

3G Licensing in Hong Kong: A Unique Approach

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[Abstract] The auction of 3G licenses in Europe has raised tremendous controversies. However, it is not the auction itself that should be blamed because commercialisation of spectrum might be the only solution to manage this increasingly scarce resource. What matters is the scheme of commercialisation. By taking the late-mover advantage, Hong Kong took an effective and unique approach in issuing its 3G licenses.

On 19 September 2001, four 3G licenses were finally issued by the Office of Telecommunications Authority (OFTA) - the regulator of telecommunications in Hong Kong. Instead of auctioning the upfront payment for the spectrum to be used for 3G services, as did by regulators in many other economies, OFTA took a unique approach by auctioning the royalty, e.g. the percentage of 3G revenues that the bidders are willing to pay. Licensees are also obliged to open at least 30% of their network capacity to Mobile Virtual Network Operators (MVNOs).

Although response to the auction was not enthusiastic due to the slowing-down of economy and the burst of IT bubbles, this scheme has raised attention from regulators in many other economies. Importantly, the 11-month-long policy consultation on 3G licensing framework has triggered intensive debate among all interested parties. This paper, based on the author's research report for International Telecommunications Union¹, will provide a comprehensive review of these debates and give an introduction to the overall 3G licensing scheme in Hong Kong.

I. Policy Objectives of Hong Kong Government in 3G Licensing

To provide an efficient telecommunications infrastructure for the local economy and the public by means of deregulation and liberalisation has been a consistent policy stance of Hong Kong government since the mid-1980s. According to the Information Technology and Broadcasting Bureau (ITBB) - the policy-making body of Hong Kong government, these policy objectives remain unchanged for 3G licensing.²

¹ Xu Yan (2001) "3G Licensing Policy in China and Hong Kong SAR - A Study for the International Telecommunications Union" <http://www.itu.int/3G>

² Press Release of ITBB on 13 February 2001, <http://www.itbb.gov.hk>

The policy-making process of 3G licensing in Hong Kong is relatively open, transparent and subject to full debate. On 21 March 2000, OFTA issued an industry consultation paper on the licensing framework for 3G mobile services. This first consultation paper identified and discussed several key issues on the licensing of 3G mobile services and consulted with the industry and interested parties on these issues.

Based on the first round public consultation, OFTA issued its second consultation paper on 3 October 2000. This triggered off another round of debate and discussion. OFTA also organised an industry workshop on 5 January 2001 explaining its "Open Network" regulatory framework. Questions such as the definition of MVNO and the measurement of network capacity to be made available were furiously debated. On 13 February 2001, the government finally announced the licensing framework for 3G services in Hong Kong SAR.

Key issues that were discussed during the 11 month long consultation include the following:

- Choice of technical standards,
- Allocation of radio spectrum
- Licensing options
- Open network requirement

Each of these issues is considered in turn as follows.

II. Choice of Technical Standards

Hong Kong's economy is service-based rather than manufacturing-based. Using the telecommunications market to enhance the development of the domestic manufacturing industry is therefore not necessarily a policy priority. This has enabled OFTA to adopt a technology-neutral approach in licensing since 1996, when seven PCS mobile communication licenses were first issued.

Due to the fact that IMT-2000 is a family of 3G standards (WCDMA, CDMA2000, and TD-SCDMA) instead of a single standard, the question was whether Hong Kong should adopt a commonly agreed 3G standard or multiple 3G standards. On the one hand, the government realised that the mandatory use of a single 3G standard would reduce the flexibility of operators in evolving their 2G networks to 3G and limit consumers' choice of terminal equipment. On the other hand, the government is interested in promoting the adoption of technical standards that are compatible with each other from the users' point of view, so that subscribers are not locked-in by any single operator. As with number portability, this will have the effect of reducing the switching cost when subscribers migrate from one operator to another. Another objective is to maximise the convenience of users in accessing roaming services without having to change handsets when they travel to places outside Hong Kong, particularly to the more popular destinations. This question is especially critical given that the time scale of the commercial application of software-defined radio is still uncertain³.

