is satisfied that the literature, such as there is, supports the TRA's conclusions: there is a high level of market transparency, problems for new market entry, limitations placed on mobile resellers, and a very concentrated market involving only two competitors. These are favourable conditions in which cooperation may replace competition.

There are clear incentives for tacit collusion in Market 18, and a high potential for harm, not just to resellers but also to consumers. The TRA considers that Omantel Mobile and Nawras are jointly dominant in Market 18.

## Market 20: Wholesale transit

### (a) Discussion on single dominance

- *Initial comment*

The wholesale transit market in Oman is an unusual one because at present there are only two immediate potential customers for the service – Omantel (including Omantel Mobile) and Nawras. Also there are only two immediate potential service providers – Omantel and Nawras. To date they have both chosen to provide connections between points of interconnection using their own facilities and therefore it could be said that they have self-provided the services needed.

In March 2011, Sama Telecommunications (Samatel) was awarded a Class I licence to establish and operate international public telecommunications system. Samatel has not developed an operational facility or platform yet, but when and if it does, it will be a potential user of wholesale transit services.

- *Control of infrastructure not easily duplicated*

Transit services operate between POIs, and these are typically located with major switching nodes where the interchange of significant amounts of traffic is both technically feasible and likely to be required. There is no policy that constrains the number and location of POIs in the future. The cost of establishing the POI facility will be a constraint in practice. In any case, small operators with limited coverage will find it challenging to deliver their traffic to remote POIs without a wholesale transit service. Those who are able to provide such a service will need network infrastructure that has significant national reach. Omantel and Nawras already have network and infrastructure in place for delivery of their other network services. It would not be economic to duplicate that network for transit services alone, and a major investment and logistical challenge to develop a third backbone transmission network for general operational purposes.

- *Economies of scale and scope*

There are advantages to Omantel and Nawras in this market in terms of economic efficiencies resulting from both economies of both scale and scope in supplying transit services. The economies arise from Omantel's and Nawras' respective multi-service network and businesses. For example, the transmission capacity for switched network services can be used also for carriage of transit traffic. The result is that shared network costs and fixed and common costs can be recovered over a greater service base and be lower on a unit basis as a result. New entrant competitors do not have these scale and scope economies and would likely take some time to achieve them, if at all.

- *Vertical integration*

Both Omantel and Nawras operate the network and infrastructure at wholesale level and also operate in all relevant retail call service markets. They therefore have the ability, in the absence of regulation, to exercise power in the wholesale market to benefit their retail operations.

- *Ease of market entry*

Capital investment requirements constitute substantial barriers to entry. Market entry is difficult.

- *Absence of potential competition*

There is no realistic potential for new competitors to enter this market in the time frame of this review.

### (b)Conclusion on single dominance

As noted earlier, if there was demand for third party transit services today, neither Omantel nor Nawras could be considered to be singly dominant. Each is constrained by the other in price and performance terms and therefore neither could act independently of the market as would occur if either was singly dominant.

### (c) Discussion on joint dominance

Some of the elements that are indications of joint dominance are present in relation to wholesale transit. The market has only two operators and they are well-matched. Both Omantel and Nawras have no interest in facilitating the entry of additional retail operators through the provision of wholesale services, such as wholesale transit, and both would be expected to deny service if requested by third parties.

### (d) Overall conclusion

TRA has concluded that, on balance, Omantel and Nawras are jointly dominant in this market. No requests for wholesale transit have been made by third party operators to date. However the benefit of determining that Omantel and Nawras are jointly dominant is that the market need not be uncertain on the matter and potential access seekers may put forward their requests knowing that the TRA has considered the market.

# 5 Remedies

## 5.1 Introduction

In this chapter we examine the potential risk of harm to competition and consumer welfare that the dominance of each dominant service provider in each relevant market may cause in the absence of *ex ante* regulation.

The TRA is committed to adopting the least intrusive remedies available that will address the problems associated with dominance in each relevant market. The remedies are those that relate to the risks and which are appropriate and proportionate to the problem being addressed, having regard to the procedures and principles set forth in the Market Definition and Dominance Guidelines and the Decision on ex ante Rules Governing Market Definition and the Regulation of Dominance. The TRA is aware however that remedies at the wholesale market level that are proposed may take time to gain traction and become effective. In the meantime it would be inappropriate to remove regulation from related retail markets. Therefore, over time, TRA would expect to see ex ante regulation of retail markets reduce in favour of structural remedies imposed via competitive and regulated wholesale actions. However, this transition will take more than a single market analysis review and longer than the duration of a single review period.

## 5.2 Retail Markets

### Market 1: Retail fixed narrowband access services at a fixed location

#### (a) The risk of harm to competition and consumer welfare

Only Omantel is dominant in this market.

The risk is that in the absence of regulation Omantel has the opportunity to increase price or to impose other terms on some or all of the subscribers who have an enduring commitment to telephone network access at a fixed location and who may not have ready options to switch to mobile service alternatives.

