



**SUNDAY's Position Paper
in response to
OFTA's Further Consultation on
Licensing of Mobile Services on Expiry of
Existing Licences for Second Generation Mobile Services**

19 June 2004

Promoting Mobile Multimedia Services in Hong Kong

PREFACE

This paper represents SUNDAY's position regarding OFTA's proposal to issue an additional 3G mobile license in Hong Kong. We appreciate the opportunity to comment on the proposal and look forward to continuing to work constructively with OFTA and the Hong Kong Government to determine the best ways to promote mobile multimedia services in Hong Kong.

EXECUTIVE SUMMARY

We believe a shift in policy approach is needed to help boost Hong Kong's mobile multimedia sector, and SUNDAY stands ready to help make it a success.

The Hong Kong telecom policy of unbridled competition in the 1980's and 1990's was a major success in promoting mobile voice services for Hong Kong.

- The industry responded to the policy objectives by building out 12 different networks across six operators, not counting four virtual network operators.
- Their significant investment (estimated at over \$15 billion for network infrastructure and \$2.5 billion/year for leased sites/lines) and their determined execution have led to world class levels of mobile voice penetration, affordability, and quality.
- These operators are also actively promoting mobile multimedia services which are rapidly growing in Hong Kong, and four of them have also responded to OFTA's 3G licensing scheme and are on track to building out next generation networks to deliver even better, more cost-effective multimedia services.

However, we believe that following the old policy approach and issuing an additional 3G license as proposed is not the right lever to boost mobile multimedia services in Hong Kong.

- Looking at the experience of the lead countries of Japan and Korea, mobile multimedia success was driven neither by high-speed technology nor additional licenses.
- Instead, these countries followed a different policy approach better matched to the (different and new) mobile multimedia challenge: they focused on promoting a healthy "ecosystem" of industry players to invest in building and marketing the complex mobile multimedia solutions.
- This policy also enhanced natural size advantages that Japan and Korea enjoy relative to Hong Kong and that significantly helped their success.

In fact, issuing yet another 3G license now in Hong Kong would actually be counterproductive to the provision of new mobile multimedia services.

- Hong Kong is already very competitive by global standards yet disadvantaged by its small scale. An additional license would render the market even less attractive for investment, by exacerbating the fragmentation and straining industry economics.
- Offering a new license and "letting the market decide whether or not it is needed" is not a sound strategy for achieving a healthy ecosystem. Market forces are not perfect, as there are skewed incentives to enter and disincentives to exit, and they cannot be counted on to arrive at the optimal number of players.
- Furthermore, issuing an additional license now would send the wrong signal to potential future investors by prematurely changing the rules of the game. The four 3G operators are on track to meeting OFTA's 50% rollout commitments by end 2006, and their efforts to date have created a rapidly growing mobile multimedia market.
- Lastly, the timing is also premature because there are high levels of technology uncertainty and new solutions in the pipeline that might require different licensing in the future, well before the expiry of the current proposed license.

Therefore, we recommend that the government shift its policy approach from unbridled competition (good for voice) toward promoting ecosystem health and a strong investment climate (essential for mobile multimedia) -- and work proactively and extensively with industry to make it a success. Specifically:

If the objective is to boost mobile multimedia services, then government should leverage the Innovation and Technology fund and set up a working forum (with an accountable leader) to work with industry on an ongoing basis to develop an appropriate and comprehensive action plan. Initiatives include:

1. To promote the development and marketing of new mobile multimedia solutions:
 - 1.1. Continue to support the HK Wireless Development Centre and raise its profile within the industry and within cross border industry trade discussions.
 - 1.2. Sponsor specific initiatives to develop vertical enterprise solutions in leading HK industries.
 - 1.3. Assign public institutions to serve as lead users/promoters of new services.
2. To promote interoperability:
 - 2.1. Encourage and support technical and common service agreement standards between ecosystem players.

3. To increase Hong Kong's effective market size and attractiveness:
 - 3.1. Work to turn the CEPA framework into tangible opportunities for Hong Kong players.
 - 3.2. Encourage efforts to improve the HK market such as allowing increased visits and spending limits from mainland tourists.
4. To promote industry economic health and a favorable investment climate:
 - 4.1. Eliminate up front (minimum) 3G license fees and apply this retroactively.
 - 4.2. Use balanced consideration of competition vs. ecosystem health when reviewing industry M&A.

If the objective is to bring CDMA2000 to Hong Kong, then work closely with industry ahead of time to solve the collateral problems this will create. Specifically:

5. Ensure all networks using spectrum with similar capabilities are on a level playing field, paying equal spectrum fees including all cumulatively paid up front fees, if any.
6. Do not issue an additional license until existing licensees have had a chance to build the market and until the technology picture is clearer.
7. Launch an initiative, with industry participation, to develop a holistic spectrum and licensing plan, covering 3G and other near term (IEEE) technologies as well as 2G spectrum re-farming for 3G services.
8. If issuing new licenses, do not increase the number of players or planned networks.
9. Establish safeguards to ensure network interoperability and prevent predatory pricing. In particular, set strict conditions on any new licensee prohibiting large price discounts or handset subsidies as a way of gaining customers.

FULL TEXT

The old policy approach worked well for mobile voice.

The Hong Kong mobile telecom policy over the past 2 decades has fostered competition and liberalization to achieve the stated objective of maximizing consumer benefits. As such, the regulator has taken a transparent and technology neutral approach to issuing multiple licenses and taken other steps to encourage competition, including introducing mobile number portability and safeguards to ensure adequate levels of competition. Within this structure, the regulator has by and large let market forces and competition determine the course of ownership, investments, pricing, and other business practices.