Based upon these considerations, OFTA intends to offer to prospective operators the use of any 3G standards within their assigned 3G frequency bands, subject to OFTA being satisfied that various technical standards are compatible with each other from the user's point of view. The main consideration is to ensure that customers can easily switch from one network to another and obtain similar services, and to maximise the ease and practicality of roaming services without having to change mobile terminals.

The principle proposed by OFTA has received the support of those parties who have commented on the issue. New World PCS Limited, for instance, emphasised the following:

“...with 6 existing operators operating 11 networks of different standards in Hong Kong, a technology neutral approach allows a smooth migration from the existing 2G services to 3G services in the future ... The technology neutrality approach, which is consistent with the policy adopted by OFTA in previous licensing process, also encourages operators to explore new services available under respective standards”⁴.

³ OFTA (2000) *Licensing Framework for Third Generation Mobile Services – An Industry Consultation Paper*, 21 March

⁴ Submission of New World PCS Limited in response to OFTA's first consultation paper. March 2000

However, former Cable & Wireless HKT (CWHKT) suggested that the adoption of multiple standards in Hong Kong might result in the requirement for guard bands between bands used by networks of different 3G standards, thus reducing the amount of usable spectrum. Also, it is unlikely that mobile terminals which are compatible with more than one 3G standard adopted by the ITU would be available in the initial years. The CWHKT strongly suggests that only the Universal Mobile Telecom Service (UMTS) of Europe, i.e., W-CDMA, should be adopted in Hong Kong⁵.

Currently, there are a total of four 2G standards being used by the six operators in Hong Kong. It is expected that from the launch of 3G services, 3G mobile terminals would have to incorporate a dual mode design to enable backward compatibility with 2G networks. Thus, the availability of backward compatible equipment with existing 2G networks would be a constraint in the selection of 3G standards.

In this case, OFTA affirms that the prospective operators should be permitted to use any 3G standard adopted by the ITU within their assigned frequency bands for 3G mobile services, subject to standard compatibility from the user's standpoint. OFTA expects that the operators would take these requirements into consideration when choosing a 3G standard⁶.

III. Allocation of Radio Spectrum

The allocation of radio spectrum is relatively a simple issue in Hong Kong, as most of the IMT-2000 defined spectrum is not presently being occupied. Only a portion of the spectrum is now being used for the operation of Microwave Multipoint Distribution Systems (MMDS) and microwave fixed links. At OFTA's request, users of this band have agreed to relinquish the spectrum by the end of May 2001 for the introduction of 3G mobile services.

Perhaps the major concern lies in how to handle spectrum which is currently used for 2G services. According to World Radio Conference in Istanbul (WRC-2000), spectrums in 800/900 MHz (for GSM) and 1700/1800 MHz (for PCS) bands are allocated for implementing 3G services. In this case, there is a necessity to clarify how to migrate current 2G services to 3G services for current 2G license holders.

⁵ Submission of CWHKT in response to OFTA's first consultation paper. April 2000

⁶ OFTA (2000) *Licensing Framework for Third Generation Mobile Services – Analysis of Comments Received, Preliminary Conclusions and Future Industry Consultation*, 3 October

In line with its technology neutral policy stance, and in order to allow existing 2G mobile operators to evolve their networks to 3G, OFTA decided to allow existing 2G operators, whether they are successful or not in obtaining 3G spectrum, to use any 3G standard within their assigned 2G frequency bands for 3G services when equipment becomes commercially available. This would be subject, once again, to standard compatibility and the assurance that the interest of existing 2G consumers is adequately safeguarded⁷.

However, this has raised concerns from the industry, especially for potential applicants who did not hold a 2G licence, like New T&T Hong Kong Limited. This is because the incumbent 2G operators would in effect be “guaranteed” a right to offer at least some if not all 3G or 3G-compatible services even if they failed to obtain a 3G license or decide not to apply for a 3G license. This is unfair to the other license applicants and the problem would be exacerbated in the initial phases of the service launch, as the full range of services would not yet be available. Therefore, as suggested by New T&T, incumbent 2G mobile operators should not be given any undue advantage or “guarantee” of right⁸.

