M1'S RESPONSE TO IDA'S CONSULTATION PAPER ON PROPOSED POLICY APPROACH TO 3G INFRASTRUCTURE SHARING IN SINGAPORE

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INTRODUCTION

1   The interest in 3G infrastructure sharing is driven by the apparent advantages of easing the financial burden on operators and expediting the rollout of 3G networks to meet regulatory obligations. This paper examines the relevance of these considerations in the Singapore context and weighs the short term advantages against potential long term drawbacks in terms of its impact on the level of competition in the market.

3G INFRASTRUCTURE SHARING OPTIONS

2   There are various options for sharing 3G infrastructure. The forms of 3G infrastructure sharing commonly suggested range from the simplest form of sharing of space on masts and associated building/sites to the complex form of end-to-end network sharing, which involves the sharing of radio access network (RAN) and other core network elements like mobile switching centre and serving GPRS support node. Infrastructure sharing could also take the form of a Mobile Virtual Network Operator (MVNO) in the 3G network. M1's views on this option are raised in a previous response to IDA's consultation paper on proposed regulatory approach for 3G MVNOs[1]. Another form of infrastructure sharing involves national roaming, whereby operators may build out networks in distinct geographic areas and roam onto other operators' networks in areas where they have no coverage.

LIMITED SCOPE FOR COST SAVING IN SINGAPORE'S CONTEXT

3   Singapore is a small island-country of only about 660 square kilometres with a total population of 4.1 million[2]. Such high population density and a pervasive urban landscape place Singapore in a different position from other countries, in terms of deployment of 3G services. The coverage to be provided for in Singapore is basically small and concentrated. This is unlike countries where infrastructure sharing is being actively pursued, such as Germany and Sweden, which have large land areas and rural populations to consider. As highlighted in IDA's consultation paper, the geographic size of Singapore would mean limited economies of scale for infrastructure sharing.

4   The 3G spectrum rights in Singapore were awarded at the reserve price of S$100 million each. While not an insignificant sum, operators in Singapore are not

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[1] Consultation document issued by IDA on 27 April 2001
[2] Monthly Digest of Statistics, Nov 01 by Singapore Department of Statistics: Total population comprises all citizens and permanent residents with local residence and foreigners staying in Singapore for 1 year or more

burdened by high 3G licence fees to the same degree as certain European markets which saw aggressive bidding at 3G spectrum auctions. Furthermore, as incumbent 2G operators, we will benefit from a cost advantage in 3G network rollout by leveraging on existing network infrastructure. Thus, operators in Singapore do not face the same financing considerations as operators in some other markets.

5   Any benefit of cost savings through infrastructure sharing is likely to be limited to the short-term. This is especially so in the cases of RAN sharing and end-to-end network sharing. As the adoption of services picks up and the network becomes capacity-limited, operators would have to split cells in order to relieve congestion. With additional investments incurred, savings on the cumulative capital expenditure will drop sharply. Therefore, once the shared network reaches capacity limits, operators would not be able to share effectively. Moreover, regulatory obligations in Singapore require 3G licensees to achieve nation-wide rollout by end 2004. Therefore, in time, the incentives to run a shared network would be reduced.

FEASIBILITY OF INFRASTRUCTURE SHARING

6   The path to successfully implement 3G infrastructure sharing is a challenging one. When operators enter into a shared infrastructure network agreement, it increases both technical and commercial complexities. Even though the German regulator allowed operators to build portions of their 3G networks together, MobilCom recently announced[3] that it would not co-operate in building out the first phase of its 3G network, stating that technical issues made working with other operators difficult. Instead, MobilCom intends to invest E1.5 billion in its own rollout by end of 2003. This decision shows that the option of sharing 3G infrastructure may not necessarily be worthwhile or easy to put in place.

7   The degree of complexity would depend on the form of infrastructure sharing. There would be more difficulties associated with infrastructure sharing in the form of RAN sharing and end-to-end network sharing, as technical complexities arise from operators having differing technical requirements and needs. This is especially true in a situation where the operators are using equipment from different vendors and an enormous amount of time would be required to conduct multi-vendor interoperability testing. Even if the same 3G vendor is used, incumbent operators have legacy 2G and 2.5G networks that were designed using different cell grids and network planning assumptions. Considerable optimisation effort would be needed to ensure seamless hand-over between the shared 3G network and different 2G / 2.5G networks.

8   Another area of difficulty in infrastructure sharing would be in terms of commercial and corporate strategy. Although difficult to quantify, one can expect that it would become more difficult to co-operate as the level of

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[3] Europemedia.net; "MobilCom to go it alone with first phase of 3G network" published 25-Jan 02

infrastructure sharing increases. In order to enter into an agreement, lengthy and complex negotiations would be expected. The terms of such an agreement would have to address questions of growth, capacity limitations, and coverage and such issues could be extremely difficult to determine in initial stages due to as yet uncertain nature of the 3G market. Furthermore, processes concerning issues such as upgrading, ownership, reliability and maintenance of the shared equipment must also be carefully documented in the shared network agreement in order to avoid difficult operational and accountability issues later. Another challenge would be how to put in place appropriate exit arrangements since the concerned operators would have invested jointly in the infrastructure. Likewise, for national roaming, difficult negotiations would take place, as operators tackle issues such as segmentation of coverage areas. The complications of arriving at a mutually beneficial infrastructure sharing arrangement could have the reverse effect of delaying network rollout, rather than expediting it.

9   With the simpler form of infrastructure sharing through site sharing, the degree of complexities is correspondingly decreased. Site sharing is already a common practice in the industry and the process for this is well-established. IDA should continue to encourage such infrastructure sharing approach whereby each licensee builds or leases on commercial terms, the use of infrastructure it requires, while sharing infrastructure in areas where there are access and operating constraints.

