

Challenge or Opportunity: 3G Rollout in China in the Economic Downturn

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Abstract. In May 2008, the PRC State Council conducted a significant reform in telecom sector, which created a mega telecommunications regulator and three mega-operators. Simultaneously with this reform, the State Council announced that 3G license would be issued in the near future. Issuing 3G licenses has been a controversial issue in China for a long time. In the past few years, the PRC government has indicated in many occasions that they have been considering to rollout its national 3G network. However, the rollout plan was unable to be delivered in any concrete form for a long period. Nevertheless, in 2008, against a big picture of the global economical downturn and with the government decision to stimulate the domestic consumption, PRC government eventually decided the rollout and issued three 3G to all the three mega-operators. This paper studies the PRC Telecommunications sector focusing on the current 3G roll-out and its impact against the economic downturn. It also analyses whether the industry is equipped with proper regulatory measures to embrace the forthcoming 3G era in China. In the course of doing this, this paper will bring out various regulatory issues that the PRC regulator should carefully address. In the end, this paper concludes that 3G rollout in PRC is in fact an opportunity for the country at the current time if the regulatory regime can keep the pace with the industry movement in a timely manner.

1 Introduction

After years of debate and negotiation, the PRC's State Council finally decided to rollout its national 3G network on the last day of 2008 (PRC State Council Office, 2008a). Simultaneously, the industry regulator, Ministry of Industry and Information Technology (MIIT), announced to the whole country that three 3G licences would be issued to upgrade the country's telecom infrastructure. The three license were: TD-SCDMA, WCDMA and CDMA2000 (MIIT, 2008a).¹ Shortly after this announcement, MIIT published a notification indicating that the country's three mega telecom operators² would be each granted with a different 3G license. In particular, China Telecom was issued with a CDMA2000 license; China Unicom was issued a WCDMA license; and China Mobile is issued with a TD-SCDMA (TD) license (MIIT, 2009b). This triplet-network setting made China become a only country in the world using three different 3G technological standards.

There is so much to say about this interesting setup and this part of the paper approaches this issue from three different angles, the uniqueness of this license issuing, the political consideration and the economical considerations.

1.1 An unique license setup in China

The triplet-network setting is truly unique in terms of the number of different technological standards used. The world has seen very few countries adopted two different 3G technological standards such as in North Korea and in Japan, where two standards were used due to the political reasons³.

PRC is so far the only country in the world using three different standards. This means, as one country, China will have three different and competing 3G networks in few years time. This setting is inevitably associated with many obvious disadvantages, such as high initial investment and continuous maintenance as well as expensive inter-network connectivity. With respect to the initial investment, according to an industry estimate, a complete upgrade of each and every of these three 3G networks will require about 300 billion RAN investment in total. In 2009 only, the estimated 3G rollout will require around 200 billion RAN investment (G. Wang, 2009). Thus, the PRC's 3G decision was not only unique but also costly.

Nevertheless, all three licensees welcomed the State Council's decision and published their rollout timetables in a timely manner shortly after the licenses were issued. China Telecom claimed that they planned to provide 3G services to 100 major cities in China before mid-2009, and offer an extensive service to the whole country in the same year; China Unicom claimed that they could offer their 3G services to 55 major cities in China before mid-2009; and China Mobile claimed that they planned to invest 58 billion RAN to upgrade its 3G networks in 238 cities in 2009 (China Daily, 2009).

There is no doubt that deciding 3G standard is a crucial issue for any country. It is crucial not only because it determines the country's future development of its telecom infrastructure, also because it provides vast commercial opportunities for the downstream telecommunications market such as handset manufacturing and network construction. In this respect, China's triplet license setting does not only require users to change their mobile handsets after the rollout; it also means inter-network connection and transferring service from one network to another network will be a time consuming and costly process. A simple example will be the needs to build three different type of exchanges to enable interconnection of networks. This explains why most countries in the world have chosen to use a single standard. Apart from this, using a single standard does bring in many other advantages. For example, most of the EU countries had decided to use the WCDMA standard. This enabled easier roaming in Europe, cheaper infrastructure investments, cheaper handset price, and cheaper terminals. Eventually, cheaper prices for end users.

So naturally, there is a question to ask here – what motivated the PRC government deciding on this triplet-network setting? The answer is surely a complicated one. The following parts of this paper attempt the answer from both the political and economical point of view.

1.2 A political consideration – balance the State interests

China is a rising nation with many sensitive political issues, such as the issue of Taiwan, the Tibet issue and so forth. Therefore, gaining support from other countries is particularly important in forming China's international allies as well as maintaining China's worldwide status. Unfortunately, political support does not normally come for free. Instead, in most cases, it requires some serious trade-off.