Omantel in this market could gain advantage from its dominant position in the following ways, none of which is related to the merits of the services it is providing:

- Undue non-price discrimination: Omantel might unduly discriminate between end users by providing better quality of service and terms and conditions to large volume end users.
- Price discrimination via cross subsidisation/predation: Omantel, by leveraging its market power into competitive markets, could cross-subsidise retail prices in those markets and gain an unfair advantage.

- Excessive pricing: Omantel, as a dominant operator, has the ability to raise the prices at retail level above its costs, thereby reducing consumer welfare. This may lead to allocative inefficiencies and distorted pricing structures.

### (b)Remedies and impact assessment

The Figure below indicates the potential retail remedies capable of addressing the risks of harm to consumers and competition described above, assesses the overall impacts of each remedy and identifies the remedies to be imposed on Omantel.

Figure5.1: Risk of harm and proposed remedies for Market 1

| **Risk of harm** | **Proposed remedy** | **Assessment of remedy** |
|---|---|---|
| Undue discrimination in relation to terms of supply | Non- discrimination and transparency obligations | There are two parts to such an obligation both of which need to be shaped to address the risk that Omantel will discriminate between end users. Any proposed price differentiation will need to be justified. |
| Excessive pricing | Price control obligation | TRA will set out the relevant price control obligation for this and other services in a separate but related document. |
| Cross subsidisation/ Predation | Accounting separation (AS) | AS will enable the TRA to monitor profitability at a market and service level and to monitor for potential discriminatory pricing. Additionally, a regulatory framework for AS has already been formally imposed on Omantel so the one-off establishment costs will already have been committed or borne by Omantel. |

SOURCE: TRA

## Market 2: Retail local and national calls from a fixed location

### (a)The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market.

The risk is that in the absence of regulation and of competitive constraints Omantel will not adopt competitive pricing and performance levels, and that consumers will be denied reduced prices reflecting reduced costs over time.

The specific risks are:

- Undue discrimination: Omantel might unduly discriminate between end users by providing better quality of service and terms and conditions, including price terms, to large volume customers beyond a level that is reasonably justified by cost savings or other circumstances.

- Cross subsidisation/predation: By leveraging market power into competitive markets, Omantel could cross-subsidise retail prices in those markets and gain an unfair advantage. A specific concern in this regard is the bundling of local and national calls with other services in competitive markets.
- Excessive pricing: Omantel are unlikely to raise prices in this market, based on experience to date. The more likely outcome is to restrict price reductions to the margins and to promotional offers, and not allow competition to deliver reduced prices across the board in line with reductions in underlying costs. In this way prices may become excessive (that is, in excess of competitive price levels).

### (b)Remedies and impact assessment

Figure5.2 below identifies and assesses the remedies that the TRA considers to be sufficient to address the risk of harm to consumers and competition described above.

Figure5.2: Risk of harm and proposed remedies for Market 2

| **Risk of harm** | **Proposed remedy** | **Assessment of remedy** |
|---|---|---|
| Undue discrimination in relation to terms of supply | Non-discrimination and transparency obligations | There are two parts to such an obligation both of which need to be put in place to address the risk of Omantel discriminating between end users. Any proposed price differentiation will need to be justified. |
| Excessive pricing | Price control | TRA will set out the relevant price control obligation for this and other services in a separate but related document. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market and service level and to monitor for potential cross subsidisation. Additionally, a regulatory framework for AS has already been formally imposed on Omantel so the one-off establishment costs will already have been committed or borne by Omantel. |

SOURCE: TRA

## Market 4: Retail broadband Internet access from a fixed location

### (a)The risk of harm to competition and consumer welfare

In this market, Omantel and Nawras are jointly dominant and the risk of harm is that they will respond to the incentives that exist in the market to adopt a cooperative rather than a non-competitive approach, especially to passing on cost reductions to consumers through more broadly based price reductions.

Specifically the risks in this market are as follows:

- Undue discrimination: Omantel and Nawras might unduly discriminate between end users by providing better quality of service and terms and conditions, including price terms, to large volume or higher value customers beyond a level that is reasonably justified by cost savings or other circumstances.
- Excessive pricing: Omantel and Nawras, as the jointly dominant operators, have the ability to raise the prices at retail level above costs, thereby reducing consumer welfare. This has not happened and is very unlikely to happen in future. The more likely risk is that retail prices will be sustained and will not be lowered across a wide front to reflect reducing costs as would happen in an effectively competitive market. The longer term remedy to reduce this risk is to encourage a competitive wholesale market or, absent competition, to regulate the wholesale market to encourage and foster competition at that level. Until such wholesale market arrangements become effective, it is appropriate to directly address price competition concerns via price control regulation in the retail market.
- Cross subsidisation/predation: Omantel and Nawras, by leveraging market power could cross-subsidise retail prices in competitive markets and gain an unfair advantage. A specific concern in this regards is the bundling of local and national calls with other services in competitive markets.

### (b) Remedies and impact assessment

Figure 5.3 below identifies the retail remedies are best able to address the risk of harm to consumers and competition described above.

