

**PROPOSED POLICY APPROACH TO 3G INFRASTRUCTURE SHARING
IN SINGAPORE**

A Consultation Document

3 December 2001

1 INTRODUCTION

- 1.1 Singapore awarded three third generation (3G) spectrum rights, and associated 3G facilities-based operator (FBO) licences, in April 2001¹. The Info-communications Development Authority of Singapore (IDA) welcomes the further development of the mobile communications market. IDA hopes this will help spur the rapid deployment of advance and leading-edge infrastructure as well as the proliferation of new, innovative and quality services to consumers and businesses. Of particular interest to IDA will be the deployment of broadband-capacity mobile communications infrastructure that will facilitate the rollout of 3G services, content and applications.
- 1.2 As with other facilities-based operations, IDA will continue to adopt a technology neutral approach in relation to 3G networks. The technology platform adopted by the 3G licensees, and the configuration of the system(s) deployed will be left to the choice of the licensee. This will give operators maximum flexibility building and implementing their networks and ensure that they will continue to innovate and respond competitively to the requirements of end- users and help Singapore position itself as a key info-communications hub.
- 1.3 There has been significant interest and activity in 3G infrastructure sharing, particularly in Europe, from operators seeking to alleviate some of their financial burdens, and to attempt early deployment to expedite their earlier deployment to meet licensing and regulatory requirements. The market trend and development in other countries warrants a review in Singapore of its policy approach to the issue of 3G infrastructure sharing.
- 1.4 IDA's policy objective² in this review will be to facilitate the early and rapid deployment of 3G networks and services in Singapore so that service

¹ For details, please visit the "Singapore Spectrum Auctions" section on the IDA website, www.ida.gov.sg. A fourth 3G spectrum right will be made available from April 2002.

² IDA's overall policy objectives are to promote the development of the info-communications industry in Singapore, to protect the interest of consumers and to maximise benefits to the economy as a whole. In IDA's regulatory approach is to create a competitive telecommunication market environment and to rely on market forces where appropriate to achieve its policy objectives, as these are generally more effective in fostering competition and safeguarding consumer welfare.

providers can offer an entire suite of competitively priced and innovative broadband value-added services to business and residential consumers.

- 1.5 IDA notes that the deployment and rollout of 3G networks and services in Singapore is still in the planning stage. There are numerous uncertainties with regard to the development of 3G market, in particular, problems of equipment, network performance issues and business models in the 3G operating environment, where the nature of the traffic will likely be different from the current voice-centric 2G market, with more emphasis on data-intensive services and applications, and with more personalised and location-centric nature of services and applications. Together with the overall poor economic environment, locally and globally, there is a need to assess if infrastructure sharing could help our 3G licensees deploy earlier. This is notwithstanding that each 3G licensee will be required to operate its own 3G system in the longer term.
- 1.6 This document seeks the views and comments of the industry and members of the public on the issues associated with the deployment of 3G and suggestions on how these issues can best be addressed, and by when. This document, in particular, seeks views and comments on the role of 3G infrastructure sharing, the need for, or otherwise, for 3G infrastructure sharing to address deployment issues and concerns. If there is a need, this document seeks views and comments on the appropriate extent, nature and scope of the sharing that would not adversely impact the competitive development of the market. Specifically, IDA is seeking submissions on the following matters:
- Is the deployment of 3G facing delays due to unforeseen difficulties, including the availability of funding and technology?
 - Would infrastructure sharing alleviate these difficulties?
 - How and when should infrastructure sharing be implemented?
 - If implemented, how and when should infrastructure sharing be reviewed, and stopped?