The size and potential of the PRC's domestic telecom market makes it such an attractive market for the global telecom giants. For example, Nokia once declared that the company's 30% profit was made in its Chinese market (Zhengzhou Evening News, 2008). As a result of this, the technological standard that China decides to use really matters. It matters because once the standard is decided; the companies trade based on that standard will surely make profits due to the size of the market.

However, deciding which standard to use did not seem like an easy task for the Chinese government. On the one hand, the CDMA standard is now mature and widely used in commercial networks after being adopted and further developed by the US for a number of years; on the other hand, EU adopted GSM network to maintain its competitiveness against the US and the GSM standard has been widely adopted by European countries. At the same time, GSM is also a sophisticated standard with many years of commercial usage. In comparison, there is TD - it is a home brand technological standard that was developed purely by Chinese. Although it is new and has not been used in commercial networks, it is still a pride of the nation. In addition, if China can develop its own TD in this 3G rollout, many other relating sub-industries would benefit, such as its domestic handset industry, Internet development and multi-media industry. In addition, China can avoid paying high patent fees to overseas companies. Therefore, TD also has reasons to be chosen to take part in the PRC's 3G rollout.

Eventually, the PRC government decided to use all three standards. Although there has been no official explanation of this decision, this paper believes the political consideration formed an important part of it. The cost of this triplet setup is probably high, but this seemed like an easy way to balance the political influences from the US and the EU, and at the same time, providing an opportunity for the Chinese own brand - TD.

1.3 An economic consideration – helping the difficulty

Not long before the decision to issue the licenses, on 5th Nov. 2008, the PRC's President Mr. Wen Jiabo announced 'ten key economic measures' at a State Council meeting. These measures aim to stimulate the PRC's domestic consumption against the global financial downturn. In particular, he indicated that the government planned to spend around 4000 billion Ran (AUD\$1000billion) in the next two years in a number of key economic sectors (PRC State Council Office, 2008b). PRC's State Council held a consequent meeting several weeks later on 26th Nov. 2008. At this meeting, nine domestic industries⁴ were specified as key sectors to receive government funds. The telecommunications sector was part of it. However, with respect to the question of 'how' to stimulate the

domestic consumption, or in other words, 'where' to spend the funds, there have been no detailed instructions from the State Council.

With respect to the PRC's telecommunications sector, to stimulate the domestic consumption, rollout 3G network became an obvious option. This rollout requires some big amount of investment in the next few years and it will provide more jobs and a higher speed telecommunications infrastructure which will further drive the economy of the entire nation. It also triggers the R&D in telecom as well as development of new services and market innovations. It is therefore fair to comment that issuing 3G licenses at this point of time could be an effective measure to response to the slow economy.

With respect to why three different standards were adopted, this paper believes it was also an important economic consideration of the PRC government.

By using China Mobile as an example, China Mobile, the biggest telecom operator in China, has been designated with the homemade TD-SCDMA standard (TD). This provides the country with a big opportunity, not only for the development of TD itself, also for many other sub-industries such as electronic equipment manufacturing industry and so forth. There is, in fact, a simple calculation here – in 1G and 2G ages, due to the fact that PRC mainly relied upon the core technologies from overseas, foreign companies had the opportunity of making approximately \$750 Billion profit in PRC's telecommunications market (China Economics, 2009). In the upcoming 3G age, if China can successfully develop its own technology/standard, there will be some big savings on patent fees, handset and network costs. It will also make the domestic operators more competitive in the international market.

In addition, this paper observes three other reasons have driven the PRC's 3G rollout from the economic perspective. First of all, according to Xinhua News, the PRC's official news provider, the estimate cost of deploying a national wide 3G network is no less than 800 Billion Ran with a preliminary input of 200 Billion Ran (Liu, 2009). These deployments will no doubts boost the sloppy economy. Secondly, 3G rollout will bring positive impact to the telecom downstream market. By April 2009, there are about 678 Million mobile phone users in China (MIIT, 2009a). 3G network will requires all its subscribers to change their mobile phone handsets once the building of infrastructure completes. By according to a well known industry observer Mr. Xiang Ligang, the change of handsets will provides the downstream mobile handset market with at least 5 million customers every year in 2 years following the deployment of the 3G network (Xiang, 2009). It costs around 1000 Ran to buy a new mobile handset currently. By following Xiang's estimate, the change of handsets in the next few years will easily bring in 500 Billion Ran industry sales, which would be a big push to the economy if it eventuates. Thirdly, there are many other service sectors relying on the introduction of 3G network, such as video conferencing, simultaneous information/news providing, gaming, software industry and so on. The introduction of 3G will no doubts lead the web-based service chain to a more advanced level. Moreover, 3G network will also help to enhance the information society and bridge the information divide.

