

**WORKSHOP ON LICENSING OF THIRD-
GENERATION MOBILE****CHAIRMAN'S REPORT**

1. At the invitation of the ITU Secretary-General, a workshop was held in Geneva from 19-20 September 2001, to discuss the licensing of third generation (3G) mobile systems (i.e., IMT-2000) and its implications for ITU Member States and Sector Members. The Strategy and Policy Unit (SPU) organized the Workshop; the fifth in the series under the Secretary-General's "New Initiatives" programme. Some 60 experts participated in the meeting, representing a range of regulatory and policy-making agencies, Public Telecommunication Operators, manufacturers, academic institutes and others. Those present at the meeting participated in an individual capacity. Dr. Chris Doyle, Associate Fellow, University of Warwick, UK, and Vice-President, Charles River Associates, chaired the meeting.
2. A background issues document, including a suggested list of questions for discussion, had been prepared by Dr. Patrick Xavier (Australia) and the ITU secretariat. In addition, a number of country case studies had been commissioned, covering China and Hongkong SAR, Chile and Venezuela, Ghana, Japan and Sweden.¹ These were presented, along with the experiences of other countries and regions, notably by regulators from Cameroon, France, Norway, Singapore, Switzerland, Uganda and the European Union. A number of operators and manufacturers made presentations, including Motorola, NTT DoCoMo, Orange and Sense Communications. There were also presentations from the GSM Association, INTUG, the UMTS Forum and the consultancy, Ovum. This was the first ITU meeting on the regulatory aspects of this important topic and it was agreed that the information provided and the discussion generated were extremely useful, especially to those currently involved in drafting national policies for future 3G licensing.
3. The allocation of spectrum for mobile telephony purposes raises many important economic issues. Spectrum, which is a scarce, finite and valuable resource, should be allocated in a way that achieves maximum efficiency. This poses a **design** problem—what is the best way to design an allocation process to achieve maximum efficiency? In general, the solution to this problem is compatible with the promotion of competitive environments. Of course, competition can be stimulated and promoted in many different ways. The ultimate goal is to maximize consumer welfare, both today and in the future.
4. Governments, in consultation with industry and user groups, play a key role in shaping competition in mobile telephony markets. Policy-makers determine, subject to technical and frequency constraints, the **number of licences** to be issued and their duration. When determining how many 3G licences to issue, the current market environment, expectations about future demand for services, and supply side considerations are critical inputs. In many countries the amount of spectrum available for IMT-2000 services should allow for between 4 and 6 new 3G mobile telephony licences. In many high-income economies there will often be several 2G mobile telephony operators (usually 3 or 4, but in the Netherlands and Hongkong SAR, 5 and 6 respectively). Because of the high number of 2G operators already existing in most high-income economies, the first round of 3G licensing may not extend competition in a significant way.
5. Nevertheless, what some call the "**n+1**" **model** has been deployed in many high-income countries—that is, the number of 3G licences issued equals the number of existing 2G licences plus 1. The n+1 model extends competition by facilitating new entry. There have been some exceptions to the n+1 model—in the Netherlands the number of 3G licences was set equal to the number of 2G licences, and in Germany the regulator designed an award process that allowed the market to choose the number of 3G operators (lying

¹ All of the meeting documents, including presentations, are available on the ITU website at: <<http://www.itu.int/3G>>.

between 4 and 6 inclusive), and in Hongkong SAR, the policy-maker chose “n-2”. In low and middle-income countries where mobile telephony services may have more recently been introduced, or where there may be fewer than three operators, 3G spectrum affords an opportunity to promote more effective competition. In addition, in these countries mobile telephony is often more important in relation to wider economic development objectives. In choosing how many 3G licences to issue in middle to low income countries, broader development objectives will play a more important role. In some cases it may be inappropriate to choose n+1 licences. Carefully balancing expectations about future demand and supply-side factors will be the key determinants affecting the choice over the number of licences to issue.

6. Once an authority has decided on the number of 3G licences to issue, this poses a **selection** problem. How should the licences be awarded? Should an auction mechanism be used, and if so, how should it be designed? Should a comparative selection process or “beauty contest” be used? Alternatively, should a “hybrid” mechanism, combining elements of an auction and a comparative selection process be used? In practice, most auctions have required bidders to satisfy minimal criteria and therefore have been hybrid in nature. **Transparency, speed, certainty and objectivity** are important properties for whatever selection process is adopted. For credibility reasons, license award processes should be transparent and open to full public scrutiny. This is why objectivity and stability in the licensing process are essential, in order to ensure that regulatory risk is minimized. The fast-moving world of telecoms also means that award processes should be designed to happen as quickly as is feasible.

7. A **beauty contest** approach puts a much greater burden on policy-makers than an auction, as it requires them to decide upon a complex scoring system to discriminate between bidders. Some factors can be quantified (e.g., number of base stations, timetable for roll-out, coverage, pricing structure), but other factors are more difficult to assess. However, where policy-makers have wider social concerns, such as achieving universal service, a beauty contest approach is one way to address these concerns in the scoring system. Because operators and those seeking licences are usually better informed about market conditions than policy-makers, some observers believe that a beauty contest introduces a higher risk of error. The risk can be reduced by converting promises made in business plans into licensing commitments, as has happened in France. This requires credible enforcement measures. One of the other constraints in holding a beauty contest is that the administration may require commercially sensitive information to make an informed licensing decision. While this information reduces the risk of error, confidentiality may compromise transparency objectives and lead to a perceived lack of accountability.

8. An **auction** approach can be designed in many different ways in order to achieve specific policy goals. It offers a more market-oriented, objective and transparent method for awarding licences, but raises other challenges for policy-makers, particularly in achieving efficient design and timing. Where auctions have been used, outcomes have varied widely, reflecting changing market conditions and the chosen auction design. When designing auctions, policy-makers should seek to achieve efficient resource allocation rather than primarily aiming to raise surplus government revenue.

