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wireless new media and traditional tv.doc

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Wireless New Media and Its Potential Impact on Commercial Terrestrial Television

It has been known for quite a while that the revenue for free commercial terrestrial television has been stagnant or dropping while the cost of maintaining it remains high. In the past, the competition from the booming cable channels could be blamed for it. However, the damage is still sustainable because of the limited numbers of subscriber households and its inconvenience of fixed cable outlets.

Now with the high-speed broadband cell or access-point type of wireless technologies, audience will be easily view digital video live or, most importantly, on demand and interactive, anywhere. Channels that are now delivered in regular cable systems will also be able to be delivered alternatively in the wireless communication systems. Will this new concept of radio delivery of content affects the business of “old” commercial terrestrial television? My view is affirmative if the fees charged to the “old” television are not lowered by the regulatory bodies and the high operating costs remain.

Let’s take a simple look at the technical differences between the free terrestrial television and wireless video communications first.

Free terrestrial television is broadcasting. It uses strong public airwaves to transmit audiovisual programs from one point to a large area. It’s a one-way delivery that the viewers cannot interactive with the programs directly unless indirectly with the help of a phone or through Internet. Some other technical weaknesses of them include the limited visual quality and the receivable area. Most of us have experienced in one way or another that the picture received, if using an antenna, is distorted or unclear; normal TV signals, even the strongest cannot reach far more than 80km because of the nature of the frequency band they transmit.

Wireless video communications that are still under improvement and commercializing, however, uses third party telecommunication services that provide mobile phone or Wi-Fi Internet services to relay video programs or television channels. These telecom services connect devices with the low power two-way cell or access point transceivers. Video feed through these networks is just one of the multiple data services they provide. There is also a wide-area wireless Internet service on the roll that can even get rid of the phone line or cable currently the Digital Subscriber Line (DSL)

broadband communication uses at home. Future digital television sets will also be equipped with various wired or wireless Internet interface and become “smart” television; the new generation of smart phone will also integrate pod-cast sort of audiovisual capability into the existing functions of phone, Internet browser, etc.. All these become easy because all contents in the system are simply digital data coded in different ways. These wireless systems, for television channels, are like a cable television system, but in *wireless* with great *mobility* compared with normal cable, and also *interactive* like today’s digital cable. Through these new systems, many channels can reach the end viewers with the same beauty of terrestrial television’s mobility but without the same ugliness of one-way communication and the heavy government regulation based on the technical limitation that I will explain later.

Compared with the terrestrial television, the advantages of wireless video communications are encouraging. Although the mobile, Wi-Fi or wide-area Internet systems that the channel operators use as passages are like a wireless cable, they don’t gain the same natural monopoly of a traditional cable system operator in a certain market, which it obtains through the way of physically laying down the cable to each household with huge investment. Usually in a market, there are several mobile or Internet services providers. Channel operators’ carriage on the services providers’ system is lower than traditional cable because of no monopoly; sometimes, even no need to compete for the carriage. For example, even for the fixed lines and down linked signal re-distribution, we can still see some same channels on both Hong Kong’s Cable TV (cable) and NOW TV (broadband TV) systems. In the future, with the second generation high speed broadband and Internet Protocol (IP) based TV services, channels even don’t need to compete for accessing to the telecom services providers. Instead, viewers get them through browsers on their mobile devices or Wi-Fi enabled TV sets, just like what we surf on Internet today, but for broadcast-quality 24-hour real time video programs as we watch on regular cable today, with much more choices—theoretically a global reach.

Now let’s compare the business sides of both terrestrial television and the non-terrestrial one in the wireless video communications age, and see how the technology may affect the terrestrial one.

Most terrestrial televisions have been in place for years and gained certain advantages. They are easy to access, have more resources through years of investment such as self-owned libraries or archives. Revenue for them is typically mainly from advertising sales, with some from programming sales if it owns a production, or facility rentals.

However, the costs of free terrestrial television are high. I learned from my experiences in Broadcasting Engineering that terrestrial TV broadcasts at very-high-frequency (VHF) and ultra-high-frequency (UHF) bands that are treated as public airwaves and are mostly used by various radio users. Almost every government regulates these public airwaves through licensing. For broadcasters, because of their powerful radio signals and message influence, the government in a certain ruling area has to limit the channel numbers and to protect the public interests from the abuse of the public airwaves through heavy regulations. The reason for limiting the channel numbers is to avoid the interference among different channels that transmit in different frequencies. The license fee is usually very high for commercial channels because of the limited channels allowed in a certain area.

In Hong Kong, for example, according to a Legislation Council proceedings in 1995, TVB, a terrestrial television station, needed to pay the Government for its license at HK\$1.04 million per year plus an average annual royalties of HK\$200 million that was based on its revenue. The same document also states that the license fee after 2005 will be increased HK\$10 million a year, a 10 times increase. Besides other similar costs such as the programming, the manpower, the fixed capital expenditures, and the regular routine operational cost, a free-to-air terrestrial television also has an *extra* heavy cost that differs it from a non-terrestrial *local* television—the transmission. A terrestrial television has to budget high cost to maintain an expensive transmission facility that non-terrestrial channels don't have if delivered locally in the wireless systems or cable. Also for commercial stations, traditionally they own their production houses to produce shows, such as the TVB in Hong Kong and the CBS Studio in the U.S.. However, production involves high financing and the return can be risky.