Another concern was that 3G spectrum would be auctioned whereas 2G spectrum was assigned through different procedures and in most cases for free. This might put potential 3G licensees in an unfair position, especially those operators that are without 2G licenses. One submission suggested that the incumbent operators should pay a premium, to be channelled through a mechanism similar to the variation of land leases, in return for the right to provide 3G services in the 2G bands. There was also a view that, as 3G services would not be mature until 2005, the incumbent operators could wait for equipment availability to provide services in their 2G band. If 3G spectrum were granted to them, they should return their 2G spectrum to OFTA⁹.

OFTA believes that allowing the incumbents to make use of 2G spectrum for 3G services would be consistent with its policy of technological neutrality. It is up to individual operators to decide which technology is more efficient to use. Therefore, OFTA does not have any objection in principle to existing 2G operators

making use of their own 2G spectrum for 3G services until their licenses expire. The resolution of the spectrum issue in the future will be the subject of another round of consultation prior to the expiry of current 2G licenses¹⁰.

IV Licensing Options

Next to 3G standards and 2G spectrum migration, the important issue is licensing, notably the selection of operators. Hong Kong used to assign spectrums to telecommunications licensees on the merits of applications. The major concern in the past, according to OFTA, is providing the opportunity to a maximum number of operators to enter the market and allow market forces to determine the optimum number of operators, as long as the spectrum is available¹¹. Although the auction methods was suggested for spectrum allocation for 2G licenses, OFTA did not adopt this method due to the concern that operators will eventually pass the cost on to individual subscribers.

However, spectrum is said to be a scarce resource and as such, must be used effectively. There should therefore be some financial pressure on operators to encourage the efficient utilisation of spectrum. OFTA’s preferred method was to set up a performance bond. When issuing the license, the regulator defined an array of milestones that the licensee should meet, mainly on network coverage. Periodically, OFTA will review the licensee’s progress with reference to the defined milestones. If licensees fail to reach the milestone, they are liable for the performance bond. Before the license is issued, the bank will evaluate the financial strengths of the applicant and guarantee the ability of the applicant to pay for the performance bond if required. In this manner, licensees are subject to financial pressure to rollout their networks aggressively, while at the same time avoiding the need for a lump sum upfront payment. This reduces the financial burden on operators, particularly new entrants. The method has worked reasonably well over the past years.

In 2000, the 3G licensing generated a spectrum auction fever in Europe. The US\$47.5 billion licence fee in Germany and US\$33 billion license fee in the UK encouraged governments in other countries to follow the same approach in the expectation of obtaining similar windfalls. However, the negative reaction from the stock market has led to a decline of auction fees in these later-mover countries (Figure 1).

⁷ OFTA (2000) *Licensing Framework for Third Generation Mobile Services – An Industry Consultation Paper*, 21 March

⁸ Submission of New T&T Hong Kong Limited in response to OFTA’s first consultation paper. 22 May 2000

⁹ OFTA (2000) *Licensing Framework for Third Generation Mobile Services – Analysis of Comments Received, Preliminary Conclusions and Future Industry Consultation*, 3 October

¹⁰ *Ibid.*

¹¹ Au, M.H. (1998) Public Mobile Services in Hong Kong – Updates and Future Development, *Proceedings of Asia-Pacific Mobile Communications Symposium*, pp. 33-38

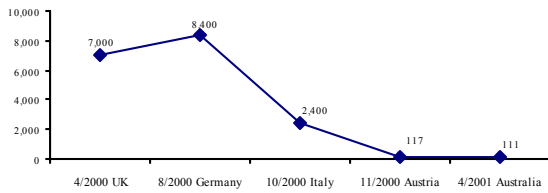


Figure 1 Global Trend of 3G Auction Price (Euro, million)