Figure 5.3: Risk of harm and proposed remedies for Market 4

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Undue discrimination in relation to terms of supply | Non-discrimination and transparency obligations | There are two parts to this obligation both of which need to be put in place to address the risk of Omantel or Nawras discriminating between end users. Any proposed price differences in the terms of supply will need to be justified. |
| Excessive pricing | Price control | TRA will set out the relevant price control obligation for this and other services in a separate but related document. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market and service level and to monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 6: Retail mobile services market

### (a) The risk of harm to competition and consumer welfare

In this market, Omantel and Nawras are jointly dominant and the risk of harm is that they will respond to the incentives that exist in the market to adopt a non-competitive approach, especially to passing on cost reductions to consumers through more broadly based price reductions.

Specifically the risks in this market are as follows:

- Undue discrimination: Omantel and Nawras might unduly discriminate between end users by providing better quality of service and terms and conditions, including price terms, to large volume or higher value customers beyond a level that is reasonably justified by cost savings or other circumstances.
- Excessive pricing: Omantel and Nawras, as the jointly dominant operators, have the ability to raise the prices at retail level above costs, thereby reducing consumer welfare. This has not happened and is very unlikely to happen in future. The more likely risk is that retail prices will be sustained and will not be lowered across a wide front to reflect reducing costs as would happen in an effectively competitive market. The longer term remedy to reduce this risk is to encourage a competitive wholesale market or, absent competition, to regulate the wholesale market to encourage and foster competition in Market 6. Until such wholesale market arrangements become effective, it is appropriate to directly address price competition concerns via price control regulation in the retail market.
- Cross subsidisation/predation: Omantel and Nawras, by leveraging market power could cross-subsidise retail prices in competitive markets and gain an unfair advantage. A specific concern in this regards is the bundling of local and national calls with other services in competitive markets.

### (b) Remedies and impact assessment

Figure5.4 below identifies the retail remedies are best able to address the risk of harm to consumers and competition described above.

Figure 5.4: Risk of harm and proposed remedies for Market 6

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Undue discrimination in relation to | Non-discrimination and | There are two parts to this obligation both of which need to be put in place to address the risk of Omantel or Nawras discriminating between end users. Any |

| | | |
|---|---|---|
| terms of supply | transparency obligations | proposed price differences in the terms of supply will need to be justified. |
| Excessive pricing | Price control | TRA will set out the relevant price control obligation for this and other services in a separate but related document. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market and service level and to monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 7: Retail national leased line and business data services at a fixed location

### (a)The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market.

There are a number of areas that offer potential for harm from market dominance in Market 7. Specifically the risks in this market are as follows:

- Undue discrimination: Omantel might unduly discriminate between end users by providing better quality of service and terms and conditions to large volume or high value end users.
- Cross subsidisation or predation: Omantel could leverage its market power in this market into competitive markets. It could cross-subsidise retail prices in those markets and gain an unfair advantage.
- Excessive pricing: Omantel has the ability to raise the prices at retail level above its costs, thereby reducing consumer welfare. An alternative is that it may not reduce its prices as costs reduce, which one might expect over time in an effectively competitive market, thereby generating excessive profits.

### (b)Remedies and impact assessment

Figure 5.5 below identifies the proposed remedies that are able to address the risk of harm to consumers and competition described above.

Figure 5.5:Risk of harm and proposed remedies for Market 7

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Undue discrimination in relation to terms of supply | Non-discrimination and transparency obligations | There are two parts to such an obligation both of which need to be put in place to address the risk that Omantel will discriminate between end users. Any proposed price differences will need to be justified. |

| | | |
|---|---|---|
| Excessive pricing | Price control | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 8: Retail international leased line services

### (a) The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market.

There are a number of areas that offer potential for harm from market dominance in Market 8. Specifically the risks in this market are as follows:

- Undue discrimination: Omantel might unduly discriminate between end users by providing better quality of service and terms and conditions to large volume or high value end users.
- Cross subsidisation or predation: Omantel could leverage its market power into competitive markets and could cross-subsidise retail prices in those markets and gain an unfair advantage.
- Excessive pricing: Omantel has the ability to raise the prices at retail level above its costs, thereby reducing consumer welfare. An alternative which is more likely is that it may not reduce its prices as costs reduce—which one might expect over time in an effectively competitive market—thereby generating excessive profits.

### (b) Remedies and impact assessment

Figure 5.6 below identifies the proposed remedies that are able to address the risk of harm to customers and competition described above.

Figure5.6: Risk of harm and proposed remedies for Market 8

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Undue discrimination in relation to terms of supply | Non-discrimination and transparency obligations | There are two parts to such an obligation both of which need to be put in place to address the risk that Omantel will discriminate between end users. Any proposed price differences will need to be justified. |

| | | |
|---|---|---|
| Excessive pricing | Price control | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location

### (a) The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market.

There are a number of areas that offer potential for harm from market dominance, both to customers and to competing entrants.