The industry has responded favorably to the policy objectives and framework. Six mobile operators have deployed twelve mobile networks in Hong Kong, investing well over \$15 billion in network infrastructure as well as paying an estimated \$2.5 billion per year in leases for sites and backbone lines. They have implemented MNP as required, and have been among the first worldwide in many areas, including implementing dual-band GSM networks, providing high quality voice coverage in buildings and tunnels, establishing worldwide roaming services, providing value-added services such as multimedia messaging (MMS) and more. Four operators participated in the 3G auction held in 2001 and all are on track to meeting their rollout commitments as required by OFTA. In addition to the breadth and quality of services, the operators are fiercely competitive, regularly engaging in substantial price competition to the benefit of consumers.

As a result, Hong Kong has world class levels of mobile voice penetration and affordability (Exhibit 1). Mobile penetration is over 100%, substantially higher than all major markets including Japan, Korea, the United States, all of Europe and more. The rates for local voice calls are the lowest in the world, and affordability is second only to the U.S. among major markets, as measured by annual mobile charges as a percentage of disposable income (adjusted for purchasing power parity).

The old policy worked. It worked because mobile voice was a relatively standard, yet expensive, product, and extreme network competition was a great way of meeting the challenges of achieving ubiquitous network coverage and driving down prices to encourage adoption and usage. And it worked because the industry accepted government's policy and worked hard to make it a success.

Success in mobile multimedia requires a different approach.

The challenge of mobile multimedia

Unlike voice, mobile multimedia is a very complicated business. It requires seven building blocks in place before services can take off, most of which are provided by very different types of industry players who together make up what is called the "ecosystem" (Exhibit 2). The building blocks and industry players are:

1. Appealing content, applications. Often, an operator will provide core messaging applications (SMS, MMS,...), but many of the appealing applications and content (games, news,...) are provided by innovative 3rd party application providers who are skilled in the media/entertainment business and who are often very small and entrepreneurial. Yet other enterprise applications require considerable development, typically by software providers and systems integrators.
2. Effective navigation. The handset screen is small, the keypad is awkward, and the transmission speeds (until now) have been relatively slow. As a result, users need an excellent user interface usually developed by 3rd party software providers.
3. Robust middleware/platform. Provided by IT and network vendors, this is the software and hardware which manage the flow of data between operator and subscriber -- performing customer authentication, security, billing, location information, hosting 3rd party applications, formatting for different types of handsets, storing customer preferences, saving messages, etc.
4. Data-ready transport network. A low latency, low cost "packet" network is required, provided by data network vendors. Speed itself has not been essential for initial success, although higher speeds can support richer multimedia applications.
5. Attractive handsets. Provided by handset vendors, these need to be data-enabled yet similar in size, ease of use, and cost to standard voice handsets, as voice is still by far the dominant application.
6. Effective marketing. Mobile multimedia is for the most part a brand new experience for users, requiring a new handset. As a result, mobile operators need to put considerable effort and investments in order to stimulate adoption and trial, train customers, and get usage to the point where the use of mobile multimedia becomes an established ritual in a user's daily routine.
7. Ready users. Cultural factors such as ease of character input in the local language, propensity to play with handheld games, text messaging culture, etc. can affect the initial speed of service uptake, although over time they will have a more limited impact, given the largely universal appeal of mobile multimedia services.

It is pretty much all or nothing: without all 7 building blocks in place, mobile multimedia services will not take off. To make matters worse, there are two more fundamental issues in getting these building blocks up and running:

- A lack of technical standards across the ecosystem. In general, most applications do not readily work on different platforms, which do not easily connect to different networks and which do not look the same -- or even work -- on different handsets. This interoperability problem greatly increases development costs and severely impacts the user experience. DoCoMo was the first to understand this

and almost single-handedly architected specifications across its ecosystem to develop I-mode -- the first workable service.

- A need for high market scale and attractiveness. Because of the number of different ecosystem players, the "new" nature of mobile multimedia services, and the interoperability problem above, substantial investments are needed. The larger and more attractive the market, the more it will provide incentives for, and support, the needed ecosystem players. This is a particular issue for typically small content/application providers and for small operators.

Is increasing competition via an additional license in just the network link in the chain -- just one of 7 building blocks -- the best way to resolve these issues? A look at the two most successful markets, Japan and Korea, suggests not.

The success of Japan and Korea, and implications for Hong Kong

Three key factors have led to Japan and Korea's success in mobile multimedia -- none of which are present in Hong Kong:

1. A telecom policy of promoting industry health and interoperability
2. Structurally large and attractive markets
3. Existence of, and close collaboration between, strong local ecosystem players

First, the Korean and Japanese regulators took a very different policy approach to promote data services. In both cases, their efforts were much more focused on creating a healthy ecosystem and investment climate to address the above issues and get the building blocks in place. Specific actions, and their rationale, included:

- Only 3 cellular operators, in both Japan and Korea, in order to avoid over-competition that would deplete needed funds for investments.
- Limits on handset subsidies, in Korea, to ensure the industry does not bid away all its profits.
- Asymmetric interconnect fees and number portability regimes in Korea, to help ensure the marginal 3rd operator remains financially sound.
- Negligible 3G license fees in Japan, in order not to burden operators with large up front fees before they have had a chance to build the market.
- Specification of a standard mobile data platform in Korea (WIPI) that all operators must use, in order to ensure interoperability.

