Capturing Value from Mobile SNS- Business Models Analysis of Telecommunications Operators in China

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ABSTRACT

Mobile social networking services (SNS) has been developing for several years and its growth speed has been accelerating in recently. This fact, thus, has crucial meaning to the mobile ecosystem participants and the users. It is especially true for the mobile operators, who exclusively control the 3G network. This arising environment provides much more opportunities and challenges than ever before and how operators can capture the value from mobile SNS would be a problem.

The research purpose of this paper is to provide suggestions to Chinese operators' business models to capture value from mobile SNS, after understanding and analyzing useful information about the business model in Japan and UK.

This paper begins with the concept introduction and discussion. Then in the literature review part, the business model ontology specified by Osterwalder (2002) is conducted. To better comply with the telecom industry, external factors that may influence the business model are adjusted into the ontology.

After the literature review, it is the empirical study part, which adopts case study and interviews as the main research methodologies. Here, the business models of operators in China, Japan and the UK are analyzed respectively.

Finally, based on the key findings of business models, the managerial suggestions are given to Chinese operators: operator should focus on the customers' needs; analyze and collect customer information; utilize Operators' advantages, create unique SNS services; Be a smart pipe and ensure network capacity; choose the most popular SNS providers as the partner; If necessary, investing to SNS with huge potential is also a practical way.

Key words: Mobile SNS, business models, operators

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1. Introduction

In the introduction part, the background information, research objectives and problems will firstly be presented. Then the research methodology will be introduced and, finally, the structure of the thesis will be given to readers for better understanding the big picture of the thesis at last sector.

1.1 Research Background

Mobile social networking services (SNS) cover a set of technologies and services from basic chat services to multi-media environment and content sharing communities. It has been developing for several years and its growth speed has been accelerating in recent years. Informa Telecom & Media reported that the users of mobile SNS had achieved about 92.5 million in global wide at the end of 2008, which means approximately 3% of the total mobile users. By the end of 2013, the subscirber population of mobile SNS will be expected to grow to between 641.6 million and 873.1 million, or 22% of the total user number, depending on the different scenarios (Figure 1).
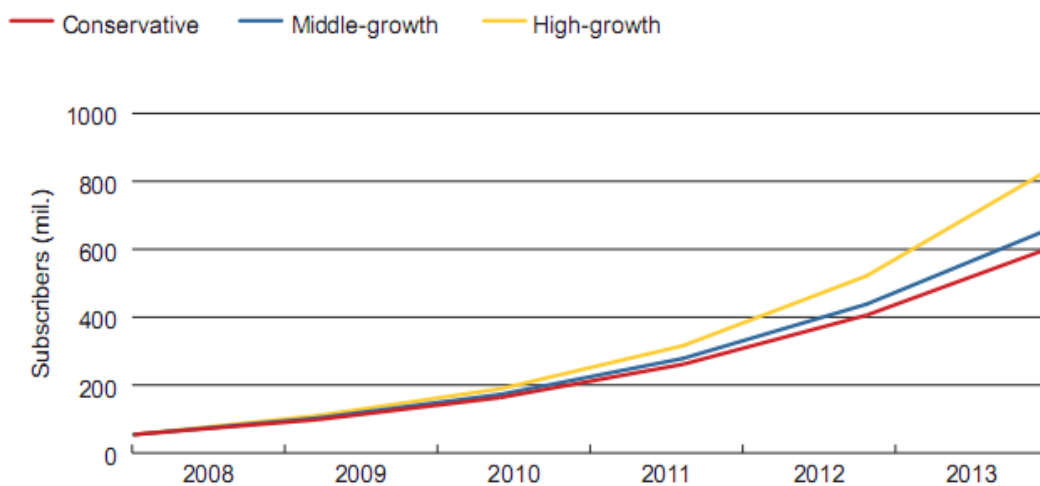
Figure 1 Global, total mobile subscribers using mobile social networking, forecasts for three scenarios 2008-2013 (Informa Telecom & Media, 2009)

Mobile social networking is extremely attractive to those users who are not willing to stay besides their computers and wait for friends' news, and those who cannot access Internet through PC and, instead, only have mobile phone to connect and communicate with their communities.

The story of Gree is a great example showing the potential capabilities of mobile social networking. Gree provides online community services mainly based on mobile platform with 98% page views from mobile devices. By the end of 2011, Gree has obtained 7.16 million registered users and about 1.2 billion US dollars market value.

However, the arising mobile social networking is a two-sided sword to telecommunication operators. On the one hand, the fast development of mobile SNS relies on the effort and support of operators. Take Japan market as an example, the total number of mobile users has achieved more than 100 million, among which 3G subscribers are 90 million. This fact means that more than 90% of the total mobile users are experiencing a faster transition speed and higher quality telecom network services, which provides a powerful basis to ensure them enjoying the pleasures and benefits of SNS.

Meanwhile, due to the popularity of mobile SNS, 3G subscribers begin to spend more and more time on mobile devices, leading to fast increasing data traffic and stickiness to data services. Therefore, the operator can take advantages of this trend, retain customers and capture value-added services as another powerful revenue stream.

On the other hand, the expanding social networking services also have negative effects on operators. In this mobile ecosystem, their positions are gradually marginalized and become a "dumb pipe". Operators can do nothing more than open their network resources and share only part of the revenue generated by data traffic.

In sum, the market of mobile SNS is becoming increasingly large and thus has even more crucial meaning to the mobile ecosystem participants and the users. It is especially true for the mobile operators, who exclusively control the 3G network. This arising environment provides much more opportunities and challenges than ever before and how operators can capture the value from mobile SNS would be a problem.

1.2 Research Objectives and Study Problems

At the beginning of 2009, 3G network licenses were granted to the three dominant mobile operators in China. From then on, China has entered into 3G period and the development speed has kept

accelerating. By the end of 2011, the 3G mobile subscriber population has grown to 143 million. With the better network quality and speed, telecom operators hoped to encouraged the user "stickiness" and thus make their data services more profitable.

In the worldwide, SNS websites, such as Facebook and Twitter, have attracted huge amount of users hang on the services. They also further moved their platform to mobile devices to fully utilize the mobility of devices with which users can access their services at anytime and anywhere they want. The same issues happen in China, too. The popular social networking services, like Kaixin, Renren and Sina microblog, all comply this trend.

Given that the arising mobile SNS trend, it is a great opportunity for operators to explore a new profit area of value-added services and largely improve the user stickiness. However, this opportunity also comes with challenges and problems, which refer to their roles in this mobile social networking ecosystem and the ways of capture value. In other words, the big problem for telecom operator is its business model in terms of the arising mobile SNS.

As the leading market of 3G network, operators in Japan have numbers of achievements in terms of the mobile SNS area. Moreover, operators in Europe also tried a lot of methods to cooperate with social networking sites. Their continuous exploring of operator-driven business model means a lot to Chinese telecom carriers. These precious experiences could be learned, adjusted, and improved according to Chinese unique environment.

So the research objective of this paper is to provide suggestions to Chinese operators' business models to capture value from mobile SNS, after understanding and analyzing useful information about the business model in Japan and UK.

Based on the research objective, the study problems would be as following:

- What are the business models of operators in China, Japan and UK?
- Based on the evaluation of the business models of selected countries, what lessons could Chinese operator learn from?

1.3 Reseach Methdology

Qualitative study is selected as the reserch methdology in this paper, because it shows unique advantages in helping researchers to learn social and cultural phennomena. According to Kaplan et al. (1994), the goal of studying the phenomenon from the perspective of participants and their certain social and institutional context will largely be lost when the textual data are quantified.

As stated in last sector, the reseach objective is to provide suggestions to Chinese operators' business models to capture value from mobile SNS, after understanding and analyzing useful information about the business model in Japan and UK. Based on that, there will be a lot of analysis of social and cultural context. As a result, qualitative research is shown more applicable in this research.

In this paper, the common qualitative research methodology- case study and interviews- will be conducted to collect information and analyze the business models of different operators. According to Westerlund (2009), case study is good research methodology for studying complex and novel phenomenon, such as business model, where strict-set theory and hypothesis are not applicable. In this paper, the information and data used for analyzing are collected from diverse sources.

On the one hand, the primary data is collected through the interviews with two managers from two dominant Telecom Companies in Chinese Market. Both of them have worked in this field for a life-long time and thus have deep and unique understanding to mobile industry.

On the other hand, secondary data come from various sources, such as journal articles, conference papers, reports and other publications. Moreover, the updated information about selected operators in Japan and UK are examined through their websites, press release and company news. The policy documents are also referenced from the websites of regulatory authority in each market.