Nevertheless, the Pound Sterling 22.4 billion 3G auction fee that surpassed the expectation of the UK authority has cast doubt on the appropriateness of the comparative selection approach of OFTA. Emily Lau, Legislative Councillor, commented on Radio 3 of Radio Television HK (RTHK) on 14 May 2000 that

“Although auctions could bring significant revenue to the government coffers, OFTA is concerned that such additional upfront costs to 3G operators would greatly increase their business risk. This in turn could adversely affect the development of the next generation of telecommunications and Internet services in Hong Kong. I don’t think this argument is very sound. Regardless of how the licences are to be awarded, operators are likely to price their services according to how much the customers are willing to pay, and not according to the cost of providing such services ... Companies which have overstretched themselves will suffer, some may even go bankrupt. But other companies will bid for their licences and carry on. This is capitalism at work and should not harm the development of the industry”.

In addition to economic considerations, there are also some technical considerations to take into account if OFTA follows its original approach to allocate spectrum for 3G services. In his submission to OFTA on the consultation paper, Xu expressed his concern that “it is very difficult to define the milestone for 3G service due to the fact that there is not a definite date that this service will be commercially available. Nor did the business model. Even the GPRS (2.5G) is still under trial, how can the regulator clarify the rate of deploying 3G services? Wrongly defined milestones will leave the regulator in the embarrassment, but not the operators”¹². Xu was also concerned that if operators are granted licenses for free in Hong Kong, some of them might use Hong Kong revenues to cross-subsidise their customers in the market where they have paid a huge license fees. Indirectly, Hong Kong’s consumers would become the victims of huge license fees in other overseas markets¹².

¹² Xu, Y. (2000) Penal discussion at Telecom Asia summit, Hong Kong

Some economists were in favour of auctions but pointed out that the conditions need to be justified once again, in order to ensure that spectrum fees are not artificially inflated. It was suggested that all of the spectrum should be open for the auction and there should not be a pre-determined number of licensees¹³.

However, there are some concerns about this. As was suggested by some WRC-2000 delegates, allocating all spectrums to a single immature technology might be risky and harmful for the development of other innovative services¹⁴. 3G is not the end of mobile communications, 4G even 5G might appear in coming years. In this case, if all spectrums are allocated to 3G, then operators might feel reluctant to upgrade their technology when the new technology is available. For example, when GSM was available, no licensees in Hong Kong reacted to it. It was OFTA who issued a new license to SmarTone and clearly designated that GSM had to be used that digital network began to appear in Hong Kong. As a result, all incumbents had to change their system from analogue to digital. Keeping some spectrum aside might give more flexibility and bargaining power to OFTA in the future¹⁵.

Argument against auctioning the spectrum pointed out that, unlike some other economies, Hong Kong does not need to raise revenue through auctions. Proceeds from spectrum auctions imply a one-off revenue and do not provide a steady base for ongoing government revenue. Also, the spectrum auction process would only favour operators with deep pockets. As such, companies that are more likely to propose high-quality innovative services may fail to obtain licence¹⁶.

One worries that the large upfront payments increase the cost of financing, and this acts as a disincentive to roll out networks to more marginal areas. Indeed, it raises the margin. He also worries that the huge upfront payment incubates industrial restructuring leading to oligopoly and/or collusion. In his viewpoint, the upfront payment also weakens the authority of the regulator, especially when large multinational companies are involved who are under enormous pressure to address

¹³ See Melody, W.H. (2001) Spectrum Auction and Efficient Resource Allocation: Learning from the 3G experience in Europe, *Info*, Vol.3 No. 3, pp. 5-10

¹⁴ ITU, Newsletter of WRC-2000

¹⁵ Xu, Y. (2000) The debate between beauty contest and auction, *Hong Kong Economic Journal*, 19 May

¹⁶ Au, M.H. (2000) The implementation of third generation mobile services in Hong Kong, *Proceeding of Asia-Pacific Mobile Communications Symposium: 3G and M-Commerce*, pp. 11-17

the interests of their shareholders and financiers, and keep an eye on the price of their stock¹⁷.