The specific risks of harm arising from Omantel's dominance in Market 10 are:

- Refusal to supply: Without ex ante regulation Omantel would be unlikely to offer wholesale voice call origination to third parties on a timely basis in response to a request or on fair and reasonable terms and conditions. Omantel may well have commercial incentives not to do so.
- Undue discrimination: Omantel might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular it might favour its own downstream retail operation. Indeed, it would have a strong commercial incentive for doing so. The discrimination could take the form of price and/or non-price discrimination. For example, it could relate to different price terms, different qualities of service, undue requirements or delays that are not justified by cost or other objective factors.
- Excessive pricing: Omantel is likely to set excessive prices in order to maximize its profit and raise rival's cost by increasing the costs of wholesale voice call services with detrimental effects for downstream competition and consequently to consumers' interests. In practice this risk might not be realised as price discrimination because Omantel might be prepared to apply the same excessive prices to its own retail operations and to take its profits in the wholesale market rather than in the related retail markets.
- Non-transparency: In wholesale markets terms and conditions are sometimes difficult to determine and may be changed by the supplier but not in response to the objective circumstances of the transaction. Actual and potential customers who are retail competitors will suffer disadvantage from information asymmetry in these situations.

### (b)Options for remedies and impact assessment

The Figure below identifies and assesses the potential retail remedies that might be capable and sufficient to address the risk of harm to consumers and competition described above.

Figure5.7: Risk of harm and proposed remedies for Market 10

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel will be obliged to supply specified wholesale voice call origination services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Interconnection Offer (RIO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RIO needs to be amended.<br>(2) Omantel will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RIO. |
| Excessive pricing | Price control obligation based on LRIC | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. They will be based on LRIC. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 11: Wholesale voice call termination on individual fixed networks

### (a)The risk of harm to competition and consumer welfare

Omantel and Nawras are each singly dominant in this market – in each case the market is defined as the network that each operates.

The specific risks of harm arising in Market 11 are:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale fixed voice call termination to eligible service providers on a timely basis or on fair and reasonable terms and conditions in response to a request. Omantel and Nawras would have every commercial incentive not to do so.
- Undue discrimination: Omantel and Nawras might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular they might favour their own downstream retail operations. Indeed, they would have a strong commercial incentive for doing so. The discrimination could take the form of price and/or non-price discrimination. In this area above cost termination charges might be applied to traffic from other interconnected networks, compared to a cost basis for terminating their own traffic.
- Excessive pricing: Omantel and Nawras are likely to set excessive prices in order to maximize profit and raise rival's cost by increasing the costs of wholesale voice call termination services with detrimental effects and cost increases for retail competitive services and, consequently, detrimental effects for consumers' interests. Excessive pricing has benefits to both Omantel and Nawras. They would receive the benefit of greater revenue and also would increase the cost to competitors.
- Cross subsidization: This would occur between wholesale and retail services, to gain advantage or limit downstream retail competition.

### (b)Remedies and impact assessment

Figure5.8 below identifies the proposed remedies that TRA considers will be able to address the risk of harm to consumers and competition described above.

Figure 5.8: Risk of harm and proposed remedies for Market 11

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply wholesale voice call termination services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Interconnection Offer (RIO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RIO needs to be amended.<br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RIO. |
| Excessive pricing | Price control obligation based | TRA will set out in a separate but related document the price control arrangements that shall apply in this |

| | | |
|---|---|---|
| | on LRIC | market. They will be based on LRIC. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 12: Wholesale network infrastructure access at a fixed location

### (a) The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market.

At present, no operators in Oman offer wholesale fixed network infrastructure access to third parties. However Omantel self-supplies its retail operation with equivalent wholesale services.

The specific risks of harm resulting from Omantel's dominance in this market are:

- Refusal to supply: Without ex ante regulation Omantel would be unlikely to offer wholesale network infrastructure access to third parties on fair and reasonable terms in response to a request from other eligible service providers.
- Discrimination: Omantel has substantial incentives to discriminate in the provision of access services to external access seekers in favour of its own retail operations. The discrimination could take the form of price and/or non-price discrimination.
- Lack of transparency: Fair and reasonable provision of services in wholesale markets would be cost-based. Only Omantel is aware of its costs and therefore, absent accountability to a regulator, Omantel would enjoy the advantages of information asymmetry when dealing with access seekers.
- Excessive pricing: Omantel is in a position to set excessive prices in order to maximize its profit and raise rival's cost by increasing the costs of wholesale network infrastructure services with detrimental effects for downstream competition and, ultimately, to consumers' interests.
- Cross subsidization: Omantel is in the commercially advantageous position of being able to shift its costs of wholesale service onto competitors, rather than to absorb those costs on an equivalent basis in its own retail operations. Omantel can therefore elect to take profits at the wholesale level and rather than at more competitive retail levels of the market.

### (b) Remedies and impact assessment

Figure 5.9 below identifies the proposed remedies that TRA considers are able to address the risk of harm set out above.

Figure 5.9: Risk of harm and proposed remedies for Market 12

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel will be obliged to supply the specific wholesale network infrastructure service access services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RAO needs to be amended.<br>(2) Omantel will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RAO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to determine the way in which costs and revenues have been allocated amongst various services to identify and assess cross subsidisation and its effect on competition in downstream retail markets. |

SOURCE: TRA

## Market 13: Wholesale broadband access at a fixed location

### (a)The risk of harm to competition and consumer welfare

Omantel and Nawras are jointly dominant in this market.