The different sources of the research were used as following:

- Journal articles, conference papers and books in literature review part;
- Interviews, discussion and information from websites in Chinese operator analysis part;
- Report, books and information from company annual report and press release in empirical study

of operators in Japan and UK.

1.4 Structure of the Study

Chapter 1 gave an overview of the motivation of the research, the objective and research problems, the research method and the structure of the study.

Chapter 2 focused on the literature reviewed of SNS. Definitions from different perspectives, the use of SNS, the categories and the distinction and relationship between SNS and mobile SNS would be covered in this chapter.

Chapter 3 firstly analyzed the characteristics of mobile business. Based on that, how mobile 2.0 would be developed to differentiate from PC and gave consumers distinct user experiences would be introduced.

Chapter 4 discussed the definition and development of business model. The framework which is developed by Osterwalder was also reviewed for the purpose of analyzing the business models of the operators in selected case countries. Moreover, a modification would be given to Osterwalder's (2002) business model framework to better comply with the telecom environment and thus formed the research framework of this paper.

Chapter 5 explained the methodology of this research. Case study research method was selected according to the research objectives. Moreover, interviews were also used to collect data in order to analyze the business models.

Chapter 6 was an analysis of business model of the operators in three selected countries – China, Japan and UK. Collected data was applied for the research framework which is introduced in Chapter 4.

Chapter 7 draw conclusion. The goal of this chapter was to summarize the key findings of each research problem and based on that, gave suggestions to Chinese operators. Moreover, limitation of this study is also discussed.

2. Literature review of SNS

This chapter is going to review the various aspects of social networking services, including the definition and general categories. Moreover, it further gives a picture of mobile SNS and the connections and differences between SNS and mobile SNS would be also discussed in this chapter.

2.1 Definitions of SNS

The concept of SNS is developed from the traditional social networks, but without the initial face-to-face communication. Traditional social networks are those which are built upon of individuals, groups and/or society which are connected with common interests of building relationships for distinct reasons, such as family ties, friendship, business, social and religious reasons (Boss 2009).
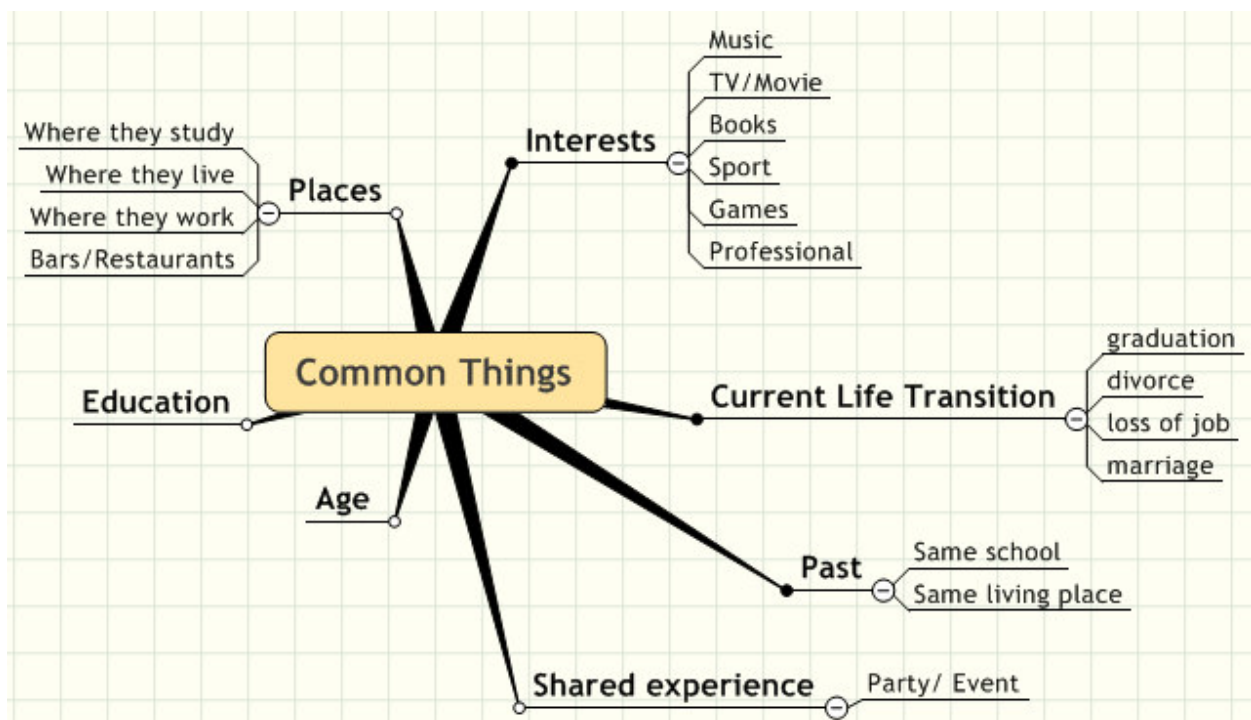
Figure 2 Common Things of social networking (Wildbit, 2005)

"Behavioural science studies show that in everyday life, people choose friends with similar age, income, gender, marital status and /or ethnicity and that similarity of interests is an important factor

in liking others" (Cosley, Ludford, and Terveen 2003). As figure 2 shown, location, interest, past, current life transition, shared experiences, education, age, profession and other work are the common things which users would consider when they build their social network. (Wildbit 2005). Thus, it would be wise that SNS would allow users to create their own profile or personal homepage to interact with others.

Boyd and Ellison (2007) define social network sites as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site."

From context and usage perspective, SNS can be described as services that build and maintain communities where individuals are able to communicate with their friends, classmates and colleagues, or to connect with strangers based on their shared interests and activities. (Ellison et al. 2009). . "SNS also allows users to interact and explore with individuals, communities with common interests or simply remain active in many different ways. This fact encourages users to represent themselves as socially active and online" (Boyd and Ellison 2007).

SNS can be also claimed as platforms that are building and reflecting relationships among people who, for example, share common interests and activities or explore others' activities by being viewers. Most SNS are internet- or mobile-based and provide various ways for users to communicate via internet.[1] Meanwhile, SNS are a wide range of fast growing services tools and practices to facilitate collaboration, interaction and content sharing over networks of contacts (Childnet International 2011).

2.2 Use of SNS

Due to the rapid development and flexibility of ICT, many people have join SNS for various purposes. In the following paragraphs, what the purposes of using SNS are and how SNS function

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[1] http://en.wikipedia.org/wiki/Social_networking_service

would be discussed.

2.2.1 Purposes of involving in SNS

With the help of fast growing information technology, SNS have attracted many people to sign up and browse. Those people use the websites to connect to their friends, establish business partners, or look for romantic relationship. These facts point out that one motivation of joining SNS is to build new or maintain old relationship.

People use SNS for personal and professional purposes, such as contacting without initial face-to-face communication, building new business developments, and scheduling offline meetings. In general, SNS is utilized to establish and manage users' real-world social relationships online. "Communities as well as individuals are better and faster informed through online social networking. They are more engaged and involved with one another." (Putnam 2000) For example, some SNS such as Facebook and Orkut have photo browsing feature. People would curious and happy to search for friends' photo and browse. Moreover, with the help of LinkedIn people can seek for professional or business association, which seems very attractive for those who want to build new business development.

When people move to a new and unfamiliar place, SNS can help them join and contact with new friends by sharing common interests and attending different offline activities. Therefore, SNS turn out to be great tools and services for managing and developing relationships with less effort and lower cost.