Therefore, the introduction of 3G network has gone beyond a matter of the telecommunications industry itself, it has indeed become a significant driver to stimulate the nation's economical growth.

2 Challenge or opportunity - this is a challenging decision

Deciding 3G rollout in the current economical climate is apparently a highly controversial decision. Many people believe this will bring more challenges than opportunities.

First of all, the global picture of telecom development is not entirely positive. As the financial analyst, Greg Murphy, from Sanford Bernstein said in Nov. 2008 *'the US\$1000 billion worth telecommunications industry once was the pillar of the world economy. With the enlargement of the current economical difficulty, more and more traces indicated that the telecommunications industry is to face a similar destiny of many other industries.'* He also added on this by saying *'although most people believe the telecommunications industry will not be hurt as bad as the 1998 Dotcom collapse, situation will be bad and debts will be significant'*. Moreover, he is not the only person has the negative view on this. There are many other industry analysts, sharing a similar view with him. In fact, Gartner recently released updated worldwide IT spending numbers that show the ongoing economic recession and declining revenues across all major segments of IT drove forecasts down 6% in 2009 (Dubie, 2009).

Against this global picture, the situation in China presents some similar concerns. Although the PRC's telecom industry has been strongly protected and controlled by the central administration, many Chinese analysts were critical about current situation as well as the decision of issuing 3G license at this point of time.

With respect to the issuing of 3G licenses, Mr. Li Jinliang recently commented that *'the current situation is not encouraging. The increasing cost will eventually eat all the profits and the bad economy will restrain people's willingness to use various telecom service such as less use of phone and internet'*(J. Li, 2008). Prof. Xing observed that *'the government does not really understand the current situation. This policy is not what we need at this moment of time. The slower pace of many other industries will slow down the telecom industry as well. If telecom operator's cash flow gets trouble, they will immediately cut the cost and this will injure its supplier, manufacturer and retailer. This will also harm the customer as well as the building of the network.'*(Mao, 2009). Moreover, Mr. Zhang Yi indicated, this decision was a *'pre-matured policy'*. He explained this by saying *'3G roll out in China is not only a matter of capital input, it is a significant project with many other considerations, such as setting up an environment for the security of payment, solving the credit issues as well as building a fair competition platform. Many of these are still problematic in China, which will lead to more problems in 3G roll-out. It is, in fact, the current economic condition, that delivered this pre-matured 3G policy in China.'*(Zhang, 2009).

3 Challenge or opportunity - this is a real opportunity

While some people are doubting this license issuing, others voiced that they welcomed this decision and believed that this will bring China a good opportunity towards prosperity in its information technology development. This paper joins in

this voice and provides observations from the following aspects, including the encouraging new regulatory style of MIIT; the policy support from the government and the special nature of PRC's telecommunications industry.

3.1 A new style of the regulator - a timely and practical approach

For some year, the former PRC's telecommunications regulator, Ministry of Information Industry (MII), had been receiving strong criticism for its ambiguous policy making, lack of transparent mechanism, lack of public inputs and slow procedure. After the new regulator, MIIT, was established in 2008, regulating in telecommunications industry has finally started showing some different styles.

By using the 2008 market reform as an example, the reform had been discussed for at least five year under the regulation of the former regulator, MII. Although the final decision to undertake the reform was made at the beginning of 2008, the plan was consequently postponed due to the severe snow occurred in many parts of China in early 08 (B. Wang, 2008). MIIT was then established as the new regulator in May 2008 and it was keen to push forward the market reform plan. Unfortunately, the fatal earthquake shortly happened in China and the whole country was put into an emergency situation where rescuing people's lives became the government's top priority. Shortly after the earthquake, Beijing welcomed its long expected 2008 Olympic Games and the whole country was excited and focused on this major event for a long time. Reforming telecom market was just like an issue out of the main agenda and could easily be delayed. However, to everybody's surprise, MIIT released the market reform plan shortly after it was established in May 2008 (MIIT, 2008c). This situation clearly signaled a new regulating style that the new regulator carries. It shows that the new regulator can deal with issues more effective than its ancestor. The market and the operators also noticed this new style quickly and they all welcomed this encouraging change. On this point, it was encouraging seeing that the Interconnectivity Report was released in a timely manner of about 2 month after the new MIIT was established. Although there were more practical instructions need to be provided, the report really made a fast first move and established a solid basis for further development. Moreover, the discussion of the number portability has been going on for some years with MII. After MIIT took the office, the trials for number portability was quickly rolled out in Tian Jin and Hai Nan in late 2008 and early 2009. Considering all these are the new initiatives to Chinese, the fact that MIIT could lead the research and experiments in such an effective way did bring in good surprises. This paper thus holds confidence that MIIT's new regulation style will be supportive to the development of the country's telecommunications industry.