2. WHAT IS 3G INFRASTRUCTURE SHARING?

3G Infrastructure Sharing

- 2.1 3G infrastructure sharing in Europe is simply two or more operators coming together to share various parts of their network infrastructure for purposes of service provisioning. These can take numerous forms, ranging from the simplest form of sharing of space on masts and in associated buildings/sites and typically results in two or more physically separate networks; to geographic division of a market³; to an arrangement whereby separate 3G licensees share a single network, which could be run by a separate entity on behalf of the licensees, in essence, one network supporting the rest who are effectively Mobile Virtual Network Operators (MVNOs)⁴.

IDA's Current Infrastructure Sharing Approach

- 2.2 IDA's infrastructure sharing approach is guided by our primary policy goal of encouraging facilities-based competition. Our regulatory environment is one where licensees are generally not required to share any infrastructure that it controls with its competitors. Each licensee is expected to build or lease the use of the infrastructure it requires. Notwithstanding this however, infrastructure sharing is mandated in areas where there are clear space and operating constraints. For 2G and 3G licensees, such matters relate to infrastructure in the Mass Rapid Transit and underground road tunnels⁵. IDA has also allowed co-location of base stations and sharing of transmission towers and masts to reduce environmental impact and inconvenience to building owners and residents.

³ For example, in a country with several regions/states/counties, it may be agreed for operator A to cover region C, and operator B to cover region D, on the understanding that operator A's network will allow operator B's users onto its network in region C. Similarly, operator B would allow operator A's customers onto its network in region D. Another example might be for operators to carve up rural areas while rolling out separate networks in core areas. These variants would amount to a form of "national roaming" (an in effect is an agreement to divide up the country's market between two or more operators).

⁴ An MVNO is term used to describe to a mobile phone service provider who is not allocated frequency spectrum but relies on access to parts of the network of a mobile network operator to offer services to consumers.

⁵ Section 22 of the Telecommunications Act 1999 allows IDA to "direct any telecommunication licensee to coordinate and cooperate in such manner and on such terms as the Authority may specify, with any other person, in the use or sharing of any installation, plant or system, or part thereof, used for telecommunications".

3G Infrastructure Sharing Developments in Europe

- 2.3 The European 3G auctions have been characterised by what the market has now perceived to be excessive over-bidding. This has resulted in successful 3G bidders being faced with severe financial difficulties, in addition to having to raise additional capital outlay to fulfil their licence network rollout obligations and develop service offerings. With pressure to roll out their networks as quickly as possible to recoup their heavy outlays for the 3G licences, as well as having to meet regulatory mandates in terms of deadlines for rollout and coverage in a bad global economy, a number of debt-ridden telecommunication companies hope that infrastructure sharing would help jump-start the 3G market and allow them to offer 3G services earlier.
- 2.4 European regulators appear to be divided on whether their 3G licensees should be permitted to share the rollout of their 3G infrastructure networks. Some regulators are prepared to allow the sharing of sites, antennae and base stations under certain conditions are allowed; others support infrastructure sharing only if consumers benefit. However, yet other regulators are concerned over the potential of network sharing restricting competition in the market. This is in view that in a market with a few operators⁶, infrastructure sharing would raise more competition concerns than if there were more operators.
- 2.5 Singapore's 3G auction did not experience over-bidding, with only three out of the four 3G licences put up for auction awarded at the reserve price of S\$100 million to the three incumbent 2G mobile phone operators last April. However, in light of the developments in Europe and the economic slowdown which could potentially delay the rollout of 3G networks and services, IDA is now assessing the issues arising for Singapore if 3G infrastructure initiatives similar to that being explored in Europe are proposed.

⁶ The number of 3G licences awarded has been limited given the spectrum constraint.

3 CONSIDERATIONS ARISING

Incumbency and Small Geographical Size of Singapore

- 3.1 It may be argued that the main beneficiaries of 3G infrastructure sharing arrangements would be new entrants with no existing networks; or operators deploying networks in markets with low population density. In the Singapore context, the 3G licensees are also incumbents with existing 2G networks that can be leveraged upon. Further, with our high population density and city-state urban geography, there appears to be less economies of scale, unlike larger geographic sized countries.