By contrast, Hong Kong's current policy is diametrically opposite. There are 6 operators, and market forces are expected to dictate the optimal health and interoperability of the industry.

As a result, the policies in Japan and Korea have led to higher revenues per subscriber (2.5 times as high in Japan) and higher operator market shares, since there are only 3 operators. Together with natural scale advantages (see below) operators and other ecosystem players have had the resources needed to develop the complex solutions.

Second, Japan and Korea benefit from having structurally much larger markets, in addition to fewer operators. As a result, the average operator in Japan and Korea can amortize their investments across 28 and 10 million subscribers respectively, whereas Hong Kong operators have only about 1 million subscribers on average (Exhibit 3). The significance of this comparison cannot be underestimated. It typically takes a minimum order size of 2 million handsets to get any kind of custom development -- and often more if one wants to get the attention of the top handset vendors. Similarly, Hong Kong's appeal is very small in the eyes of content/application developers who would rather spend time on larger operators and markets. Even in Japan, only a few independent content/application providers are financially successful.

Third, both Japan and Korea benefited considerably from having strong local technology players, particularly in the network, handset, and platform areas. In Japan, DoCoMo was able to work closely with NEC, Panasonic, and Fujitsu (and later with Sony, Sharp and others) in order to develop the technical specifications (in the absence of standards) necessary for the multimedia services to work. Similarly, SK and KTF in Korea were able to work closely with Samsung Electronics and LG Electronics -- both of whom are now ranked in the global top 5 among handset manufacturers. Without this close cooperation, the complex services could not have been developed into user-friendly workable solutions. Even today, since the standards still don't exist, the most successful operators outside of Japan and Korea -- Vodafone and Orange -- have adopted a similar approach to develop their V-Live and Orange-World offerings.

Finally, it is important to note what was NOT responsible for initial success in Japan and Korea: specific, high-speed technology and additional licensees. Both Japan and Korea achieved mobile multimedia success with slower 2G and 2.5G technologies developed by the existing (three) operators.

An additional 3G license as proposed would actually be counterproductive for mobile multimedia

Once the importance of scale, interoperability, and a strong investment climate are understood, it becomes clear that as long as an adequate level of healthy competition already exists, adding an additional player will actually worsen the situation. Hong Kong already has more mobile operators than virtually any other major market (Exhibit 4). To confirm the healthy level of competition, one has only to look both at current low price levels but also at what has happened to the industry from 1999-2003. During this time, while subscriber penetration grew by over 60%, actual revenues *decreased* by 7% (Exhibit 5). In other words, as the operators *increased* costs to add network capacity and to acquire new customers, total revenues *declined*, thereby putting the squeeze on profits and cash flow.

On top of this already competitive situation, an additional network will add even more capacity thereby pushing down industry prices and fragmenting the market further. Experience (and economics) show that typical new entrants in medium-high fixed cost businesses tend to undercut prices of standard services by 20% or more in order to gain a

foothold in the market. (It is important to look at standard -- in this case, voice -- services because they will still be the primary use of the phone and the main way to achieve volumes in the market. China Unicom and 3UK's difficulties at positioning new offerings primarily as multimedia services only bear this out.) Therefore, since the Hong Kong mobile voice penetration is saturated at over 100%, the discount may even be more, resulting in an even less favorable investment climate.

Some may argue that if an additional license would cause so many problems, then presumably no one will bid for it; or alternatively, that once they realize the extent of the problem to industry, market forces will drive consolidation or exit to resolve the excessive competition. The problem with this argument is that the market is not perfect: there are skewed incentives to enter and disincentives to exit. Experience shows that some companies will enter a sector, usually as a secondary business, even at the likely prospect of losing money for a long time (and even if the expected value is negative), e.g. if they feel that it is the only viable long term growth business for them. That is, they enter for the long term option value, even if they face several years of losses -- and the more their primary business is a cash cow, the more willing and able they may be to sustain losses. Unfortunately, once they enter, they often destroy the industry, acting like "a wounded animal" in a desperate attempt to gain a foothold. On the flip side, it is very difficult to force exit/consolidation, especially in high fixed cost businesses. It can be more attractive to partially run a network than to shut it down. In the cyclical industry, when owners do decide to sell, buyers may not want to acquire (and vice versa). In addition, falling equipment prices and new technology often make it more attractive to build new rather than buy old. Therefore, it is difficult to rely on the market to determine the right number of players -- that job goes to the regulator.

In addition to deteriorating Hong Kong's market attractiveness, issuing a new 3G license now as proposed would be premature and problematic in two more ways. First, it would send the wrong signal to potential future investors by prematurely changing the rules of the game. The four operators who bid for and won 3G licenses in late 2001 are all rolling out their services this year. This is in line with most operators worldwide and the operators are on track to meeting OFTA's requirement of 50% coverage by end 2006. Issuing an additional license now would be changing the industry structure before even giving the current licensees a chance, just when their efforts (with 2.5G technology) have created a rapidly growing mobile multimedia market in Hong Kong (Exhibit 6). Such a precedent cannot but discourage future investors.