3.2 The policy support from the government

Policy support is another important factor in China, which might warrant a successful 3G rollout in PRC even in the current financial difficulty. As explained previously, there were ten key measures identified by the PRC's State Council to response to the current slow economy. Stimulating the domestic consumption was

seen as a key measure. In responding to the ten national measures, MIIT also published its ten measures regarding the telecom industry development in China (MIIT, 2008b). MIIT's measures are largely consistent with the national measures; both of them provided a potentially huge opportunity for the PRC's 3G rollout by the three operators. Therefore, the government support in this case is very strong.

With stimulating the domestic consumption as the big policy direction, telecommunications operators have been motivated to pursue its R&D as well as new business practices by using their own assigned technological standards. After the issuing of the licenses at the beginning of 2009, all the operators have been busy doing network trials and rolling out their services in the best effective ways as they could. However, to cover the whole country, or most cities in the country, the rollout process can take around two years time together with the building of the networks as well as the trials period(He, 2009). There will be some large amount of investment associated with all the network buildings and testing activities. Moreover, the rollout has motivated handset manufactures and equipment providers. In this regard, 3G is no doubt becoming an important tool to re-activate the downstream telecom market and to stimulate the industry consumption.

Although there have been some concerns as to the transit period also as to whether the new market position (3 operators operate 3 different networks) can provide a sustainable long-term development for the industry and represent the best interests of the customers, this paper believes that, with respect to stimulating the industry consumption, the advantages of rolling out the 3G clearly overruled the potential risks of doing it in the current financial situation.

3.3 The special nature of PRC's telecommunications industry

PRC's telecommunications industry does not follow the global trend at all times. For example, world widely the telecommunications industry has shown some major difficulties since the second half of 2008. However, the Chinese telecom companies, especially the three major operators, have not shown any difficulties of even slowing down trend to date. Instead, they are continuously gaining some strong development in 2009. This situation brings out the PRC's telecom industry as a unique case to study.

The PRC's telecom industry is also special for other reasons. One of the biggest reasons was the vast potential in its domestic market. Although the development of the industry has been strong in the past many years, the market still has big potential with statistics showing the telecommunications was only covering 67.5% population in 2008(MIIT, 2009a). Prof. Lei commented that 'with our big population, there is a big enough platform that the three operators can rollout their innovative and affordable services' (Lei, 2008). Therefore, unlike many other operators in the world, China's domestic market can probably serve the business need of three networks at the same time.

Secondly, it is special because all the market players have strong government connections. In fact, the biggest shareholder of all these three operators is the PRC government. This means the real risk of running telecom business is borne by the government as a strong backup.

In addition, with the issuing of three licenses in China, there have been vast needs in R&D in the rollout such as the need for new handsets and network building technologies. Given the fact that WCDMA and CDMA2000 have been widely used in the commercial networks in the US and EU, many foreign forms have participated at this major undertaking to share their experiences with Chinese. This actually provided good opportunities for both Chinese and foreign forms. As Prof. Zeng from Beijing University of Posts and Telecommunications said that 'more and more foreign telecom forms came to China and tried to be involved in this 3G rollout. They took the participation at this rollout as an important business opportunity for them. This is like a safe harbor they can escape from the bad financial situation in their own counties.'(Zeng, 2009). In turn, with more involvements of the foreign forms, the PRC's telecom market will gradually benefit in both getting the new technologies and gaining the more advanced business practices as well as management skills.

Moreover, with respect to the international competitiveness of the telecom industry, the current financial difficulty could actually provide a good opportunity for Chinese. In particular, due to the economic downturn, many countries have indicated that they proposed launch of 4G networks in their countries would probably delay to a later time. For example, Japan has already started their 4G rollout in mid 2009, however, this rollout was proposed back in 2010. The fact that the 4G rollout is slowed down in many countries provided more time for China to catch up in their 3G rollout. In other words, China's telecom global competitiveness has been increased due to the delay in 4G deployments in other countries. Although 3G in China started late, economical downturn has provided China with some time to catch up with others.