2.2.2 Use of SNS

The active level of a social networking sites rely on users' sharing, communicating and other actions that facilitate them build social networks online. On social networking sites, users desire to share their information, such as photo, status, location or interesting places with their contacts. "The Sharing is the mildest form of socialism, but it serves as the foundation for higher levels of

communal engagement". When sharing various personal contents, users are also able to consumer and gain from others' contents. As a result, users are inspired to give comments and suggestions for other ones to look up (Figure 3).
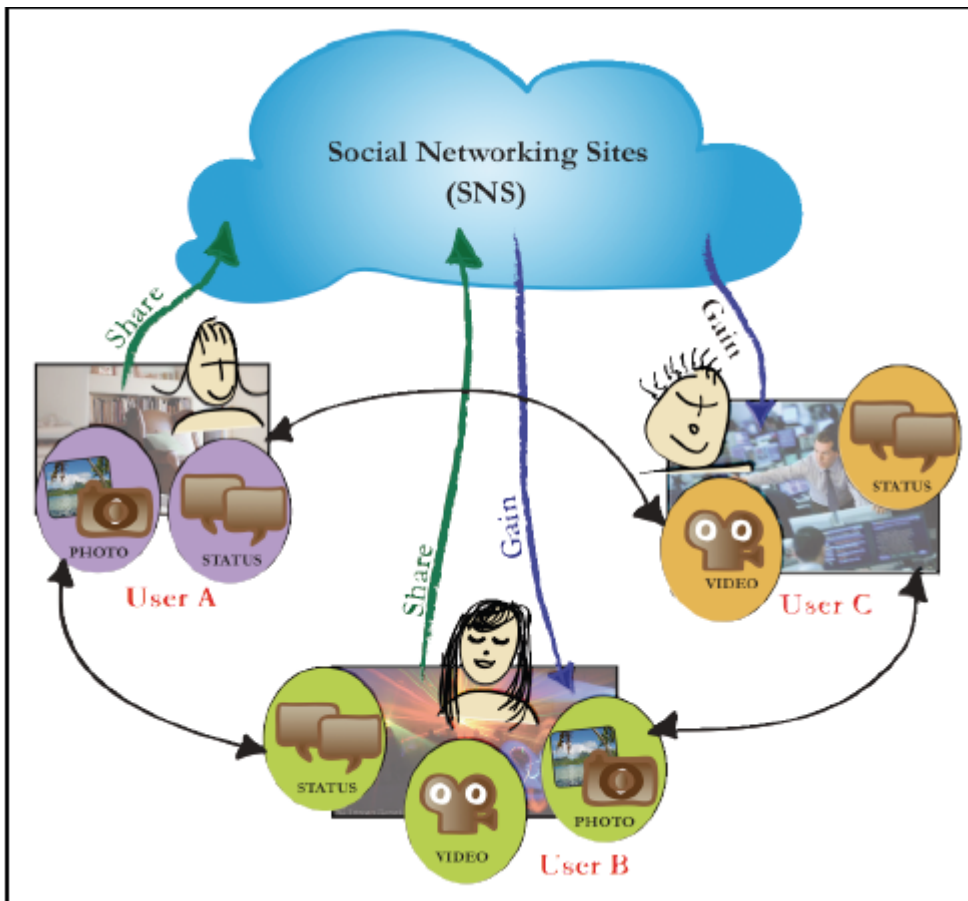
Figure 3 Communication between users and SNS (Kelly, 2009)

2.3 Category of SNS

SNS can be classified into many different types according to various factors. Wellman and Gulia (1999) claim "a social network is a set of people connected by a set of socially meaningful relationship".

In terms of the relationships they presented and the audiences they targeted, SNS can be divided into three types: leisure and social activities (Facebook, MySpace, Bebo, Twitter, Orkut, Tencent etc.), professionals and businesses (LinkedIn, Ryze, etc.), entertainment and services like music, movie,

locations, etc. (Flickr, YouTube, Spotify, FourSqure, Flixter, etc.)   (Savla 2011).

From the specific geographical locations perspective, SNS can be categorized as Cyworld (South Korea), Mixi (Japan), LunarStorm (Sweden), IRC-Galleria (Finland), and Tencent (China) etc. Furthermore, according to the different contents that websites emphasize, SNS can be also divided into photos (Flickr, Zooomr), videos (YouTube), music files (Last.FM, Bearshare) or a combination of both (iLike, MySpace).

In addition, Rugambwa (2009) point out that the websites differ, depending on the extent to which the user is familiar with other users before adding them to the list of friends. That is to say, user may already have offline relationship before they meet other friends through SNS. "On one end of the spectrum there is relatively no need for prior familiarity (MySpace, Xanga) while on the other end in some SNS it is considered a norm (Facebook, Classmates, LinkedIn)."

2.4 Challenges faced by SNS

Although SNS have developed for only a few years, their growth, in terms of the number of users, and the amount of daily traffic, seems absolutely incredible. Meanwhile, SNS have also had to face numbers of unforeseen issues and challenges, which are brought by the common nature of social networking sites. (Kim et al., 2009) In general all the SNS are designed to provide personal information and offer communication channels or tools to enable easy and smooth interaction among subscribers. Thus, privacy, identity and legality issues become the inevitable challenges SNS need to face (Hu 2011).

It is well known that one of the most important factors which makes users involving in SNS is making friends. As Figure 4 shown, the main relationship types included in SNS are friends, friends of friends, friends of friends of friends and strangers of the community. According to the figure 4, those different types of friends are given different "degree" to weight their importance and users do not like five degree away people to contact them (Cheng 2010). However, do not add a stranger to friend list is not an effective way to protect their privacy. That stranger could get user's trust by pretending to be a Fraudster among friends, which refers to the user having false personas and are

lying about everything, with the purpose to be involved in cheating money or sexual dating etc. resulting huge harm to other users (Bhutkar 2009).

As Lytras (2009) said, the lack of face-to-face communication may result a weak security sense in online community. In other words, people actually do not pay as much attention to privacy in SNS as they do in their real life. It is true not only for individuals, but also for the whole network. If the corporate carelessly post their information, it will cause the financial and lawsuit loss to the company.
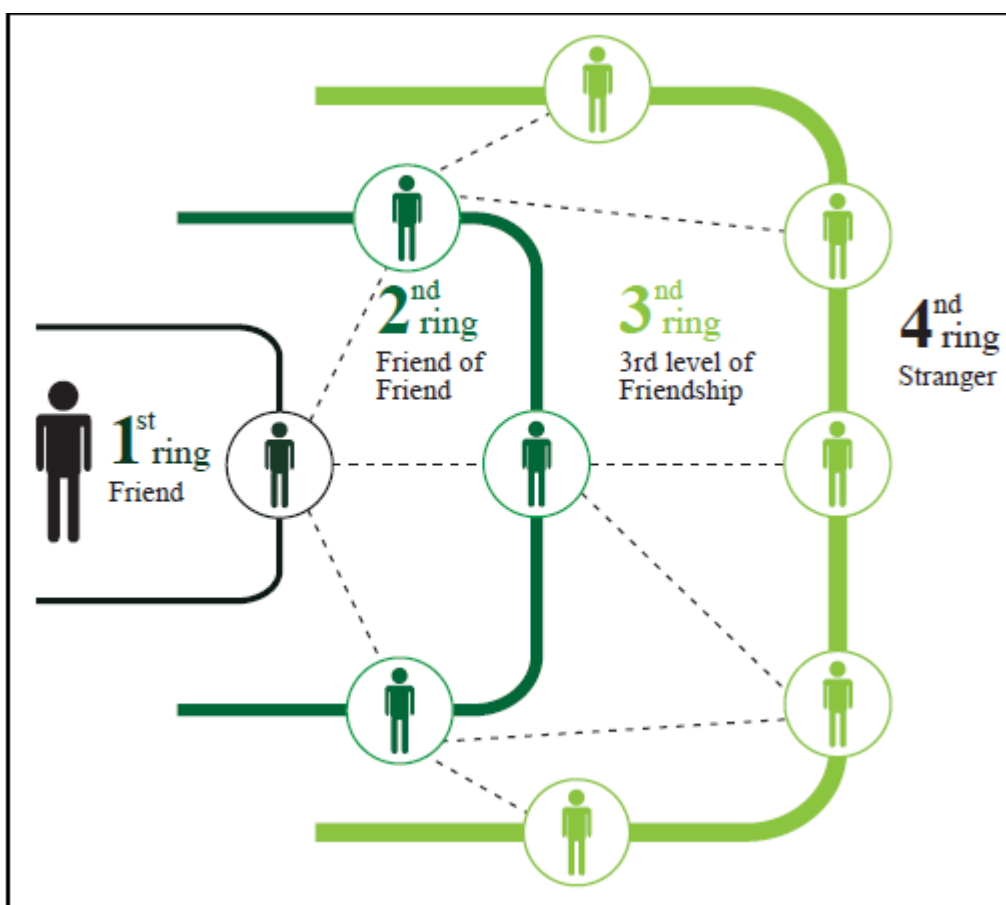
Figure 4   The relationship types in SNS (Cheng, 2010)

Identity risk is another important challenge that is brought by the open environment nature of SNS. In general, in all SNS, users have to create an identity, either with real personal information or not. Moreover, users can also have different identities even in the same SNS. However, this fact may bring numbers of malpractice. For example, users may utilize their different identities to spread fake information or act in ways that are quite different from what they do in real life. (Kim et al., 2009)

2.5 Mobile SNS

Like the web-based SNS, mobile SNS occur in virtual communities, too. Moreover, they gradually become a trend that web-based SNS such as MySpace, Facebook and Bebo turn their services to mobile platform. At the same time, native mobile SNS, Foursquare and Gowalla etc., have also been created and welcomed by mobile users. In other words, mobile SNS can be categorized into two basic types: the first one refer to the extension services of web-based SNS through mobile browsers and smartphone apps, the second one is native mobile SNS focusing on typical mobile uses, such as mobile communication, location-based services, and augmented reality. [2]

The fast developing SNS cannot live without the support of various hardware and software technologies which have facilitated the existence and grow of mobile virtual communities. Previous Wireless network technologies such as SMS, WAP, and Java have already been successfully extended to multimedia and satellite navigation through new and improved technologies - the camera and GPS etc. Based on the development of above technologies, mobile SNS has entered into brand new service areas, including cloud computing, functionalities and technologies like cloud computing, user-generated content (UGC), location-based services (LBS), augmented reality (AR)

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[2] http://en.wikipedia.org/wiki/Mobile_social_network

3. Mobile Industry

Mobile industry is an emerging area that brings numbers of opportunities and challenges. In this chapter, the characteristics of mobile business will firstly be introduced. Then, in terms of the special capabilities of mobile phone, how mobile 2.0 will be developed to differentiate from PC and give consumers distinct user experiences will be discussed. Moreover, the main players in mobile industry will be overviewed to better know the ecosystem.