There are a number of areas that offer potential for harm from Omantel's and Nawras's dominance in this market.

At present, there are no operators in Oman that offer wholesale network infrastructure access to third party operators. However both Omantel and Nawras self-supply.

Omantel and Nawras could gain advantage in this market from their dominant position in the following specific ways:

- Refusal to supply: Without ex ante regulation Omantel and Nawras could potentially decline to provide wholesale broadband access (such as bitstream unbundling or wholesale broadband services) at fair and reasonable prices to enable retail competition by wholesale customers.

- Discriminatory treatment in the provision of wholesale broadband services: When operators are vertically integrated, as are both Omantel and Nawras, the discrimination could take the form of price and/or non-price discrimination, for example, different price terms, different qualities of service, and undue requirements that are not warranted by cost or other objective factors.
- Anti-competitive price discrimination: By differentiating prices in favour of own retail operations or applying a margin squeeze strategy to access seekers in order to foreclose or exclude an efficient competitor to profitably compete against the incumbent operators.
- Excessive pricing: Absent regulation, Omantel and Nawras have the incentive and opportunity to set excessive prices in order to maximize profit and raise third party rival's cost by increasing the costs of wholesale access services. This will have detrimental effects for downstream competition and consequently to consumers' interests.
- Cross subsidization: Omantel and Nawras are in the commercially advantageous position of being able to shift the costs of wholesale service onto competitors, rather than to absorb those costs on an equivalent basis in their own retail operations. Omantel and Nawras can therefore elect to take profits at the wholesale level and rather than at more competitive retail levels of the market.

### (b)Remedies and impact assessment

Figure5.10 below identifies the proposed remedies that TRA considers are able to address the risk of harm to consumers and competition described above.

Figure 5.10:Risk of harm and proposed remedies for Market 13

| **Risk of harm** | **Proposed remedy** | **Assessment of remedy** |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply the specific wholesale network infrastructure service access services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RAO needs to be amended.<br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RAO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |

| | | |
|---|---|---|
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to determine the way in which costs and revenues have been allocated amongst various services to identify and assess cross subsidization and its effect on competition in downstream retail broadband markets. |

SOURCE: TRA

## Market 14: Wholesale terminating segments of leased lines

### (a) The risk of harm to competition and consumer welfare

Omantel is singly dominant in this market. The specific risks that arise as a result for competition and the consumer interest are:

- Refusal to supply: Without ex ante regulation Omantel would be unlikely to offer wholesale access to third parties on fair and reasonable terms in response to a request from other eligible service providers. Indeed it would have no commercial reason for doing so.
- Discrimination: If it were minded to provide access services to third party operators, Omantel has the incentive and the opportunity to provide them in a way that favours its own retail arm. The discrimination could take the form of price and/or non-price discrimination, for example, of different price terms, different qualities of service, undue requirements that are not warranted by cost or other objective factors, and preference in all matters to its own retail operations.
- Anti-competitive price discrimination: By differentiating prices in favour of own retail operations or applying a margin squeeze strategy to access seekers in order to foreclose or exclude an efficient competitor from competing against Omantel.
- Excessive pricing: Omantel is in a position to set excessive prices in order to maximize its profits and raise rivals' cost by increasing the costs of wholesale terminating segments of leased lines with detrimental effects for downstream competition and consequently to consumers' interests.
- Cross subsidization: Omantel is in the commercially advantageous position of being able to shift its costs of wholesale service onto competitors, rather than to absorb those costs on an equivalent basis in its own retail operations. Omantel can therefore elect to take profits at the wholesale level and rather than at more competitive retail levels of the market.

### (b) Remedies and impact assessment

Figure 5.11 below identifies the proposed remedies that TRA considers are able to address the risk of harm to consumers and competition described above.

Figure 5.11: Risk of harm and proposed remedies for Market 14

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel will be obliged to supply the wholesale terminating sections of leased lines as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RAO needs to be amended.<br>(2) Omantel will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RAO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to determine the way in which costs and revenues have been allocated amongst various services to identify and assess cross subsidization and its effect on competition in downstream retail broadband markets. |

SOURCE: TRA

## Market 15: Wholesale trunk segments of leased lines

### (a) The risk of harm to competition and consumer welfare

Omantel and Nawras are jointly dominant in this market. The specific risks that arise as a result for competition and the consumer interest are:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale access to third parties on fair and reasonable terms in response to a request from other eligible service providers. Indeed they would have no commercial reason for doing so.
- Discrimination: If they were minded to provide access services to third party operators, Omantel and Nawras have the incentive and the opportunity to provide them in a way that favours their own retail operations. The discrimination could take the form of price and/or non-price discrimination, for example, of different price terms, different qualities of service, undue requirements that are not warranted by cost or other objective factors, and preference in all matters to their own retail operations.