Second, there are high levels of technology uncertainty and new solutions in the pipeline that might argue for different licensing decisions in the future. Beyond WCDMA and CDMA2000, there are many other potential competing networks that are in trial or early commercialization. These include other 3G variants such as HSDPA (e.g. DoCoMo), TD-SCDMA (Datang) and TD-CDMA (IPWireless). There are also multiple IEEE variants such as WiMax 80.216 (Navini), 80.220 variants (Flarion), not to mention those trying to build wide area networks out of Wi-Fi 80.211 technology (RoamAD). Against this backdrop, the digital transformation underway is also blurring traditional industry

boundaries, both between mobile, fixed, and other network operators as well as between internet service providers, consumer electronics, and PC firms. The net result is that the industry landscape -- both technologies and players-- is likely to change enormously over the next few years, and it would be prudent for the fog to clear and for licensing to take a more holistic view (Exhibit 7).

Recommended course of action

Therefore, we recommend that the Hong Kong government shift its policy approach from unbridled competition in the network transport sector to promoting industry health and a strong investment climate across the entire ecosystem -- working proactively and extensively with industry to make it a success. Specifically:

Promoting mobile multimedia services: The government should leverage the Innovation and Technology fund and set up a working forum (with a responsible and accountable leader) to work with industry on an ongoing basis to develop an appropriate and comprehensive action plan. Types of initiatives include:

1. To promote the development and marketing of new mobile multimedia solutions:
 - 1.1. Continue to support the HK Wireless Development Centre, leveraging international best practice to spur 3rd party innovation, and raise its profile within the industry and within cross border industry trade discussions.
 - 1.2. Sponsor specific initiatives to develop vertical enterprise solutions in industries where HK is a world leader -- e.g. in airlines/airport operations, port operations/logistics, construction/project management, and film/music/entertainment.
 - 1.3. Designate public institutions to serve as lead users/promoters of new services -- e.g. HKPO with M-Cert.
2. To promote ecosystem interoperability:
 - 2.1. Encourage and support technical and common service agreement standards between ecosystem players, lowering the effective costs for application development and improving the user experience
3. To increase Hong Kong's effective market size and attractiveness.
 - 3.1. Put concerted efforts to turn the CEPA framework into tangible opportunities for Hong Kong ecosystem players to tap into the Greater China market.
 - 3.2. Encourage efforts to improve the HK market such as allowing increased visits and spending limits from mainland tourists and hosting of international conventions.
4. To promote industry economic health and a favorable investment climate:
 - 4.1. Eliminate up front (minimum) license fees and apply this retroactively. These fees choke the development of the market, and their original justification -- ensuring licensees were responsibly using the spectrum -- is a moot point, as all 3G licensees are well on track with their rollout commitments to OFTA.
 - 4.2. Use balanced consideration of competition vs. ecosystem health when reviewing industry M&A, in order to allow the industry to adjust more rapidly, effectively to change.

Issuing a CDMA license: If it is decided that an additional license is warranted, then the government should work closely with industry ahead of time to solve the collateral problems this will create. Specifically:

5. Ensure all networks using spectrum with similar capabilities are on a level playing field, paying equal spectrum fees including all cumulative up front fees, if any. This applies to new 3G networks as well as 2G networks. Spectrum fees should apply to spectrum capabilities, not the actual services chosen, which represent a business decision. Therefore, if 2G spectrum can support "3G services", then the same spectrum utilization fees should apply.
6. Do not issue an additional license until existing licensees have had a chance to build the market and until the future technology picture is clearer; as a practical matter, this means waiting at least until the end of 2006.
7. Launch an initiative, with industry participation, to develop a holistic spectrum and licensing plan, covering 3G and other near term (IEEE) technologies as well as 2G spectrum re-farming for 3G services.
8. If issuing an additional license, do not increase the number of planned networks or players unless they cover a substantially different product-market segment; this would imply keeping the number of 3G networks fixed at four, meaning that a current network holder would exit or switch to a different technology.
9. Establish safeguards to ensure network interoperability and to prevent predatory pricing -- both for the future environment as well as for today. In particular, set strict conditions on any new licensee prohibiting them from using predatory voice pricing as a way to gain share. The current proposal of specifying a minimum percentage for data revenues is not nearly a strong enough condition (especially since one way of boosting the data revenue percentage is to severely discount voice prices!). Specific restrictions on abilities to discount voice prices and to limit handset subsidies will be required, in order to ensure that any new licensee focuses on gaining customers through multimedia excellence, not predatory pricing.