3.1 Characteristics of Mobile business

Mobile business characteristics are important particularities that companies should be taken into account when formulate their business strategies. Moreover, a successful business model is more likely to be the one that better comply with those characteristics.

According to Camponovo and Pigneur (2003), mobile business industry has primary three particularities, which are mobility, network externalities and exclusive control over important assets.

Mobility can be claimed as the most important characteristic of mobile business, since it represents its main advantage that distinguished from others. Based on that, mobile services can create and deliver their value proposition.

Yu (2002) pointed out that the three benefits that mobile business obtained. They are anytime, anywhere and any information. Camponovo (2003) further listed a set of unique advantages that are related to the attributes, for instance:

- Freedom of movement. Services can be accessed while travelling;
- Ubiquity. The possibility of accessing services anywhere, no matter where the user's location is;
- Localization. Users' location services can be explored to provide relevant services;
- Reachability. Users are able to be reached without location and time limited, from selected people and contexts;
- Convenience. Mobile are always with user himself/herself;

- Personalization Mobile device is personal belong and it can save personal information (Müller-Veerse, 2001).

However, mobility also has some disadvantages. In particular, mobile applications are constrained by the limitation of expensive bandwidth and device situation. Bandwidth limitations are resulted by the radio spectrum which is a fixed and rare resource and restrictedly control by licenses owners. Device constrictions are the consequences of characteristics of mobile handset. They are small and lightweight, and only have limited spaces for screens and batteries.

Network Externalities are the exhibitions of the nature of network. An externality happens when a transaction between two actors influences a third-party who is the external player of the transaction. Economides (1996) stated that the appearance of network externalities is mainly because the complementarities between the components of a network. It is inherent in the structure of the network, which requires numbers of components for the provision of a typical service.

Network externalities can be shown as direct or indirect. Rohlfs (1974) pointed out that network externalities are very important in the telecommunication industry, where the utility of taking part in the network is positively related to the number of users. In other words, the desire of utilizing a certain communication service will be enlarged as the user number increasing in that network. In this case, direct network externalities happen.

On the other hand, the users of telecommunication network also can benefit from the effects of indirect externalities, where even one more customer may increase the number of services provided to others, because as demands grow the service will be more profitable and, thus, more companies will be glad to offer.

The third characteristic of mobile business market is the *exclusive control over important assets* by a certain firm. This sign may be the result of numbers of reasons, such as the scarcity of a good, the existence of a production secret or a special patent, which enables its owner the exclusivity over a specific asset. Moreover, the existence of certain cost structures with increasing returns or large amount initial investments will allow natural monopolies to arise.

As an example, spectrum is very rarity resource that is required by various industries, like telecommunication, military, TV and radio. So the spectrum allocated to mobile operators is comparatively limited. For operators, they also have other important assets, such as their valuable customer information data.

The three main characteristics give great implications to mobile industry. Mobility adds lots of difficulties to applications and services design and development. Network externalities require that mobile handsets and applications should be compatible and therefore actors in this network should agree on unified standards and platform. Finally, the exclusively control over important assets make other partners have to cooperate with operators, unless financial problems or policies allow them to access to those assets.

3.2 Mobile 2.0

Mobile 2.0 is getting more and more popular nowadays. It is easy to assume that mobile 2.0 is simply move web 2.0 from PC to mobile platform. However, if the assumption is right, all the technology that mobile need is a browser that make devices to access web 2.0 services possible. Therefore, a good understanding of Web 2.0 is that it not only brings web 2.0 to mobile devices, but also combines web 2.0 with mobile device (Nations[3]). The driving force behind this conception can push it go much further.

Jaokar (2006) defined Mobile web 2.0 as "your experience of preferred services on a restricted device". This definition firmly differentiates the mobile internet from the fixed Internet because the web becomes the point of configuration of the new service and the mobile device becomes an extension of that service (the ability to access the service anywhere/any time)[4].

Extended O'Reilly's idea of Web 2.0, Appelquist (2006) applied numbers of examples to mobile 2.0 (Table 1)

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[3] http://webtrends.about.com/od/mobileweb20/a/whatis-mobile20.htm
[4] http://www.opengardensblog.futuretext.com/archives/2006/01/mobile_web_20_w_1.html

Mobile 1.0	Mobile 2.0
SMS	IM, mobile blogging
MMS	Media sharing
Operator Portals	Mobile Web and search
Operator chooses	User chooses
Premium SMS billing	Mobile stored value Accounts
Java Games	Connected Applications (e.g. photo sharing, blogging)
Presence & Push-To-Talk	VOIP applications
WAP sites	Web sites that adapt for mobile browsers
WAP push	RSS readers
Wallpaper	Idle screen applications
Location services	Google maps application
Content consumption	Content creation (e.g. mobile blogging)

Table 1 Comparison between Mobile 1.0 and Mobile 2.0

Based on that, he defined Mobile 2.0 as "the next generation of data services to mobile connected devices"[5]. He also predicted that mobile 2.0 can facilitate mobile become the "first class citizen", or even achieve the leading position of the Web and, in mobile 2.0, openness and users' choices are extremely crucial part.

Jeon and Lee (2008) stated that Mobile web 2.0 is not developed as a one-time application environment; instead, it should be a base platform that integrates all kinds of services and applications. They also analyzed that Mobile 2.0 environments has brought 9 technical trends (Figure 5), which are emerging during the processing of exploring new application opportunities while overcoming the disadvantages and constrictions of the existing mobile environment.

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[5] http://www.torgo.com/blog/2006/11/what-is-mobile-20-beta.html

Figure 5 Technical Trends of Mobile Web 2.0 (Jeon and Lee, 2008)

According to Jeon and Lee (2008), social networking sites were becoming interested in mobile area. The service feasibility based on mobile platform is expected to be very high due to the unique characteristic of mobile as the personal belonging with vital personal information and as a channel for communicating with other users.

What should be noticed when moving social networking services from PC to mobile 2.0 is that the advantages of mobile device should be emphasized. In other words, mobile phone does not equal PC and users should not treat it like PC either. Given that the special capabilities of mobile platform, camera and GPS should be considered, mobile 2.0 should be smart enough by recognizing where the users are and suggesting relevant information in terms of the location (Nations)[6].

3.3 Actors in Mobile Business

Mobile market is a very fragmented market, which means that there are many actors involved to provide solutions to end users. So it is important to understand the role of those actors. Many experts shared a similar classification of mobile business market key players, which can be categorized into three main areas: technology, application and network (Müller-Veerse, 2001).

● In the technology area, the main players are access device manufacturers. Then the second

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[6] http://webtrends.about.com/od/mobileweb20/a/whatis-mobile20.htm

important actors are device retailers, component makers, network equipment vendors, enabling technology vendors as well as platform vendors;

- In the application area, the main players are application providers, content providers and content aggregators. The rest important actors are portals, application developers, middle ware developers, and system integrators.

- In the network area, the main players are mobile network operators or carries, and mobile internet service providers, among which mobile network operators are certainly one of the most key players in this industry.

According to Giussani (2001) some new players are emerging in mobile business area. For example, virtual operators (who offer services via other operators' networks), multi-access portals (who allow users to access different customized services through various communication channels), wireless application service providers (who deploy, manage, and remotely host a set of applications or services), and wireless infrastructure service providers (who offer the "software intelligence").Some researchers also mentioned that other players such as financial service providers and payment service providers should be considered.