Liu argued that 3G is a high-tech industry - its social benefits is much larger than the commercial benefit and will generate tremendous externalities. In an environment not favourable to high-tech investment, the success of 3G might be enhanced if the government could share part of the risk with investors. As this is a revenue risk but not a cost risk, the government's total risk is close to nil. In this case, the government is probably the most appropriate party to undertake the risk¹⁸.

Taking into consideration of all of the views from the different sectors, the government formally released its 3G licensing framework on 13 February 2001. The decision was taken to issue four licenses by way of auction after conducting a pre-qualification exercise. The pre-qualification process is intended to be relatively light, but will involve setting certain minimum criteria on investment, network rollout, service quality, financial capability, etc. As to the auction process, the government has chosen a royalty-based proposal that requires the bidder to pay a certain percentage of their annual 3G revenue turnover determined by the auction. The royalty payment will be subjected to a guaranteed, minimum payment. The government believes this method will encourage market entry while keeping the financial burden on operators at a manageable level¹⁹.

The particularities of the royalty auction are as follows:

“Bidders would be asked to bid for a level of annual royalty by way of percentage of turnover from their 3G services network operations. Successful bidders who win the 3G licences at a certain royalty percentage bid would do the following:

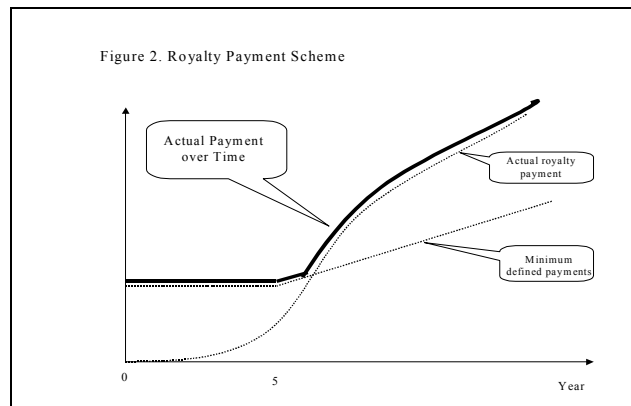
(a) for the first five years of the license: They will pay a guaranteed, minimum royalty payment fixed by the government. They will pay the same fixed amounts for this period regardless of their actual turnover. This is because it will be difficult in these initial years of the 3G licences to

distinguish between second generation mobile service (2G) and 3G network revenues, if the 3G licensee is also an existing 2G operator;

(b) from year six to the end of the licence period: They will pay royalties to the Government according to the royalty percentage determined by the auction. The same royalty percentage will apply to all licensees. The actual royalty payment will differ from licensee to licensee as their 3G revenue turnover will be different. However, the royalty paid by each licensee should not be less than the guaranteed, minimum royalty payment fixed by the Government. In other words, the Government collects the royalty based on actual turnover, or the guaranteed, minimum royalty payment, whichever is the higher; and

(c) throughout the whole licence period: They will need to provide a 5-year rolling guarantee for each of their guaranteed, minimum royalty payment.”²⁰

According to the Government, this proposed method best meets its policy objectives. It is “pro-entry” as it alleviates the burden on successful 3G licensees, and allows the government to share the upside of the future 3G services market. It is also an efficient method of allocating licences to those bidders with the best business case, as the payment will be in the form of royalty and therefore will depend on the actual performance of each licensee. The guaranteed, required minimum royalty payment will minimise credit risks for the Government, and reduce the costs that may be passed on to consumers²¹. Figure 2 illustrates the royalty payment scheme.



¹⁷ Ure, J. (2000) Response to OFTA's consultation paper, <http://www.ofta.gov.hk>

¹⁸ Liu, C.W. (2001) Payment method of 3G licensing: new taxing paradigm of new economy. Hong Kong Economic Journal Monthly, Vol.24, No.10, pp.32-34

¹⁹ Press release issued by Information Technology and Broadcasting Bureau on 13 February 2001: The licensing framework for third generation mobile services

²⁰ Legislative Council Brief: licensing Framework for third Generation Mobile Services, File Ref: ITBB CR 7/23/10(01)

²¹ Ibid.