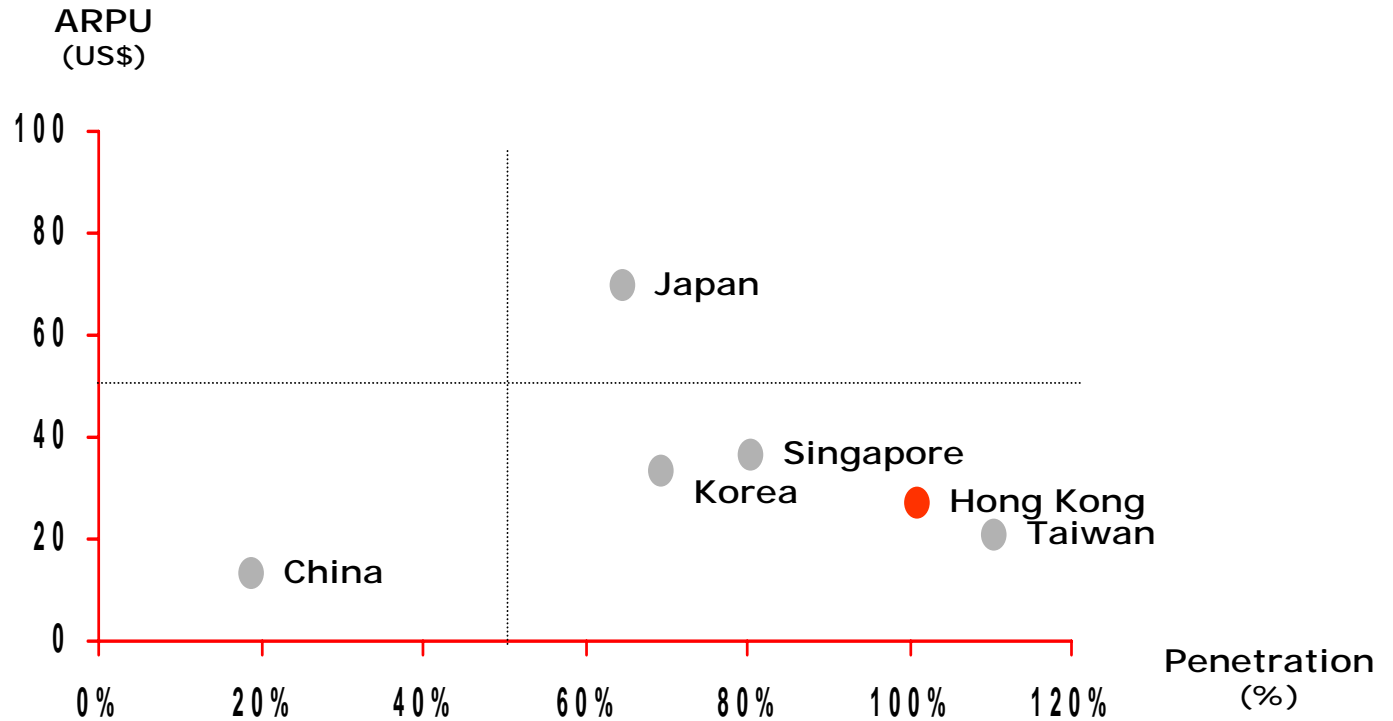
SUNDAY

19 June 2004

(Exhibits attached)

Exhibit 1: Hong Kong has world class levels of mobile penetration and affordability

2003 ARPU vs. Mobile penetration



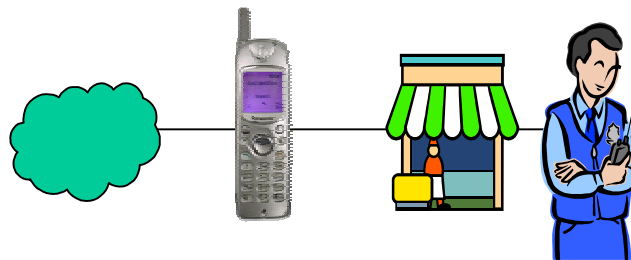
•Strong competition
-- 6 licenses

•“Let the market decide” -- survival of the fittest

Source: ABN and Merrill Lynch

Exhibit 2: Unlike voice, mobile multimedia is a complicated business

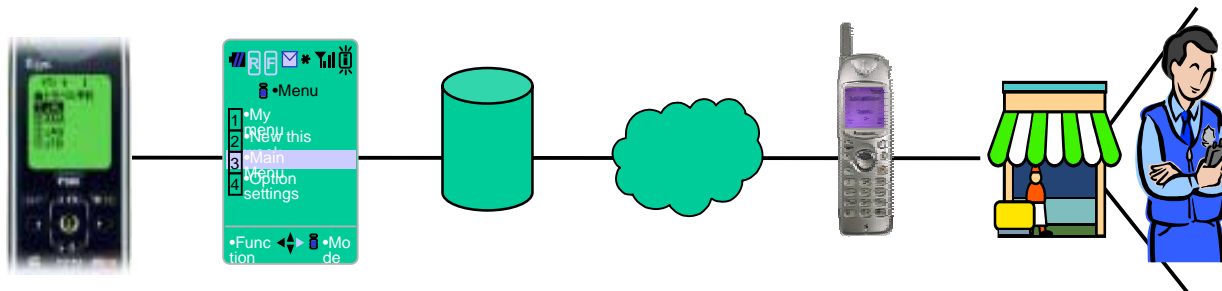
MOBILE VOICE



- few players
- tech standards
- known experience (voice)

- Appealing content, applications
- Effective navigation
- Robust middleware platform
- Ready network
- Attractive handsets
- Effective marketing users
- Ready