However, Camponovo and Pigneur (2002) believed that the three classes, technology, application, and network, are not complete and cannot cover all the view of mobile landscape. Thus some other classes, for example, regulation, end-users and enabling services, should be added and formulate the Mbusiness framework as Figure 6.
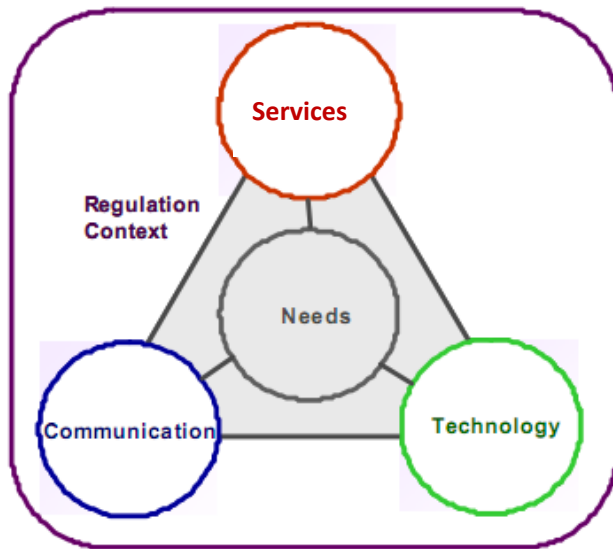
Figure 6 Mbusiness Framework (Camponovo and Pigneur, 2002)

In this framework, end-user is at the center position of mobile business. To fulfill their mobility related needs, three supporting blocks become essential and complementary. They are:

- Communication block, it includes diverse networks that support the transmission capabilities to enable mobile device to access mobile services;
- Technology block, it is made up of all the necessary hardware, such as network equipment, mobile devices and platforms; moreover, it also includes the software infrastructures that provide mobile services to the end users.
- Service block, it covers applications, contents and supporting services.

The blocks mentioned above are all constrained by regulation context.

4. Literature review of business model

Nowadays business decisions are becoming more and more difficult and complicated. In this economics environment, business models are eagerly needed by entrepreneurs and managers to help them better know what their businesses are and how to execute. Moreover, a set of tools are also expected to evaluate, adjust, measure and communicate or even simulate the business models (Osterwalder 2004).

Some literature of business model is going to be reviewed as the theoretical base of the research. Different definitions and frameworks of business models will be firstly studied. Then according to the theory specified by Osterwalder et al., and characteristics of SNS, a business model for mobile operator would be modified and created to fit the case analysis in empirical study chapter.

4.1 Definitions of business models

Although the term "business model" is widely used by researchers and entrepreneurs to describe their theories and ideas, there is a lack of consistent or rigorous definition. (Rajala et al.). According to Magretta (2000), business model is story that tells how the company works; Afuah (2004) described that a business model is a framework for earning money. While Rappa (2004) focused on the sustainability, in other words, business model is "the method of doing business by which the company can sustain itself". Those definitions seem simple and easy, but they give a clear picture of the basic idea of business model.

To be more specific, Timmers (1998) argued that business model can be considered as architecture for products, services and information flows, including descriptions of different business actors and their roles, potential business benefits for various actors, and resources of revenue.

According to Petrovic, business model is the logic of a "business system" for creating value which lies behind the actual processes (Petrovic et al. 2001). It can be viewed as the conceptualization of a company's strategy at the abstract level, which serves as the base for the execution of business process. Similarly, Applegate considered business model as a description of a complicated business

which enable the study of the structure, of the relationships among its structural elements, and of how it will react to the real world.

Other researcher Osterwalder and Pigneur(2002) understood business model by emphasizing the relationship between business strategy and business process. They believed that a business model is "the conceptual and architectural implementation of a business strategy and as the foundation for the implementation of business processes (Figure 7)."
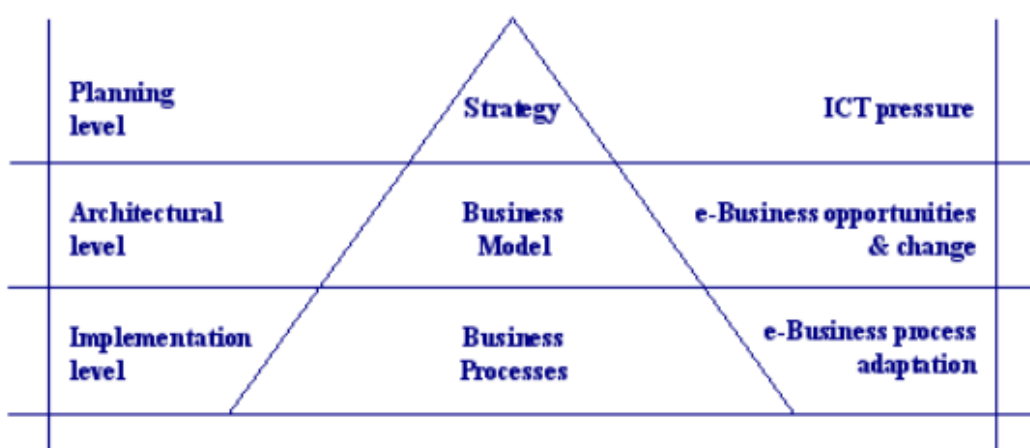
Figure 7 Business Logic Triangle (Osterwalder and Pigneur, 2002)

4.2 Business model Ontology

Instead of giving definition, recent researchers began to identify the components or elements that composed of business model. According to Gordjin et al., the evolution of the business model can be divided into five phases (Figure 8). After simply define it the term "business model"(Rappa 2001, Timmers 1998), researchers tried to complete the definition by dissecting a business model into its components, which was simply listed as a shopping list at first (Linder and Cantell 2000, Magretta 2002). Then detail description of the components was added into the definition (Afuah and Tucci 2001, Hamel 2000), and finally identified as business model ontology (Osterwalder 2004).
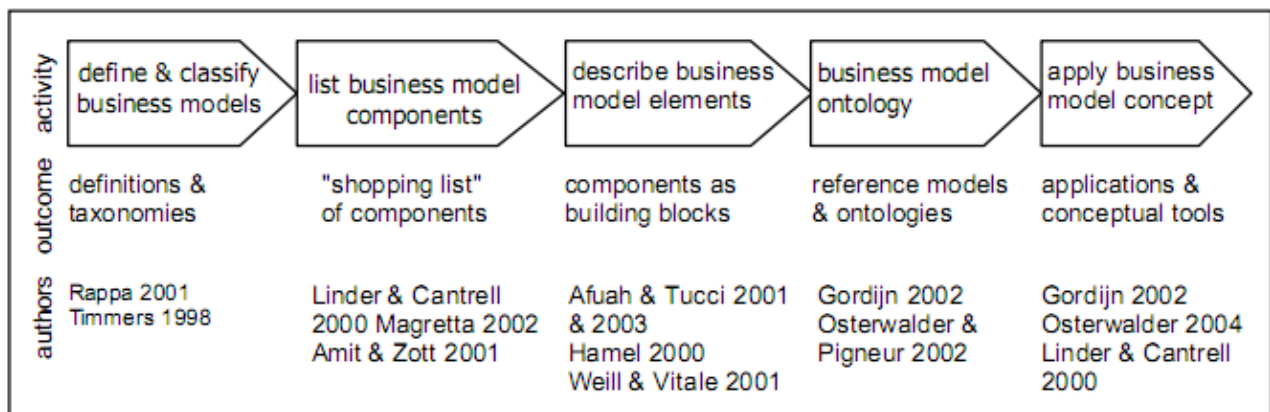
Figure 8 Evolution of the business model towards ontologies (Gordjin et al., 2005)

Many researchers addressed the business model components, such as service and product innovation, the actors invlolved, the relationship between the actors, and information and application architectures (Reuver et al. 2008). Petrovic (2001) suggested that a business model can be divided into 7 sub-models, which are the value model, the resource model, the production model, the customer relations model, the revenue model, the capital model, and the market model. Morris et al. (2005) regarded business models as being composed of 24 components, such as value offering, economic model, customer interface/relationship, partner network/roles, internal infrastructure/connected activities, and target markets.

Moreover, Osterwalder et al. (2002) has provided a more systematic approach to explain the business model concept. In the following part, this business model is to be reviewed as the basic model of operators, because it comparatively fits to the components that an operator has to deal within the context of arising SNS.