- Anti-competitive price discrimination:  By differentiating prices in favour of own retail operations or applying a margin squeeze strategy to access seekers in order to foreclose or exclude an efficient competitor from competing against Omantel and Nawras.
- Excessive pricing: Omantel and Nawras are in a position to set excessive prices in order to maximize their profits and raise rivals' cost by increasing the costs of wholesale terminating segments of leased lines with detrimental effects for downstream competition and consequently to consumers' interests.
- Cross subsidization: Omantel and Nawras are in the commercially advantageous position of being able to shift their costs of wholesale service onto competitors, rather than to absorb those costs on an equivalent basis in their own retail operations.  Omantel and Nawras can therefore elect to take profits at the wholesale level and rather than at more competitive retail levels of the market.

### (b)Remedies and impact assessment

Figure 5.12 below identifies the proposed remedies that TRA considers are able to address the risk of harm to consumers and competition described above.

Figure 5.12: Risk of harm and proposed remedies for Market 15

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply the wholesale terminating sections of leased lines as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA.  The reference to currency of the document is important and the TRA will determine the circumstances under which a RAO needs to be amended.<br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RAO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to determine the way in which costs and revenues have been allocated amongst various services to identify and assess cross subsidization and its effect on competition in downstream retail broadband markets. |

SOURCE: TRA

## Market 16: Wholesale IP international bandwidth capacity

### (a)The risk of harm to competition and consumer welfare

Omantel and Nawras are jointly dominant in this market. That dominance gives rise to the following specific risks of harm:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale access to third parties on fair and reasonable terms in response to a request from other eligible service providers.
- Discrimination: The discrimination could take the form of price and/or non-price discrimination, for example, of different price terms, different qualities of service, undue requirements that are not warranted by cost or other objective factors, and preference in all matters to their own retail.
- Anti-competitive price discrimination: By differentiating prices in favour of their own retail operations or applying a margin squeeze strategy to access seekers in order to foreclose or exclude an efficient competitor from competing against Omantel and Nawras. This is possible because both Omantel and Nawras are vertically integrated operators.
- Excessive pricing: Omantel and Nawras are in a position to set excessive prices in order to maximize its profits and raise rivals' cost by increasing the costs of international capacity with detrimental effects for downstream competition and consequently to consumers' interests.
- Cross subsidization: Omantel and Nawras are in the commercially advantageous position of being able to shift their costs of wholesale service onto competitors, rather than to absorb those costs on an equivalent basis in their own retail operations. Omantel and Nawras can therefore elect to take profits at the wholesale level and rather than at more competitive retail levels of the market.

### (b)Remedies and impact assessment

Figure5.13 below identifies the proposed remedies that TRA considers are able to address the risk of harm to consumers and competition described above.

Figure 5.13: Risk of harm and proposed remedies for Market 16

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply the wholesale terminating sections of leased lines as determined by the TRA. |

| | | |
|---|---|---|
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RAO needs to be amended.<br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RAO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to determine the way in which costs and revenues have been allocated amongst various services to identify and assess cross subsidization and its effect on competition in downstream retail broadband markets. |

SOURCE: TRA

## Market 17: Wholesale voice call termination on individual mobile networks

### (a)The risk of harm to competition and consumer welfare

Omantel and Nawras are singly dominant in this market. In each case their mobile network is a separate market. The major risks from this dominance are:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale voice call termination to eligible service providers on a timely basis or on fair and reasonable terms and conditions in response to a request. Omantel and Nawras would have every commercial incentive not to do so.
- Undue discrimination: Omantel and Nawras might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular they might favour their own downstream retail operations. Indeed, they would have a strong commercial incentive for doing so. The discrimination could take the form of price and/or non-price discrimination. In this area above cost termination charges might be applied to traffic from other interconnected networks, compared to a cost basis for terminating their own traffic.
- Excessive pricing: Omantel and Nawras are likely to set excessive prices in order to maximize profit and raise rival’s cost by increasing the costs of wholesale voice call termination services with detrimental effects and cost increases for retail competitive services and, consequently, detrimental effects for consumers’ interests. Excessive pricing has benefits to both Omantel and Nawras. They would

receive the benefit of greater revenue and also would increase the cost to competitors.

- Cross subsidization: This would occur between wholesale and retail services, to gain advantage or limit downstream retail competition.

### (b)Remedies and impact assessment

Figure 5.14 below identifies the proposed remedies that TRA considers will be able to address the risk of harm to consumers and competition described above.

Figure 5.14:Risk of harm and proposed remedies for Market 17

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply wholesale voice call termination services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br><br>(2) Obligations of non-discrimination and transparency | (1) The Reference Interconnection Offer (RIO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RIO needs to be amended.<br><br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RIO. |
| Excessive pricing | Price control obligation based on LRIC | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. They will be based on LRIC. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 18: Wholesale access and call origination on public mobile telephone networks (MACO)

### (a)The risk of harm to competition and consumer welfare

Omantel Mobile and Nawras are jointly dominant in this market. The specific risks posed by dominance in this market are:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale mobile access and call origination services to eligible service providers on a timely basis or on fair and reasonable terms and conditions in response to a request. Omantel and Nawras would have every commercial incentive not to do so.
- Undue discrimination: Omantel and Nawras might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular they might favour their own downstream retail operations. Indeed, they would have a strong commercial incentive for doing so. The discrimination could take the form of price and/or non-price discrimination.
- Excessive pricing: Omantel and Nawras are likely to set excessive prices in order to maximize profit and raise rival's cost by increasing the costs of wholesale mobile access and call origination services with detrimental effects and cost increases for retail competitive services and, consequently, detrimental effects for consumers' interests. Excessive pricing has benefits to both Omantel and Nawras. They would receive the benefit of greater revenue and also would increase the cost to competitors.
- Cross subsidization: This would occur between wholesale and retail services, to gain advantage or limit downstream retail competition.