MOBILE MULTI-MEDIA



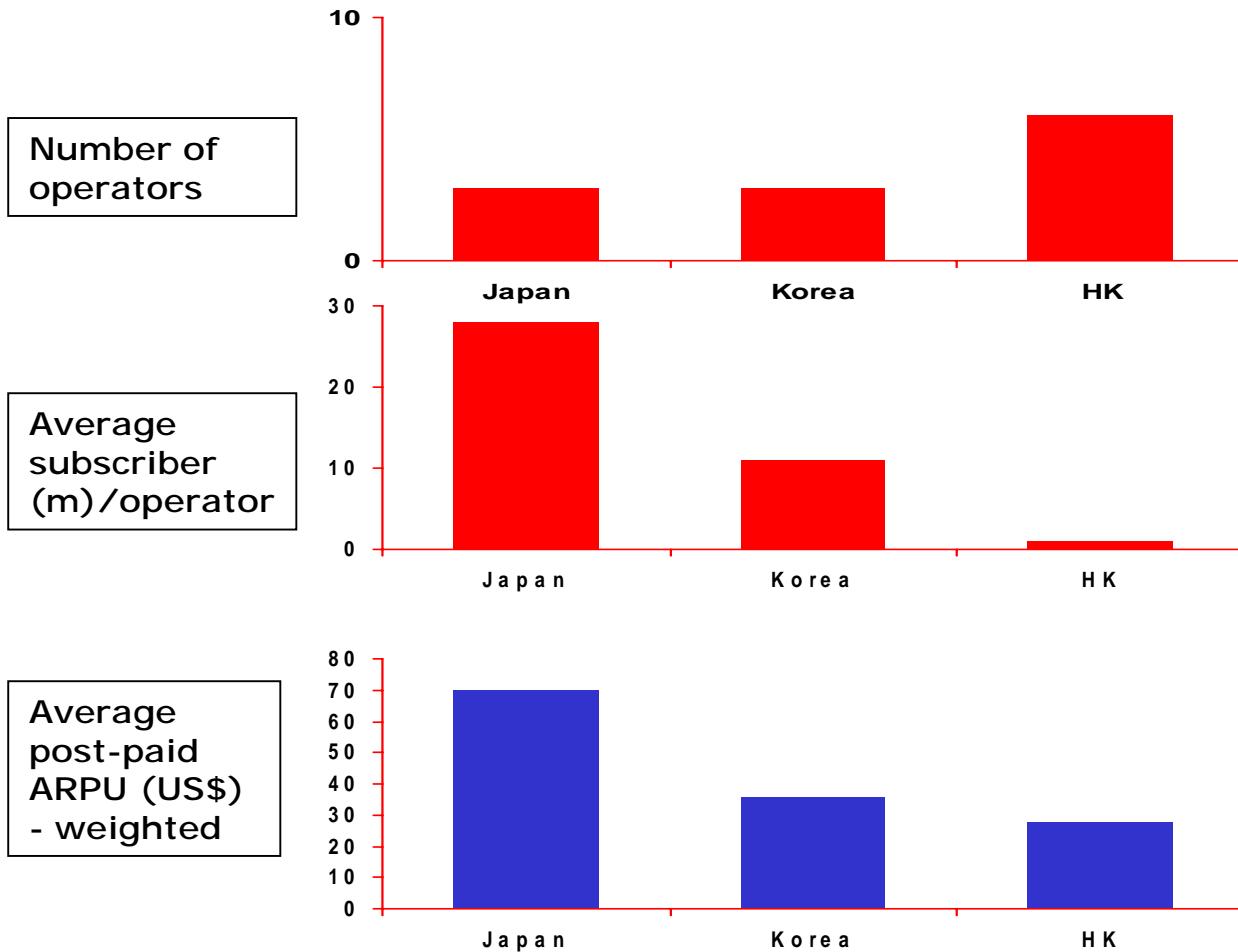
- COMPLEX
- many players
- few tech standards
- new experience for end users

Key players

- Content, application providers
- Software providers
- IT and network providers
- Data Network providers
- Handset providers
- Service providers

“ECOSYSTEM”

Exhibit 3: Policy and size make Japan and Korea attractive for mobile multimedia



Number of operators

Average subscriber (m)/operator

Average post-paid ARPU (US\$) - weighted

- Avoids over-competition and fragmentation

- Provides scale for new product development -- e.g. handsets and 3rd party applications

- Provides cash flow for investments

- Provides cash flow for investments

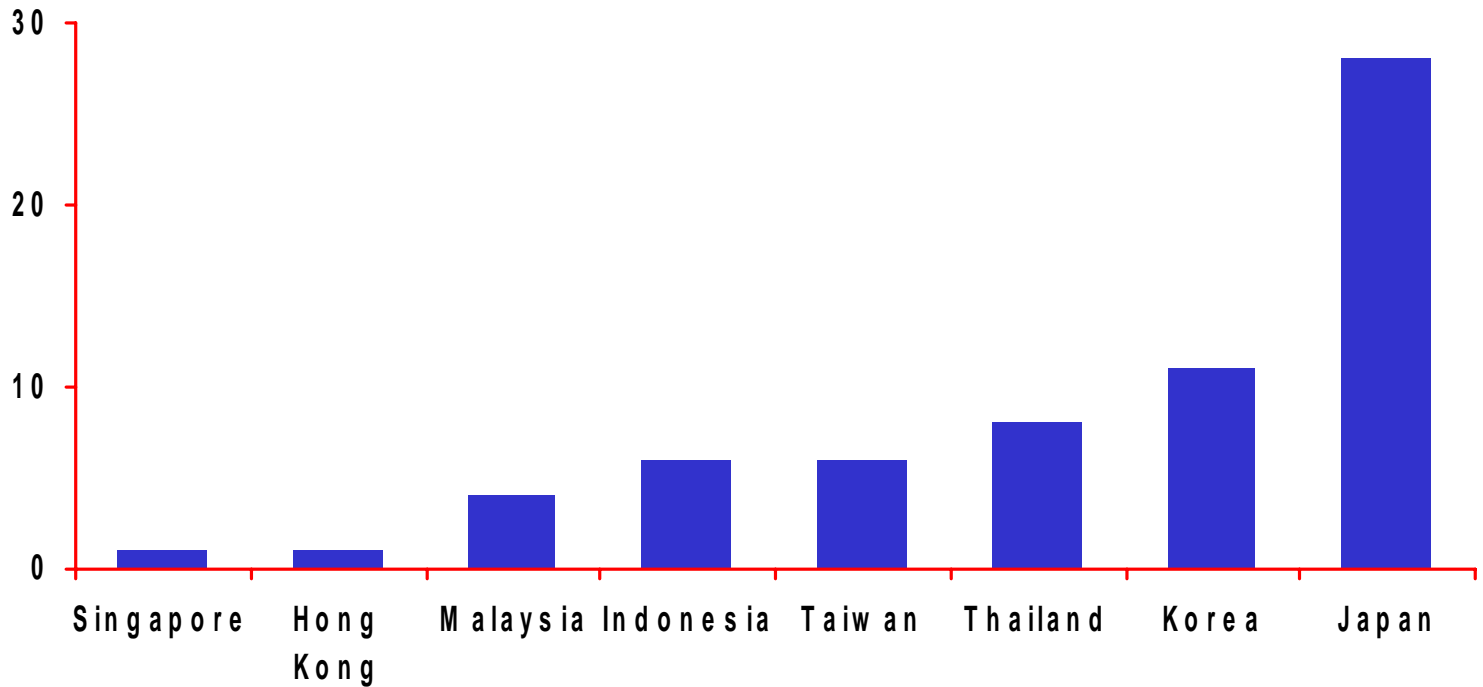
- High voice prices encourage data usage (SMS)