4 Observations from the regulatory perspective

In general, developing 3G networks in China will more likely to bring in opportunities rather than challenges. Prof. Zeng once said '*ICT is the most important industry in any country...it is the (economic) engine.*'(Zeng, 2009). So if this engine can be well steered towards the right direction, the economy of the country will benefit. This paper believes that the PRC's 3G rollout at this point of time can serve as such an engine if the government can address the following concerns in a timely manner.

4.1 An urgent call for the right law

No doubt that 3G in China has big market potential as well as supportive government policy. However, neither of these can guarantee a complete success of this undertaking. Instead, there is an important issue that cannot be overseen here. This is an issue that has been long detected by the industry, academia and the end-users; this is also the weakest link in the industry - it is the problematic issue of 'legal environment' and it has not yet been changed.

The PRC's telecommunications industry has not had a governing law/act. An administrative regulation, called the 2000 Telecommunications Regulation, has been used to regulate this industry for nearly 10 years so far. Despite the fact that this is only an administrative decree in nature, this regulation has long gone out of date. The lack of a basic law in the telecommunications industry has

brought many inconveniences, such as the difficulty and ambiguity in regulating the number portability activities or even the essential interconnection activities. This situation will be worsened with the simultaneous three 3G network roll-out in the next few years.

Although the PRC government has indicated in numerous occasions that the drafting of a basic telecommunications Act has been undergoing into its final stage, the Act is not yet published after nearly 25 years of drafting and negotiation(Bush, 2005).

To add to the complexity of this legislative process, only recently, media released that this proposed Telecommunications Act is considering to be renamed to the Communications Act to reflect the convergence nature of the ICT industry(Chen, 2009). In other words, after 25 years of drafting, this Act is facing a destiny where the whole focus would probably be shifted at the final stage. So if this change is finally pursued, how many more years that the industry will need to wait to have this Act?

Moreover, there have been some clear breaches of the anti-monopoly law (AML) by the administrative decisions made by the government in regards to the market reform in mid 2008. These breaches undermined the effectiveness of the AML significantly and it restrained the sustainable development of the telecommunications market. It therefore needs some urgent attentions(G. Li, 2009).

In short, the legal environment in RPC's telecom industry is a total mess. This paper believes, without a substantial improvement of the legal environment, the 3G development can only be temporary, problematic and superficial. Moreover, the development will not represent the long-term interest of the end users in China.

4.2 balance the competition amongst the operators

Another big concern in this triplet network setup is the liaison of the three operators by the regulator, MIIT.

The ten measures that published by the MIIT delivered a message that the industry development is positive even in the time of big financial difficulty. It also delivered the message that MIIT had realized that the difficult part of this is to manage the transit period. MIIT had made it clear by saying that the core part to the role in 3G rollout is to coordinate and balance the relationships amongst all the operators(Qi, 2009). Nevertheless, this could be a difficult task given the fact that all the operators are big companies with strong government connections. Once operators start direct competing, there can be many unexpected issues. Only recently in Sept 09, China Mobile staff were once again caught in attack on China Telecom's network (Clark, 2009). If the regulator and law enforcement bodies do not address these bad-tempered competitions timely, the rollout would be seriously disturbed.

5 Conclusion

3G has become a popular term in the ordinary Chinese life after the vigorous marketing champions that the operators organized in the past few months. The

public is excited about this new development. They are expecting a more convenient way to do their work, study and day to day living.

Unfortunately, 3G networks cannot be built over night. In fact, it is expected that the public can truly experience the various services that 3G brings to their life in at least two years time(Chen, 2009). In other words, it will be a long battle. To win this battle, there are many issues need to be alerted at this early stage. As a brief summary of previous discussions, these issues include building of the high quality networks; providing innovative and affordable services; developing a healthy regulatory environment with a governing law and most importantly, ensuring fair competitions amongst operators.

There are challenges and opportunities co-existing in this process. If the PRC's government and regulator can address these issues in a timely manner at this early stage of rollout, they can then truly master the technological update to become an effective remedy to combat to the slow economy.

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End Notes

¹ This three 3G license are based on three different technological standards. TD-SCDMA is a China developed standard, WCDMA is an abbreviation for wideband code division multiple access, which is 3G mobile telecommunications networks originated by NTT DoCoMo in Japan and now adopted by many European countries; CDMA 2000 is a South Korean developed 3G standard, which was later adopted and further developed in the US.

² The three operators are China Telecom, China Mobile and China Unicom.

³ Two different telecommunications standards were adopted in these two countries were due to the fact that Korean and Japanese governments wanted to promote their homemade standards through its licensing process.

⁴ The nine industries are steel, car manufacturing, ship manufacturing, chemistry, light industry, textile, ICT, Nonferrous Metals industry and equipment manufacturing.