This proposal has been very well received, despite the fact that there are some controversies on the details of the auction design. For example, the government would like to settle on the final price when the fourth bidder from the bottom leaves the auction process, while the industry insists that the final price should be established when the fifth bidder from the bottom leaves²². In this way, the price should be lower and the cost of licensees will be reduced. The Government finally reaches a compromise and agrees to establish the price when the fifth bidder from the bottom leaves.

On 19 September 2001, the auction was conducted. Four applications for 3G licenses in Hong Kong were received and in accordance with the rules set out in the Information Memorandum which provided guidance for the 3G spectrum auctioning. The four bidders have each been awarded a license at reserve price, i.e. five per cent royalty subject to a minimum payment of HK\$50 million for each of the first five year, and rising minimum payments from year six onwards.

V. The Open Network Requirement

Due to the limitation on spectrum, only four 3G licenses have been issued. To enhance competition, OFTA proposed the concept of separating service provision from network operation. This means that a service provider need not at the same time be network operator, although that possibility is not excluded. This is comparable to the European concept of the Mobile Virtual Network Operator (MVNO). In this case, the MVNO would not own a license to use radio spectrum, but would have access to the radio networks of one or more of the mobile network operators and be allowed to build and operate parts of the networks not requiring the use of radio spectrum (e.g. elements of an intelligent network). These service providers would then be able to offer 3G services to customers without actually operating the radio networks. The regulator suggests 3G licensees to open 30-50% of the network to MVNOs²³.

Almost all incumbent operators expressed their concern about MVNO. The major concern lies in the potential technical and financial difficulties for physical network operators to meet this requirement. It was argued that opening the networks to all competitors is technically inefficient for the network operators to rollout and maintain networks with an unknown requirement in

terms of capacity just for the purpose of offering it to service providers. The business viability of the network operators would be jeopardised. The incumbent also argued that the future 3G value chain would allow customers to access service and content providers. The need for MVNO might not even exist²⁴.

Some analysts argue that opening the network to MVNOs is akin to permitting "free riders". As a result, some investors may not join the bidding for 3G licenses; however, once the risk is undertaken by initial spectrum bidders and 3G is proven to be successful, they would apply for a MVNO license and begin providing services. This scenario is seen as patently unfair to the 3G licensees²⁵.

Supporters of the open network requirement stressed the importance of non-discretionary access to networks by MVNOs and minimising collusion among big players who were both network operators and service providers. One submission suggested that as many as 20 MVNOs might be licensed by way of auction, enabling a large number of companies in different domains to enter the 3G services market²⁶.

Based upon feedback, the government proposed a regulatory framework for its open network:

(a) Successful bidders must open at least 30% of their 3G network capacity for use by non-affiliated companies to operate as MVNOs and/or content providers. More capacity could be opened up if they wish to do so by commercial agreement. However, to preserve the commercial incentive of 3G network operators to develop their networks, the regulator would not intervene for a MVNO or content provider if that operator/provider already has access to capacity equivalent to 30% capacity of a network operator.

(b) The wholesale prices for MVNOs' access should be negotiated commercially with the 3G licensees. However, if commercial negotiation fails, the regulator reserves the right to make a determination based on fair interconnection principles. A sufficient return on cost of capital will be allowed, reflecting the higher risk of 3G service investment, when regulator makes the determination to ensure that the investment incentives are preserved.

²² The time for 3G auction might be postponed, Hong Kong Economic journal. 30/05/2001

²³ OFTA (2000) *Licensing Framework for Third Generation Mobile Services: An Industry Consultation Paper*, 21 March

²⁴ OFTA (2000) *Licensing Framework for Third Generation Mobile Services – Analysis of Comments Received, Preliminary Conclusions and Future Industry Consultation*, 3 October

²⁵ Hausman, J. (2001) Guest speech at Bloomberg Auditorium, Hong Kong, 23 May

²⁶ See http://www.ofa.gov.hk/frameset/home_index_eng.html

(c) Content providers will buy capacity at tariffs set by the 3G licensee, reflecting all relevant costs and the above-mentioned cost of capital. The regulator would only intervene in cases of unfair, discriminatory treatment or on anti-competitive grounds.