### (b)Remedies and impact assessment

Figure 5.15 below identifies the proposed remedies that TRA considers will be able to address the risk of harm to consumers and competition described above.

Figure 5.15:Risk of harm and proposed remedies for Market 18

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply specific wholesale access and call origination services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligation to negotiate access services in good faith<br>(3) Obligations of non-discrimination and transparency | (1) The Reference Access Offer (RAO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RIO needs to be amended.<br>(2) Omantel and Nawras each to negotiate mobile access and call origination services in good faith, on reasonable terms and conditions, and in a reasonable time as determined by the TRA;<br>(3) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication |

| | | |
|---|---|---|
| | | of a current RIO. |
| Excessive pricing | Price control obligation | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Market 20: Wholesale transit

### (a)The risk of harm to competition and consumer welfare

Omantel and Nawras are jointly dominant in this market. The major risks from this dominance are:

- Refusal to supply: Without ex ante regulation Omantel and Nawras would be unlikely to offer wholesale transit services to eligible service providers on a timely basis or on fair and reasonable terms and conditions in response to a request. Omantel and Nawras would have every commercial incentive not to do so.
- Undue discrimination: Omantel and Nawras might unduly discriminate between wholesale customers by providing better quality of service and terms and conditions to some rather than others. In particular they might favour their own downstream retail operations. Indeed, they would have a strong commercial incentive for doing so. The discrimination could take the form of price and/or non-price discrimination.
- Excessive pricing: Omantel and Nawras are likely to set excessive prices in order to maximize profit and raise rival's cost by increasing the costs of wholesale voice call termination services with detrimental effects and cost increases for retail competitive services and, consequently, detrimental effects for consumers' interests. Excessive pricing has benefits to both Omantel and Nawras. They would receive the benefit of greater revenue and also would increase the cost to competitors.
- Cross subsidization: This would occur between wholesale and retail services, to gain advantage or limit downstream retail competition.

### (b)Remedies and impact assessment

Figure 5.16 below identifies the proposed remedies that TRA considers will be able to address the risk of harm to consumers and competition described above.

Figure 5.16: Risk of harm and proposed remedies for Market 20

| Risk of harm | Proposed remedy | Assessment of remedy |
|---|---|---|

| | | |
|---|---|---|
| Refusal to supply | Obligation to Supply | Omantel and Nawras will be obliged to supply wholesale voice call termination services in this market as determined by the TRA. |
| Undue discrimination and transparency | (1) Obligation to publish a current Reference Interconnection Offer<br>(2) Obligations of non-discrimination and transparency | (1) The Reference Interconnection Offer (RIO) shall be in a form and content determined by the TRA. The reference to currency of the document is important and the TRA will determine the circumstances under which a RIO needs to be amended.<br>(2) Omantel and Nawras will be subject to overriding obligations of non-discrimination and transparency, quite apart from the specific contribution to these requirements from publication of a current RIO. |
| Excessive pricing | Price control obligation based on LRIC | TRA will set out in a separate but related document the price control arrangements that shall apply in this market. They will be based on LRIC. |
| Cross subsidisation/ Predation | Accounting Separation (AS) | AS will enable the TRA to monitor profitability at a market or service level and monitor for potential cross subsidisation. |

SOURCE: TRA

## Summary table of remedies

Summarised in the following table are the remedies that have been determined to be imposed on dominant operators in each of the Relevant Markets.