Source: Various research reports

Exhibit 4: Hong Kong is already an outlier in terms of number of licenses

No. of Operator and Subscriber/Licence per country

Sub/Licence



No. of Operator

3

6

3

3

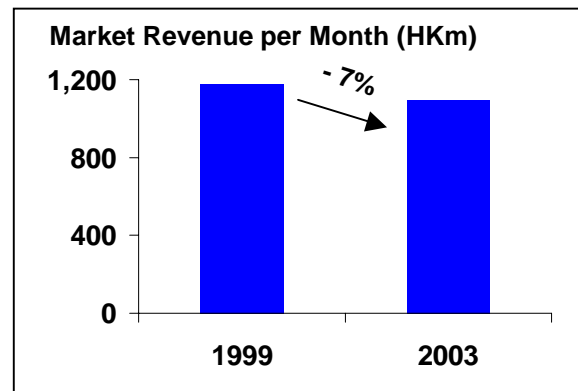
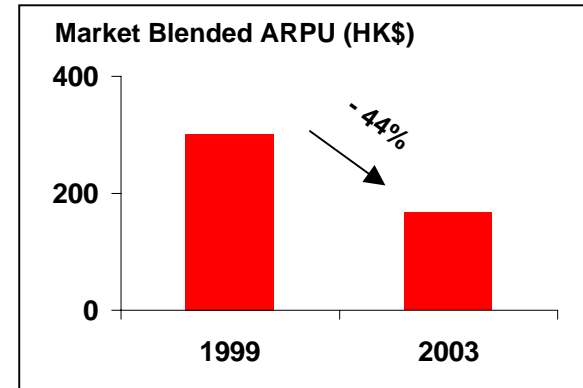
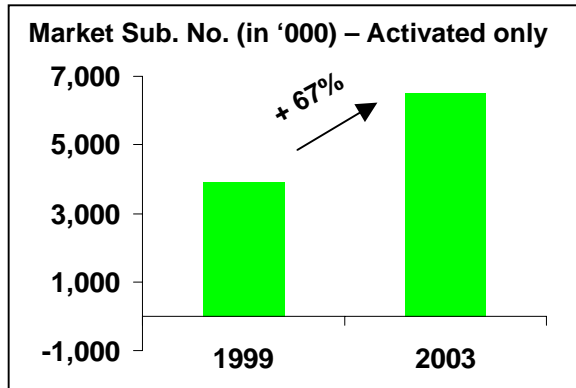
4

3

3

3

Exhibit 5: The extreme competition has led to shrinking revenues, even as penetration has skyrocketed

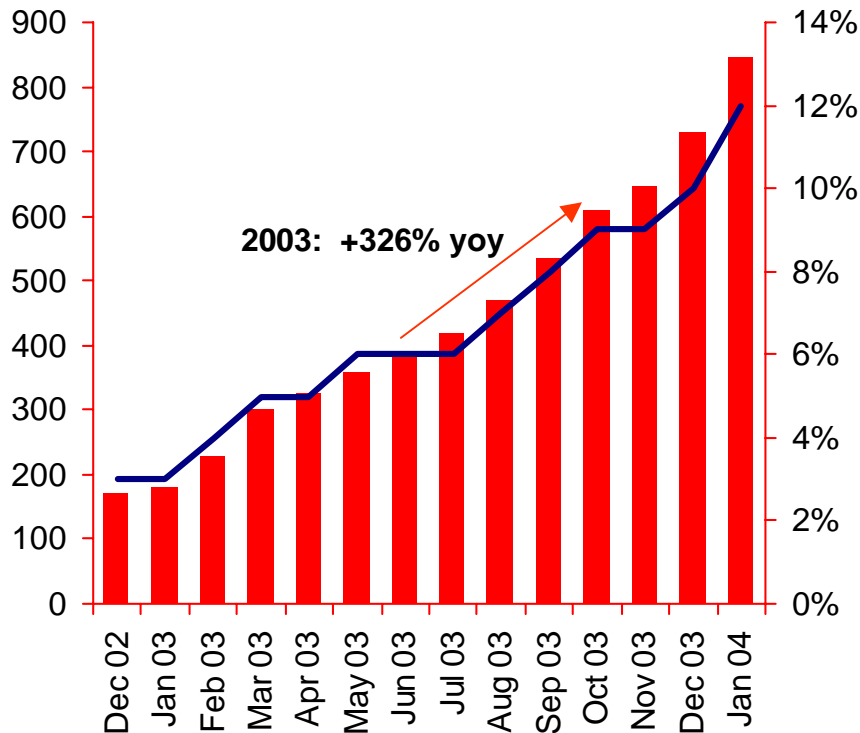


...and new entrants typically undercut prices of standard services by 20% to gain initial share