OTHER FACTORS AFFECTING THE TIMEFRAME FOR 3G SERVICE LAUNCH

10   One of the key concerns faced by 3G operators world-wide is the availability of 3G terminals in commercial quantity and at acceptable prices and capabilities. According to a report by Financial Times[4], MMO2 and Vodafone, 3G mobile service operators in UK, have attributed the delay of 3G services to the shortage of handsets. In Belgium, operators are also facing the difficulties of launching 3G services due to lack of compatible equipment[5]. Sonera was reported to have opened its 3G mobile phone network in four urban centres in Finland, but commercial services would start only when 3G handsets are available to consumers[6]. In Japan, NTT DoCoMo, which had already commercially launched 3G services in Tokyo and other urban centres in Japan, had to recall and halt sales of 3G handsets in November 2001, due to software glitches found in the handsets[7]. The experiences of these 3G operators highlight the difficulties of deploying 3G services, at a time when 3G handset manufacturers are not fully ready to support such services.

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[4] Financial Times; "Handset shortage delays MMO2's 3G service" published 4-Dec 01
[5] 3G Newsroom.com; "Operators asks the Belgian Government to delay launch date" published 28-Jan 02
[6] Financial Times; "Sonera opens 3G mobile network" published 2-Jan 02
[7] CNET.com; "DoCoMo issues recall of new videophone" published 26-Nov 01

11   A further factor affecting the timeframe of 3G service launch is market readiness, in terms of available applications and services to be delivered over 3G and in terms of consumer adoption trends. Understanding this importance, M1 is actively investing in research and development capabilities with such initiatives as Wireless Intellect Lab, a research centre jointly established with EdgeMatrix. In addition, M1 has established FutureLab in partnership with Nokia to develop and showcase 3G applications. M1 has also launched M1 Application Developers Community (ADC), to support wireless applications developers in their development efforts by facilitating the testing of innovative wireless 2.5 and 3G applications on M1's test network. M1 believes that such initiatives play an important role in encouraging 3G market readiness in Singapore.

12   M1 sees 3G as representing an evolution from today's services by providing more bandwidth and higher speeds. The market for 3G services is not separate and distinct from that of 2G and 2.5G, but an expansion and extension of it. The adoption of services based on 2.5G technologies, such as GPRS, therefore serves to pave the way for 3G. From the consumer perspective, the market is still at the early adoption stage of 2.5G services, as GPRS was only commercially launched last year. Where the market is on the S-curve of service adoption will be a significant factor in deciding on the timeframe to launch 3G.

COMPETITION ISSUES

13   Supporters of 3G infrastructure sharing claim that the high barriers to entry for the 3G market in terms of high network capital expenses and scarce spectrum resource limit competition. Therefore, they view 3G infrastructure sharing as one possible solution to the problem since it could lower the upfront investment costs for new entrants and allow more 3G players into the market. While this may be true in some markets, the 3G competition environment in Singapore is different.

14   We have already highlighted the limited scope for cost saving through network sharing in the Singapore context. As for scarce spectrum resource, in Singapore, there is still a fourth 3G licence available. When IDA allowed the supply and demand mechanism of the market to determine whether there should be an increase in the level of competition, through the 3G auction, there were no takers for the fourth licence. This is an indication that the level of competition is sustainable with three operators. With the moratorium period on the allocation of the fourth 3G licence expiring in a few months' time, additional competition could potentially be introduced, should there be a taker for the licence.

15   On the other hand, there is a risk that allowing 3G infrastructure sharing could in fact lead to a more anti-competitive environment. First of all, with infrastructure sharing, the market share of both operators could be combined into a significant segment. If this leads to the formation of a dominant position in the market,

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there may be less incentive for the operators to pass on costs savings through infrastructure sharing to customers.

16   If not carefully monitored, consumers could be the ones that are at the losing end in a 3G infrastructure sharing environment. In addition to the risk of market dominance, if infrastructure sharing is in the form of RAN sharing or end-to-end network sharing, a lower degree of service differentiation can be expected between operators involved in the sharing. Operators might not be able to launch 3G services as and when they want to because it would have implications on the capacity used on the shared network and on how the other operator's users are affected. In other words, flexibility in introducing innovative services could be restricted, thus leading to uniform product offerings.

17   Price competition also becomes more difficult since the bulk of 3G costs would be related to network costs. This cost would set the same base price that can be offered to consumers, unless the operators are willing to incur losses in order to compete with lower prices. Another level of competition that could be reduced is that of quality of service differentiation between operators since operators would be offering services through the same network.

18   While there are no doubt still many other ways that operators can compete (for example, through customer service, branding), and there are other factors preventing anti-competitive conduct, infrastructure sharing has the inherent risk of dampening the ability to compete. As such, any policy to allow 3G infrastructure sharing will need to be accompanied by a clear and effective regulatory framework to mitigate any such anti-competitive outcome and ensure consumers do not lose out.

CONCLUSION

19   While there may be benefits in pursuing shared 3G network strategies, when taken into the Singapore context, these drivers seem to be less pertinent and convincing. Due to the uniqueness of Singapore's 3G market and the 3G licence costs and corresponding regulatory conditions, there are significantly less push factors for operators here to enter into 3G infrastructure sharing as compared to European operators. Furthermore, any potential benefit in terms of cost savings appears to be temporary and also needs to be weighed against possible anti-competitive effects. The key considerations for the timing of 3G service launch are therefore availability of handsets, and market readiness in terms of compelling services and consumer adoption trends, rather than concerns regarding network infrastructure rollout.