## Summary Table of Remedies for all Relevant Markets

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 1: Retail access to the public telephone network at a fixed location | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency.<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA.<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market |
| Market 2: Retail local, national voice call service | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency.<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA.<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 4: Retail broadband internet access from a fixed location | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be subject to obligations of non-discrimination and transparency. |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | • Omantel and Nawras each to be subject to a price control obligation in the manner determined by the TRA.<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 6: Retail mobile services market | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be subject to obligations of non-discrimination and transparency.<br>• Omantel and Nawras each to be subject to a price control obligations in the manner determined by the TRA.<br>• Omantel and Nawras each to be subject to accounting separation (AS) obligations in relation to all services in this market. |
| Market 7: Retail national leased line and business data services at a fixed location | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to price control based in the manner determined by the TRA; and<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 8: Retail international leased lines | Yes | Omantel | | • Omantel to be subject to obligations of non-discrimination and transparency; |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | • Omantel to be subject to price control in a manner determined by the TRA; and<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 10: Wholesale voice call origination on the public telephone network provided at a fixed location | Yes | Omantel | | • Omantel to be obliged to supply call origination services to all eligible licensees who request them;<br>• Omantel to be obliged to publish a current Reference Interconnection Offer in relation to the supply of wholesale call origination services in a form and with content approved by the TRA;<br>• Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation based on LRIC in a manner determined by the TRA; and<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 11: Wholesale voice call termination on individual public | Yes | Omantel Nawras | | • Omantel and Nawras to be obliged to supply call termination services to all eligible licensees who request them; |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| telephone networks provided at a fixed location | | | | • Omantel and Nawras to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale call termination services in a form and with content approved by the TRA;<br>• Omantel and Nawras to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras to be subject to price control based on LRIC in the manner determined by the TRA; and<br>• Omantel and Nawras to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 12: Wholesale network infrastructure access at a fixed location | Yes | Omantel | | • Omantel to be obliged to supply nominated facility access services to all eligible licensees who request them;<br>• Omantel to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale network access services in a form and with content approved by the TRA;<br>• Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation in the manner determined by the TRA from time to time; and<br>• Omantel to be subject to an accounting separation (AS) obligation in |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | relation to all services in this market. |
| Market 13: Wholesale broadband access at a fixed location | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale broadband access services and related facility access services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale broadband access services in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 14: Wholesale terminating segments of leased lines | Yes | Omantel | | • Omantel to be obliged to supply wholesale terminating segments of leased lines to all eligible licensees who request them;<br>• Omantel to be obliged to publish a current Reference Access Offer in relation to the supply of wholesale leased line terminating segments in a form and with content approved by the TRA; |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | • Omantel to be subject to obligations of non-discrimination and transparency;<br>• Omantel to be subject to a price control obligation  in the manner determined by the TRA; and<br>• Omantel to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 15: Wholesale trunk segments of leased lines | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale trunk segments of leased lines to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Access Offers in relation to the supply of wholesale trunk segments of leased lines in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and  transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in the manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 16: Wholesale IP | Yes | | Omantel | • Omantel and Nawras each to be obliged to supply wholesale IP |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| international bandwidth capacity | | | Nawras | international bandwidth capacity services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Access Offers in relation to the supply of wholesale IP international bandwidth capacity services in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation in a manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 17: Wholesale voice call termination on individual mobile networks | Yes | Omantel<br>Nawras | | • Omantel and Nawras each to be obliged to supply call termination services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale call termination services in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligations |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| | | | | based on LRIC in a manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |
| Market 18: Wholesale access and call origination on public mobile telephone networks | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale mobile access and call termination services to all eligible licensees who request them;<br>• Omantel and Nawras each each to negotiate mobile access and call origination in good faith, on reasonable terms and conditions and in a reasonable time as determined by the TRA;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale mobile access and call termination in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to a price control obligation based on LRIC cost in a manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |

| Market | Susceptible to ex ante dominance regulation | Singly Dominant | Jointly Dominant | Remedies |
|---|---|---|---|---|
| Market 20: Wholesale transit | Yes | | Omantel<br>Nawras | • Omantel and Nawras each to be obliged to supply wholesale transit services to all eligible licensees who request them;<br>• Omantel and Nawras each to be obliged to publish current Reference Interconnection Offers in relation to the supply of wholesale transit services in a form and with content approved by the TRA;<br>• Omantel and Nawras each to be subject to obligations of non-discrimination and transparency;<br>• Omantel and Nawras each to be subject to price control obligation based on LRIC in a manner determined by the TRA; and<br>• Omantel and Nawras each to be subject to an accounting separation (AS) obligation in relation to all services in this market. |

# Attachment A: Criteria for Single Dominance in a Telecommunications Market

A.1 Market share

A.2 Overall size of the undertaking

A.3 Control of infrastructure not easily duplicated

A.4 Network effects

A.5 Technological advantages and superiority

A.6 Absence of or low countervailing buying power

A.7 Easy or privileged access to capital markets / financial resources

A.8 Product / services diversification

A.9 Economies of scale

A.10 Economies of scope

A.11 Vertical integration

A.12 A highly developed distribution and sales network

A.13 Absence of potential competition

A.14 Barriers to expansion

A.15 Ease of market entry

A.16 Excess pricing and profitability

A.17 Lack of active competition on non-price factors

A.18 Switching barriers

A.19 Customers ability to access and use information

# Attachment B: Criteria for Joint Dominance in a Telecommunications Market

B.1 Market concentration

B.2 Transparency

B.3 Mature market

B.4 Stagnant or moderate growth on the demand side

B.5 Low elasticity of demand

B.6 Homogenous product

B.7 Similar cost structure

B.8 Similar market share

B.9 Lack of technical innovation, mature technology

B.10 Absence of excess capacity

B.11 High barriers to entry

B.12 Lack of countervailing buying power

B.13 Lack of potential competition

B.14 Various kinds of informal and other links between the undertakings concerned

B.15 Retaliatory mechanisms

B.16 Lack of or reduced scope for price competition