Benefits of 3G Infrastructure Sharing

- 3.2 While our 3G licensees are unlikely to look to infrastructure sharing as a means to alleviate financial burdens, infrastructure sharing could be a means to ensure faster rollout of 3G networks and services. Given the current economic downturn, 3G operators in Singapore may wish to consider some form of infrastructure sharing now to manage costs while rolling out their own full networks later. There may however be competition concerns arising if infrastructure sharing were to limit consumer choice should infrastructure sharing result in one single network. It is unclear if sharing amongst competitors could result in operators losing their ability to differentiate their services; for example, the larger the extent of sharing, it may be that each licensee could have less control over quality of service (QoS).

- Would infrastructure sharing actually lead to faster and better 3G services?

Type of Infrastructure Sharing, and Scale-Down, Subsequently

- 3.3 Should infrastructure sharing take place, IDA would like to understand the type, nature and extent of infrastructure sharing that may be considered in this regard and why they would be helpful to the licensees.
- 3.4 If there is infrastructure sharing, given that infrastructure sharing is intended to be an interim and transitory measure to help facilitate rapid 3G network rollout and services deployment before each 3G licensee rolls out its own full 3G network, there will then need to be plans and commitments from

licensees to scale back their infrastructure sharing in accordance, including monitoring of status and enforcement for failure to meet the schedule.

4 INVITATION OF COMMENTS

4.1 IDA seeks views and comments on:

- (a) Is the deployment of 3G facing delays due to unforeseen difficulties, including the availability of funding and technology? Would infrastructure sharing alleviate these difficulties?;
- (b) What are the potential and benefits arising from 3G infrastructure sharing that would accrue to our telecommunication industry as a whole and to consumers? Would infrastructure sharing actually lead to faster and better 3G services? How would infrastructure sharing lead to faster and better 3G services?;
- (c) What would be the appropriate type, nature and extent, and timing and duration, of infrastructure sharing? Please provide your reasons and rationale for this;
- (d) Would any potential competition concerns arise with infrastructure sharing? If so, how should such competition concerns be addressed to ensure that there is no adverse impact to consumers benefits in terms of choice of service provider, access and availability of services as well as the range and quality of services and pricing?; and
- (e) What are the monitoring, and enforcement, issues that may arise on the extent of infrastructure sharing to be established and their scale-back? What would be appropriate monitoring criteria to ensure that infrastructure sharing takes place in accordance to an approved framework? How should scale-down of the infrastructure sharing be monitored?

- 4.2 In summary, IDA would like to seek the views and comments of industry and the members of the public so as to have a better understanding of the different needs and requirements from the various interested parties. This will help us assess, from a public interest perspective, the most appropriate policy approach for 3G infrastructure sharing. A key deliverable of this consultation exercise is to formulate a coherent policy approach to help us assess and determine who, and when, and for how long, to allow infrastructure sharing and the objective criteria to help in the assessment, and monitoring, of infrastructure sharing amongst licensees.
- 4.3 Respondents are also invited to comment on any other issues not covered herein that they consider of relevance in this review.
- 4.4 IDA will consider inputs submitted and make its policy decision thereafter. IDA will target to announce its policy decision by the second quarter of 2002.
- 4.5 All views and comments should be submitted in writing and in both hard and soft copy (Microsoft Word 97 format), and should reach the IDA on or before 12.00 noon, 1 February 2002. Respondents are required to include their personal/company particulars as well as the correspondence address in their submissions to the 3G Infrastructure Sharing Consultation Paper. Comments and views should be addressed to:

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- 4.6 IDA reserves the right to make public all or parts of any written submissions made in response to the 3G Infrastructure Sharing Consultation Paper and to

disclose the identity of the source. Any part of the submission which is considered commercially confidential should be clearly marked and placed as an annex to the comments and views raised. IDA will take this into account when disclosing the information submitted.