The cost for non-terrestrial channel operators can be significantly reduced through the digital wireless video communications. Because of the low radio signal power of digital mobile communication in each cell and the very short distance of Wi-Fi at each access point, these frequencies are less regulated than broadcasting. The burden of the telecom license fees for the mobile frequencies is non-broadcasting, and they are on the shoulders of the telecom service providers, which are then charged back to the phone or Internet subscribers as part of their fixed monthly services fees. Even without the video access through the telecom or Internet systems, end users still have to pay these monthly fees. However, the shared license fees for each user can be small if a services provider has vast amount of subscribers. The Wi-Fi Internet access points in most countries are even not regulated because of their extremely high frequencies and relatively short coverage distances within each access point; people can even attach a small Wi-Fi device to their Internet connection for home online mobility.

Some may argue that the terrestrial television is totally free for viewers. However, today with the wide spread of Internet and the improvement of economy, household or even individual connectivity with the Internet or mobile phone is a foreseeable must. In places like Korea, Taiwan and Hong Kong, the individual mobile and household broadband Internet penetration rates have already exceeded or near 100 percent, according to some industry survey. While there is a fixed fee for the mobile or Internet connection anyway, why not use them to watch TV at no extra charge? In fact, the NOW broadband TV of Hong Kong is doing so. NOW provides free multi-channel TV services attached to its sister Netvigator Internet services (although up to now, NOW is still functioned like a regular cable which re-distribute channels through its central server locally, instead of acting like a gateway for the vast amount of channel resources on the Internet).

Usually a market can survive several mobile companies, and the number is limited not because of the technology, but of the economy for healthy business. Channel operators can easily be accessed through the wireless Internet with zero channel carriage fees (this may pose more competition among channel operators as the entry barrier for the business is even lower; however, this is another issue I may explore in the future). Some mobile companies may charge viewers additional fees for large data streams of video through their cell, but some competitive channels may absorb

these fees for viewers who watch their programs. If so, because of the nature of the wireless and the mobility, theoretically, these channels will function the same way as a traditional terrestrial television, but at no government license fees or royalties, and what's more, they can reach audiences distant away! Traditional terrestrial television's exclusive advantages of easy access and mobility are easily eroded away with these new competitors that can come from anywhere!

If the highly charged government fees for terrestrial televisions will not be reviewed and significantly reduced, their business may face a danger because in the wireless world, they are just treated like other non-terrestrial channels, but with an extra heavy financial pressure.

In the beginning of the transition, terrestrial television may still have some programming steam power through their years of investment on content because the high risk and heavy financing involved for quality content may drive most new competitors away. However, the industrial trend is outsourcing, and this entry barrier may also be lowered. Many terrestrial networks spin off their production houses for cost cut and efficiency. The proliferation of independent production houses both seen in the West and some parts of the East will slowly undercut the programming hegemony of the "old" television. The old and the new will need to compete equally for quality content in the production market.

In the revenue part, advertising supported free programming can lose some momentum as well because the online interactive flexibility makes it easy for viewers to skip the traditional commercial breaks. Both the advertisers and the channel operators have to develop some non-skippable ways to stick their commercials to content, such as more product placement in new productions, or visually burn-in ad messages in the content body. For producers of content, the program license structure may also need to be reviewed for the future, as there may not be many channels that can afford the same program license fee as it today. A multi-sale type of new concept syndication that is not based on geographic but demographic (fragmental or targeted audiences for different channels) may be introduced so quality content productions will still be financially sustainable as well as reach as many viewers as possible.

Although this study focuses on the free channels, it is worth mentioning the pay channels a little as well. Some non-advertising supported online TV channels, if programming exclusively, will still be able to generate revenue through access fees, just like what HBO does today through the cable. I believe that when HBO goes online, it can still charge those online TV viewers on a larger geographic basis.

There is an argument that we often see new media to override or get rid of old media, but sometimes in reality they just open up completely new markets and businesses. This is true to certain extent. The television access through wireless communication systems won't make old terrestrial television disappear because they are basically the same media—just the new one will operate under significantly lower cost because of its cheap delivery method. It brings in more competitors that otherwise wouldn't be possible in the free-to-air market in the past. The once exclusive local advertising revenue will be slice by slice bitten by the new participants if their programming gets close to the old ones.

Therefore, when there is a wireless alternative to the heavily regulated public airwaves for delivering the television channels into people's homes or mobile devices, terrestrial television loses many advantages financially. Unless governments substantially lower their fees charged to the terrestrial televisions and the stations significantly restructure their business to streamline their operations as efficient as other non-terrestrial channel operators in the wireless world, traditional free television may be in big trouble one day.

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