9. Whatever selection method is adopted, the **pricing of licences**, and the use of funds raised, needs to be addressed. In the context of an auction, policy-makers need to determine an appropriate reserve price, but the eventual fees to be paid will be set by the bidding process. The timing of payments is an important matter; in particular, the balance between up-front payments and deferred payments needs to be assessed carefully. Some economies, such as Hongkong SAR, have applied variable royalty payments rather than fixed licence fees. This may be more suitable in the light of changing market conditions. Governments may want to consider using a proportion of monies raised from licence awards to benefit the sector, for instance to assist with spectrum clearance, or to help bridge the digital divide.

10. Participants in the workshop were highly conscious of the **effects of adverse market conditions** in the commercial and financial environment for 3G mobile. Market change is evident in declining stock markets since March 2000, and uncertainty has increased in the aftermath of the attack which had taken place in the United States of America in the week preceding the workshop. The effects of market turbulence are clearly seen in the falling share prices of 3G mobile manufacturers and network operators, the consequent difficulties experienced in raising funds for investment, lower bidding prices at auctions and reduced participation in auctions. One consequence of market change is that the debt burden taken on by many bidders for licences is now much more onerous due to lower revenue projections. A further

consequence is that market change is driving the industry towards consolidation, which, in several cases such as that of Switzerland, had led to a reduction in the number of bidders for licences or, as in Norway, the license was revoked. Countries that had followed a longer licensing process have proved more vulnerable to the effects of market change, as illustrated in the case of France where there were only two eventual bidders for four licences. In other countries, licensing had been delayed.

11. One of the effects of the changing market conditions has been an increased attention to **licensing obligations** and their implications for the **post-licensing environment**. Many countries have set specific obligations for coverage of a certain percentage of the territory, or population, by a certain date. These obligations are often backed up by sanctions. In France, for instance, these are expressed as penalties for non-compliance ranging between two and five per cent of annual turnover. Difficulties in raising finance for network deployment, together with delays in the availability of equipment and handsets or environmental health concerns, may mean that network deployment is slower than anticipated. There is a concern that easing the obligations *after* the licensing process could penalize some bidders and may lead to legal challenges. It therefore becomes all the more important, for market stability, for policy-makers to set clear licensing conditions, especially relating to such issues as network sharing and roaming agreements. In Sweden, for instance, the licensing conditions set out specific provisions for network sharing, and the problem of providing coverage in rural areas. Other post-licensing issues include market consolidation, dispute settlement and sanctions.

12. As content and information services will be critical in the development of 3G, an array of new players will enter the market. In some cases, this will lead to demands for access to network infrastructure. If commercial negotiations fail, or are expected to fail, it may be necessary to mandate access to enhanced service providers, such as **mobile virtual network operators**. This is the case in Hongkong SAR. If they follow this route, policy-makers need to be clear about what they are trying to achieve, such as increased diversity of content-based services or a more competitive marketplace. Given the innovative nature of 3G and the current lack of market certainty, regulatory forbearance is advisable, providing that competition law offers sufficient safeguards.

13. Views expressed on the issue of **roaming** prices varied considerably. In order to ensure success for 3G, it will be essential to ensure seamless and affordable international roaming, as well as roaming between 2G and 3G during the transition phase. For example, high roaming prices for 2G services in Europe are currently subject to a European Commission inquiry (covering the period 1997-2000), for both wholesale and retail roaming. It is argued, by INTUG and others, that roaming prices bear little relation to actual underlying costs. One possible way forward is to stimulate more price competition. This may be achieved by promoting greater price transparency and simplified tariffs, introducing pre-paid roaming, or encouraging substitutability between services.

14. For all ITU Member States, but especially developing ones, **affordability** of services is an important issue. Low prices have been one of the main reasons for the rapid take-up of services like NTT DoCoMo's i-Mode and are perceived to be a critical factor in promoting adoption of future 3G services. There are concerns that high prices paid for licences will be reflected in higher prices for consumers. Where global operators have licences in countries where licences fees are radically different, there is a danger that operations in low-fee environments will be used to cross-subsidise operations in high-fee environments. However, regulatory safeguards should be sufficient to prevent this from happening. Concerns were also raised that high licence fees in some developed countries may constrain the ability of operators to invest in developing countries.

15. For those countries that have still to license 3G mobile, the issue of **timing** is critical. Changed market conditions, together with technological uncertainties, may suggest that the licensing process should be delayed. However, delays in awarding 3G licences may only serve to widen the existing digital divide. Individual countries should base their decisions on local circumstances, including demand for high bandwidth data services, the competitive environment, and the cost and availability of 3G technologies. In some countries, introducing 3G may have a lower priority than extending existing network infrastructures, at the present time. Nevertheless, 3G technologies offer much greater efficiency in the use of spectrum, which is helpful as existing 2G networks become overloaded. 3G services also offer much greater capabilities for handling data and messaging, and for stimulating greater access to the Internet, all of which

are just as important in developing countries as developed ones. For these reasons, the awarding of 3G licences should not be indefinitely postponed.

16. A possible new **role of the ITU** was discussed that goes beyond the traditional areas of radio spectrum harmonization and technical standardization, covered by the IMT-2000 project. An important need will arise to assist Member States in the migration from 2G to 3G, for instance, in helping to design the procedures for awarding licences or in providing training programmes for regulators. In developing regions of the world, where national market potential is constrained, for instance by small populations or a low level of economic development, there may be a role for the ITU to help Member States co-ordinate the introduction of 3G (IMT-2000) on a regional basis. This may help manufacturers and operators to realize economies of scale and offer lower prices to consumers.