(d) Measurement by the regulator of the capacity sold to non-affiliated companies will not be necessary unless the 3G licensees refuse to supply the requested capacity. The licensee should then provide evidence to the satisfaction of the regulator that 30% of their capacity has already been opened up. The regulator is prepared to accept alternative methods of measurement proposed by operators including the simplest documentary proof of the total capacity sold, e.g. in the contracts or agreements with non-affiliated companies²⁷.

In addition to the open network requirement and ensuring a level playing field for both new entrants and incumbent operators in the 3G services market, the government proposed a final requirement on certain successful 3G licensees. Those licensees that are also 2G operators are to provide roaming to successful non-2G licensees in locations not yet covered by the latter's 3G networks during the initial years. This mandatory requirement is crucial, because it takes time for new entrants to roll out a network with coverage comparable to that of a mature 2G network. These new entrants are expected to have rolled out their own network and to satisfy the mandatory requirement over time. The requirement will end on a "sunset" date, intended to be five years after licences were issued²⁸.

By the end of January 2003, there are six companies have obtained MVNO licences in Hong Kong. These companies are: Trident Telecom Ventures Ltd., China Motion Telecom (HK) Limited, China Unicom International Limited, CITIC Telecom 1616 Limited, i100 Wireless (Hong Kong) Limited, China-Hongkong Telecom Limited. They are going to targeting different market niches. For example, both China Unicom and China Motion has begun to use its MVNO license to provide economic and seamless services for frequent travelers between Hong Kong SAR and mainland China, while Trident is targeting overseas visitors. They are currently using 2G technology for service provision, and are planning to migrate to 3G technology once the networks are ready.

²⁷ *Legislative Council Brief: licensing Framework for third Generation Mobile Services*, File Ref: ITBB CR 7/23/10(01)

²⁸ *Ibid.*

VI. Summary

This study provided a comprehensive review of the debate in the process of formulating 3G licensing policy in Hong Kong. It also gave an introduction to the 3G licensing framework in Hong Kong.

3G imposes some challenges on Hong Kong SAR. Due to limited spectrum and hence limited number of licenses, it is unclear whether the current competitive 2G market in Hong Kong can be successfully transferred to a competitive 3G market in the future. Also, OFTA's traditional licensing and regulatory scheme for 2G services has been threatened by economic and technical constraints of 3G services.

OFTA's 3G licensing framework, to a certain extent, relieved the licensees from a heavy burden of paying huge upfront spectrum fee. This might be able to accelerate the paces of rolling-out 3G networks in Hong Kong. The open network obligation of the licensees may also enhance competition in the 3G market in the fact that the spectrum can only accommodate limited network operators.

Additionally, the commercialisation of spectrum may also pave the way for free trade of spectrums among operators, although this issue has not been on the top agenda of OFTA yet. In fact, as spectrums were assigned for free in 2G services, OFTA has had to be fair by assigning the spectrum to all licensees in an equal way, although this equally assigned portion may be over-sufficient for small operators but insufficient for large operators. Several applications for more spectrum by large operators have been rejected by OFTA in the excuse of fairness, and these operators have to increase the efficiency of spectrum by investing on spectrum compression system, which has affected the service quality, increased the operation cost and raised the price of services. In the meantime, the small operators have huge surplus spectrum due to their small customer base but they have been restricted to trade the spectrum, as they have obtained the spectrum for free. This dilemma scenario maybe changed under the new 3G licensing framework, as the licensees, to some extent, owns the spectrum during the defined period of the licenses.

3G mobile is not just an innovative technology and service, but it also brings about new economic and regulatory dynamics. Whether or not the innovative 3G licensing framework and open network requirement of the Hong Kong Government will be successful remains to be seen.