The business model ontology established by Osterwalder et al. (2002) is comprised of four main pillars (Figure 9):

(i)   the *products and services*, which consist of a firm offers, representing the a substantial value to customers, and for which they are willing to pay;

(ii)   the *infrastructure and the network of partners*, are important to create value and, moreover, maintain a sustainable customer relationships;

(iii)   the *relationship capital*, that the company explore and maintain customers to satisfy their

needs and to generate revenues;

(iv)   the *financial aspects*, are transversal and can be found throughout the previous three pillars, such as revenue and cost structures.
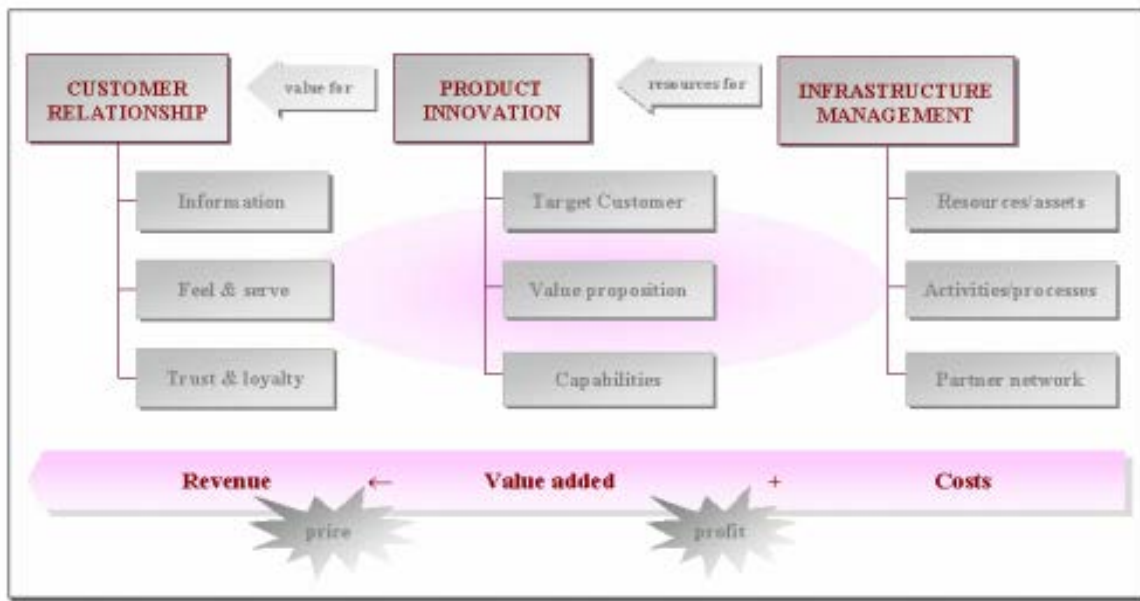
Figure 9 E-business model framework (Osterwalder et al., 2002)

4.2.1 Product Innovation

The first pillar contains all product related issues. The main elements are the *value proposition* a company is willing to offer to a certain *target customer segment* and the *capabilities* a company has to ensure delivery this value (Figure 10).
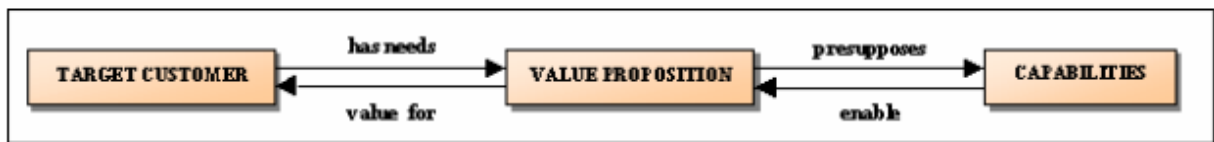
Figure 10 Product Innovation (Osterwalder et al., 2002)

Value Proposition. It refers to the value that a company offers to a certain target customer segment. The arising ICT has facilitated new opportunities to create value and made the value creation more

efficiently. Moreover, it helps a company to differentiate from its competitors in three ways: (1) innovations through new, complementary or tailored offerings; (2) a lower price can be achieved; (3) more excellent customer service.

Target customer. A company generally focuses its business on a certain customer segment. In other words, it defines the market scope (Hamel, 2000) of the company, with which a firm would know where it has to compete, such as customers, geographical areas and product segments.

Capabilities. Wallin (2000) understood capabilities as "repeatable patterns of action in the use of assets to create, produce, and/or offer products and services to a market". In terms of the tight connection between value and capabilities, a firm must have the range of capabilities to ensure that it can deliver the value proposition to the specific customer segment.

4.2.2 Infrastructure Management

The second pillar the infrastructure management discusses value system configuration (Gordijn et al., 2000) which is vital to deliver the value proposition. This pillar is composed of three elements: (1) the *activity configuration* of the firm, which refers to the actions to create and deliver value, and the relationships (2) the in-house *resources and assets*, and (3) the company's *partner network* (Figure 11).
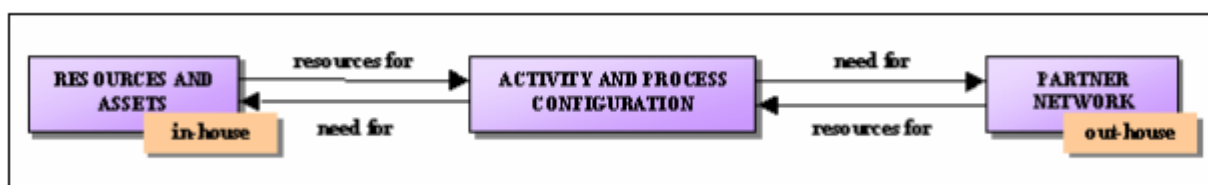
Figure 11 Infrastructure Management (Osterwalder et al., 2002)

Activity configuration. Creating value that customers are willing to pay is the final purpose of the company. This value creation refers to the result of a configuration of inside and outside activities and processes. In this component, value chain framework (Porter and Millar, 1985) and the extend idea value shop and the value network are used to define the value creation process.

Partner network. The partner network covers the elements of the activity configuration which are distributed among different partners of the company. These strategic networks are significantly important to those participating companies and they can exist as the form of strategic alliances, joint-ventures, long-term buyer-supplier partnerships, and other ties (Gulati et al., 2000).

Resources and assets. Value creation needs tangible, intangible, and human assets. Tangible resources refer to plants, machines and cash reserves. Intangible resources are such as copyrights, brands and reputation. Human resources mean the people capital that are used to create value for the company with the former two resources.

4.2.3 Customer relationship capital

Three aspects of maintaining customer relationship needed to be noticed. On the one hand, ***information strategy*** can help the company better understand customers. On the other hand, value can be delivered and expanded by exploring new and diverse ***channels***. Moreover, due to the increasingly virtualized business environment, ***trust and loyalty*** must be emphasized as one of the most important components.

Figure 12 Customer Relationship Capital (Osterwalder et al., 2002)

Information strategy. The information strategy can help the company gather customer information, with which customer services would be improved to premier level and thus maintain the sustainability of customer relationship. Moreover, information strategy facilitates the exploring new and valuable business opportunities. A company with large customer pool will get more feedback and comments. Thus it is more likely that that company will improve its services and products much faster than its competitors, which in return will attract more eyeballs of new customers.

Feel and Serve. The firm has to define its own channel strategy to deliver the value proposition to its

customers. Either direct or indirect channel, operated by the company itself or by third party, the goal of a channel strategy is to "make the right quantities of the right product or service available at the right place, at the right time to the right people" (Pitt, 1999).

Trust and loyalty. Due to the increasingly virtualized business environment, the importance of trust and loyalty must be emphasized. To build such loyalty and trust, a company has to manage the customer's trust and satisfaction. Various mechanisms are provided to help a firm achieve that goal, for example, virtual communities (Hagel and Armstrong, 1997), performance history, and explicit privacy policy (Friedman, 2000; Dimitrakos, 2001).

4.2.4 Financial aspects

The ***financial aspects***, are transversal and can be found throughout the previous three pillars. It is composed of the r***evenue model***, ***cost structure*** and then ***profit model***.
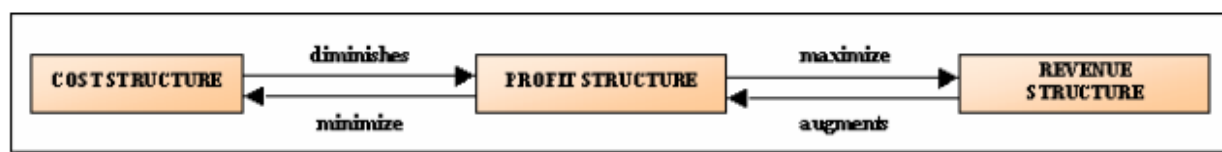
Figure 13 Financial aspects (Osterwalder et al., 2002)

Revenue model. Revenue model refers to the ability that a company translates the value creation capabilities into incoming revenue streams. It can be comprised of multiple revenue streams, each has distinct pricing model.