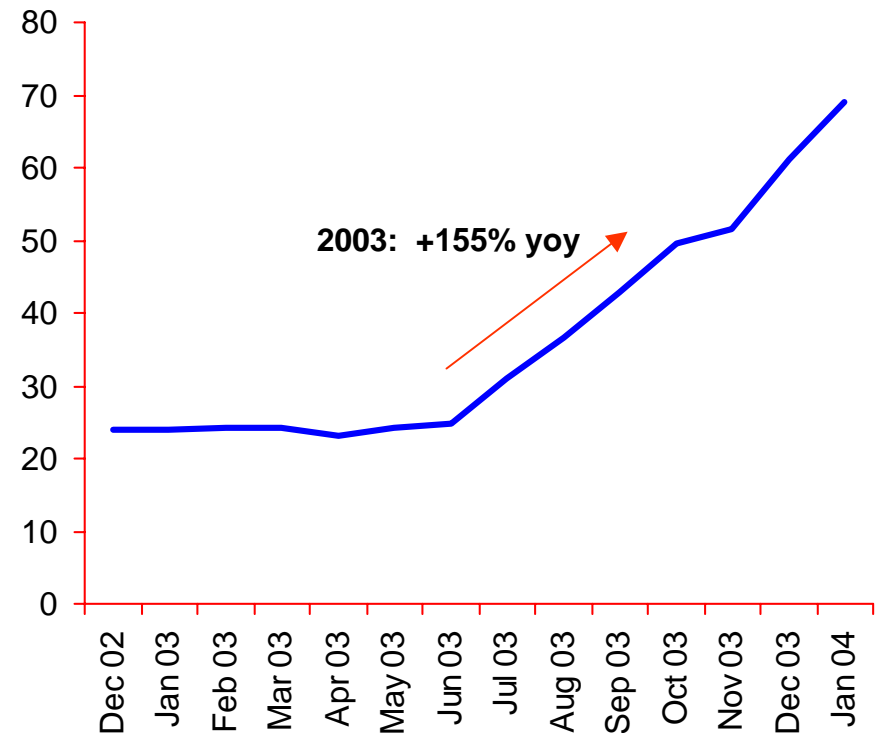
Source: CLSA Global, CSFB, press release and SUNDAY's estimates

Exhibit 6: Current operator efforts are driving rapid growth of mobile multimedia services in Hong Kong

Number of 2.5G customers⁽¹⁾ ('000)



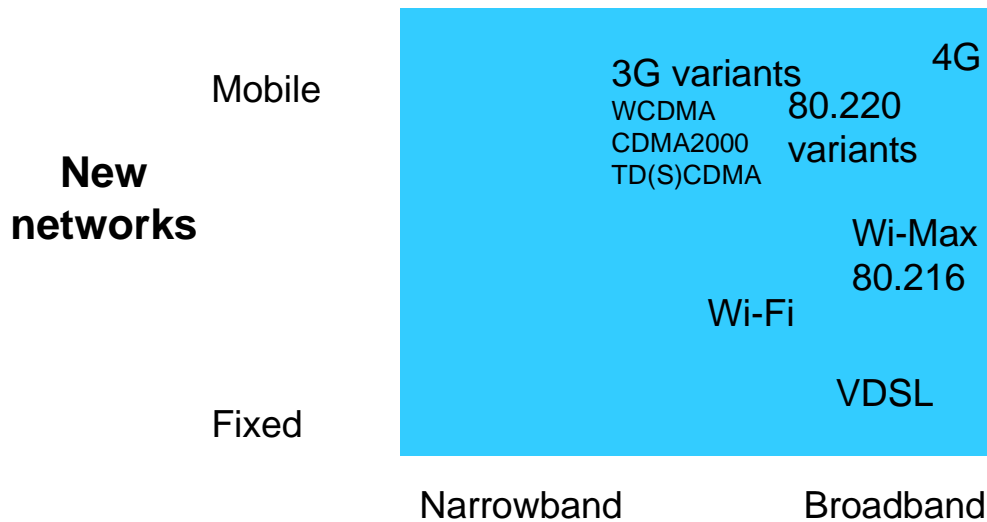
SMS sent – a proxy for data use (m)



Note: (1) 2.5G customers refer to those who have joined the service plans for 2.5G services or used 2.5G services at least once for the month

Source: OFTA

Exhibit 7: Many technological uncertainties will impact future licensing



- Will all of these technologies be commercially viable in HK?
- How much will the businesses and players overlap?
- Can HK support all of the technologies and players?

What is the holistic plan?

Converging players

- Mobile
- Fixed
- + Other network operators

- Strong migration to digital, IP networks each capable of carrying all types of media
- Increasing integration of fixed, wireless, and mobile applications