Cost structure. It measures every cost of the company involved in creating and delivering value proposition to its customers. In other words, all the resources, activities, and partner network relationships will be priced to evaluate the cost.

Profit model. Profit model simply refers to the difference between revenue model and cost structure. Therefore, it can be seen as outcome of the entire e-business model framework. Given that the product innovation and customer relationship should maximize the incoming revenue and infrastructure management should minimize relevant costs, the profit model would be optimized.

3.3 Adapted Business Model Ontology

One of the purposes of this paper is to analyze the operator-driven business model, which means proper research business model ontology is essentially needed. Although there are some academic researches address their analysis on mobile industry, there is a lack of paper focusing on the operator perspective. Therefore, some elements of business model specified by Osterwalder et al. (2002) will be modified to better fit operator in mobile industry.

As reviewed in previous sections, the four pillars suggested by Osterwalder fit the common elements (Bouwman et al., 2008) distinguished from those various business model descriptions, which are:

✧ Service component, describing the value proposition and the market segment at which the services are targeted;

✧ Technology component, describing the technical issues required to realize the offerings;

✧ Organization component: describing the structure of the value network needed to create and deliver the service offerings, and positioning the focal firm within this value network;

✧ Finance component: describing how a value network generates revenues from the service offerings, and how risks, investments and revenues are divided in a multi-actor value network.

However, any business does not operate in a vacuum. The business model can be viable, due to the constraints set by the external factors such as competing environment, customers, resource environment, and financing environment (Rajala et al., 2001).

According to Kijl et al. (2005), *market, technology, and regulation* should be selected as main external elements that influence the business model of mobile service.

Hill and Jones (1995) suggested that the performance of a firm can be influenced by two types of environment factors: the industry or competitive environment and the macro environment. Competitive environment includes the *market environment* and the organization analysis and comprises part of the macro environment. It is always good for a company to take time to study its competitive environment, which provides chances to identify business opportunity and understand distribution channels. New entrants should continuously analyze the competitive environment to

support their business model design and refine. It is especially true in telecom industries where ignoring the importance of environmental developments may lead to failure.

When it comes to macro environment analysis, PESTEL, which stands for political, economic, social, technological, environmental, and legal factors, is a valuable tool for identifying the differential impact of these external factors, drivers, and hurdles on a certain industry, market, or organization (Johnson and Scholes). However, when used in analyzing business model, the importance of these elements is not as the same. Compared with other factors, the technological developments and legal or regulatory issues has more direct influence on business models of mobile services (Kijl et al. 2005). *Technological development* is crucial since mobile services industry heavily relies on technology innovation. When it comes to *regulation factor*, the importance of policy makers and telecommunication regulators should be emphasized.

For the purpose of this study, the three above external variables specified by Kijl et al. and the business model ontology defined by Osterwalder would be adapted into the modified research framework (Figure 14):
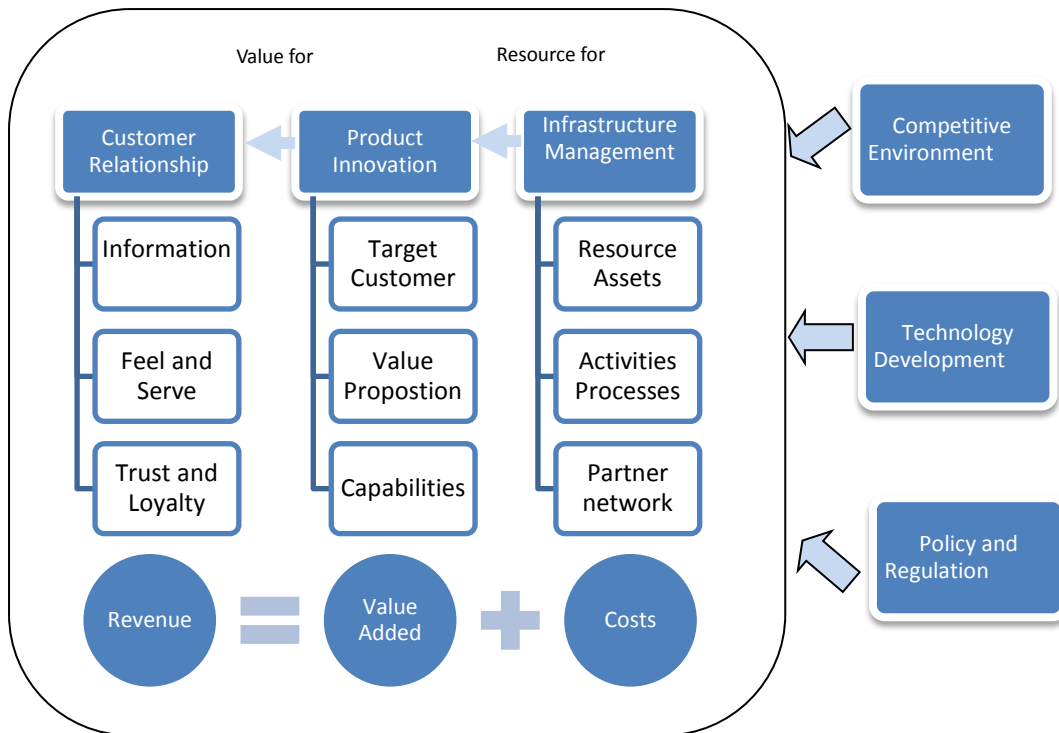
Figure 14 Modified Business model ontology

To summarize, the modified business model ontology include four components and three external factors. The four components are: (1) ***Customer relationship***. On the one hand, ***information strategy*** can help the company identify customers' needs. On the other hand, value can be delivered and expanded by exploring new and diverse ***channels***. Moreover, due to the increasingly virtualized business environment, ***trust and loyalty*** must be emphasized as one of the most important components to explore new users and retain existing customers; (2) ***Product innovation***. It covers all product related issues. ***Value proposition*** refers to the value that a company is willing to offer to a certain ***target customer segment*** and the ***capabilities*** a company has to ensure delivery this value; (3) Infrastructure Management. It discusses resources that are needed to deliver the value proposition. The ***activity configuration*** of the firm refers to the actions to create and deliver value. To achieve this goal, ***resources and asset,*** including both tangible and intangible resources are needed. ***Moreover,*** the company's ***partner network*** covers the elements of the activity configuration which are distributed among different partners of the company; (4) the ***financial aspects***, are composed of the ***revenue model***, ***cost structure*** and ***profit model.***

The above business models components are also influenced by the constraints set by three external factors, which are: (1) ***Competitive environment.*** It is crucial to study the competitive environment,

since it will help identify the business opportunities and customers' needs; (2) ***Technology Development.*** The business model will be directly influenced by Technological development because mobile services industry heavily relies on technology innovation; (3) ***Regulation factor***, the importance of policy makers and telecommunication regulators should be emphasized.

5. Research Methodology

The research methodology sets "a systematic, focused and orderly collection of data for the purpose of obtaining information from it, to solve/answer the research problems or questions (Jankowics, 1991)". So it is very important for researchers to choose a proper method to analyze in the research process.

The purpose of the study is to analyze and compare the operator-driven business models among different countries, China, Japan and UK. Moreover, based on the results obtained from the comparison, give suggestions to help operators in China better capture value from mobile SNS in 3G environment. Therefore, qualitative research method, such as case study and interview, would be applied in this paper.

5.1 Case Study Research Method

A case study is a set of analysis for persons, events, decisions, periods, projects, policies, institutions, or other systems which are studied holistically by simple or multiple methods (Thomas, 2011). It can facilitate the understanding of complex issues or objects and excels at extending or strengthening experiences to what are already know via previous researches. Yin (2009) gives a two-fold definition to case study:

(i)   A case study is an empirical inquiry that:

● Investigates a contemporary phenomenon in depth and within its real-life context, when

● When the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used.

(ii)   A case study inquiry

● Deals with the technically distinctive situation where there will be more variables of interest than data points, and as one result;

- Relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result;

- Benefits from the prior development of theoretical propositions to guide data collection and analysis.

Although critics point out that the study of a small set of cases is not enough to offer grounds for establishing reliability or generality of findings, it is still useful to provide valuable insights to real-life situation, issues and problems. For many years, researchers have used case study method in various disciplines, such as life sciences and social sciences. Social sciences researchers, in particular, have widely used case study to evaluate the contemporary within real-life context and provided the basis for idea application and methods extension.

According to Kaplan et al. (1994), the goal of studying the phenomenon from the perspective of participants and their certain social and institutional context will largely be lost when the textual data are quantified. Moreover, Westerlund (2009) also pointed out that case study is good research methodology for studying complex and novel phenomenon, such as business model, where strict-set theories and hypothesis are not applicable. Therefore, rather than quantitative research methodology, case study and interviews based on qualitative research were selected in this paper to enable better understanding of the social and cultural phenomenon.

- Validity and Reliability

The validity and reliability of the qualitative research has been discussed for a long time. According to Westerlund (2009), validity refers to the "the best available approximation of the truth". Richardson (2000) also pointed out that validity reflects externalities in numerous ways depending on the views adopted by the researchers. In other words, when discovering the truth, the validity may vary because of the different perspective. Therefore, it is hard to identify the absolute validity in a qualitative research. All the information acquired and generated is interdependent with the participants in the research process.

In case study, it is essential to look for literature support whenever needed. Yin (1994) classified

validity into three levels:

- ■ Construct validity: Identify right operational measures;

- ■ Internal validity: Seek to establish causal relationship;

- ■ External validity: Define the domain of findings generalization.

In this paper, the validity is empirical study based on two managers from two different Chinese Telecom Companies. Both of them have worked in this field for a life-long time and thus have deep and unique understanding to mobile industry. So they provide casual contribution to internal validity. Moreover, in terms of external validity, the interview results will be generalized to fulfill the business model research framework in this paper.

Reliability studies the possibility of replicating the research and getting the same results. Considering the reliability, previous business models research framework specified by Osterwalder has been adopted and modified to better fulfill the requirement of mobile industry. Moreover, for the empirical study part, the same research framework and the same themes were conducted during the interview to obtain comparable information.

● Data Collection

In a case study, data collection should be considered as an important process that will enhance the construct validity, internal validity, as well as the external validity and reliability. Yin (1994) pointed out six main sources of data collection for case study. Each of them may have different requirement about researchers' skills. The six main sources are:

- ■ Documentation,

- ■ Archival records,

- ■ Interviews,

- ■ Direct Observation,

- Participant Observation, and

- Physical Artifacts.

Not all of the above sources will be used in every case study, however, their importance to the validity and reliability of the study is well established (Stake, 1995). It should be noticed that, in a case study, researchers should use as many resources as possible, if relevant, because there is no single source possesses complete advantages across the other ones.

In this paper, documentation, archival records and interviews are the primary resources to gather research data.

5.2 Interviews

Another common qualitative research methodology is the interview, which can be simply considered as a conversation with predetermined target to gather relevant information. It became a necessary research type because of the post-war social study.

Interview is a useful methodology to get the information behind the participant's experience. During an interview, respondents are usually encouraged to talk about a certain themes or within range of topics in their own words or even raise new questions. Researchers are also co-producers of the data, which is produced by the interaction and communication between researchers and interviewees (Seale, 2004). In other words, it means that interviewers do not completely rely on the data provided by respondents.

An interview should be well designed in advance to enable systematic gathering information and avoid the interview become a simply story-telling conversation. Moreover, in order to achieve this goal, interviewers should remember to frame and control the topics and process. When the social status of the interviewers is higher than the one of researchers, a semi-structured research discussion could be considered to give the respondents a certain degree of freedom and make them feel comfortable to take part in the research.

In pre-design phase, researchers will list the interesting themes, which will be operated as several

open questions when conducting the interview. Its structure should aim at balancing relationship between research questions and natural dialogue. When it comes to this paper, the interested themes would be selected according to the main analysis variables derived from theoretical ontology.

The main analysis variables refer to the primary research aspects that should be involved in the case study:

- ✧ The current business model in terms of the arising mobile SNS?

    - ■ The evaluation of current business models?

    - ■ How to cooperate with traditional SNS? And How to develop their own mobile SNS services?

- ✧ External factors that affect their business models

    - ■ The market situation and the analysis of competitors in terms of the advances and constraints;

    - ■ Evaluate the policy and regulation that influence the whole industry?

- ✧ Ideal business model for the future

    - ■ Analyze which part could be improved to become more innovative and why?

Therefore, the study flow of the interviews can be described as Figure 15:

Theoretical Ontology	Main analysis variables	Interview Themes
-- Osterwalder's business model ontology	-- Current business models	-- Cooperation relationship
-- External factors	-- External factors evaluation	-- Present market situation
	-- Forecasting the ideal business models	-- Policy and regulation
		...
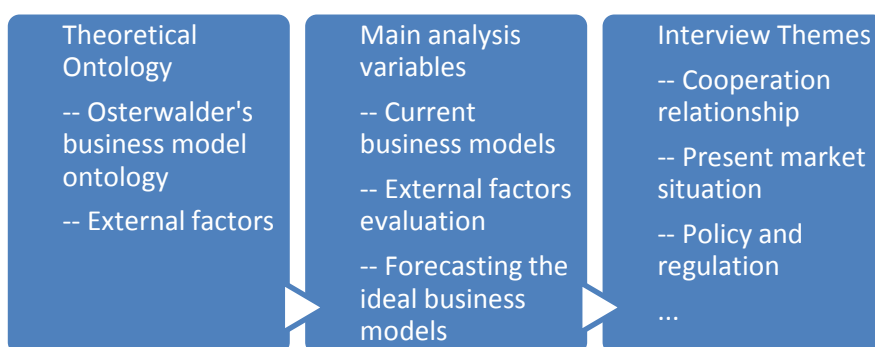
Figure 15 Flow of the interview

6. Empirical Study

As smart phones increasingly become an essential part of people and 3G network has spread all over the world, many traditional SNS providers have begun to emphasize and shift their services and products to mobile platform. Thus, it offers telecom operators a precious chance to explore another value-added service channel with the problem how they can successfully capture the value created by mobile SNS.

According to the research done by Inform Telecoms & Media, the number of mobile SNS users across the world was over 9.1 million in total in 2008, and was expected to achieve 769.7 million in 2012. Obviously, it is big opportunities and challenges for operators to improve its user stickiness and to avoid service providers eclipse its business.

When it comes to China, the number of 3G users has rocketed in recent years and SNS are getting more and more popular, too. Chinese telecom operators also have to face the same questions: to compete or to corporate with SNS sites? And How? Except for China, the following paragraph will also give insights to business models of three different countries, Japan, and UK, to deep understand how operators in those counties capture value from SNS.

The three case countries are selected because Japan is in the leading position in mobile SNS area across the world; UK keeps the fastest users increase rate in Europe; while US equipped with its unique advantages in traditional SNS area.

6.1 Company profiles of operators

6.1.1 China

In telecom industry, the market is dominated by three operators, which all had state-owned background. They are China Mobile Communication Corporation (China Mobile), China United Network Communications Group Co., Ltd (China Unicom) and China Telecommunications Corporation (China Telecom).

China Mobile, the predominant player in Chinese telecom industry, was established in 2000 and was listed on the New York Stock Exchange ("NYSE") and The Stock Exchange of Hong Kong Limited ("HKEx" or the "Stock Exchange") on 22 October 1997 and 23 October 1997, respectively. It has subsidies in 31 provinces in mainland and in HongKong. At the end of December 2011, the Group had a total employee of 175,336 and a customer base of nearly 650 million, and achieved a market share of approximately 66.5% in Mainland China. In 2009, the company began to take the responsibility of constructing and promoting the Chinese 3G standard TD-SCDMA.

China Unicome was officially founded on January 2009 on the basis of the merger of former China Netcom and former China Unicom. It has subsidies in 31 provinces in mainland China and other foreign countries across the world. It is the only Chinese telecom company that is listed in NewYork, Hongkong and Shanghai Stock Exchange. As of the end of 2010, the total assets of the Company reached CNY512.6 billion and the 312,700 total staff number. China Unicom mainly operates fixed and mobile communications service, domestic and international communications facilities, satellite IPLC service, data communications service, network access service, value-added telecom services and system integration service related to information and communications services. In 2009, China Unicom has been granted WCDMA license and in the same year, the company promoted their 3G brand "WO", carrying their brand value which is be innovative to provide wholly support to individuals, family and corporate customers.

China Telecommunications Corporation (China Telecom) is an extra-large State-owned telecom operator in China. In 2008, the company purchased the CDMA business operated by China Unicom and thus, in the next year, obtained the 3G license. Although China Telecom is fresher in mobile area, its communications network has quickly covered the whole country of China. The company has become the world biggest CDMA 3G network, with its earliest commercial services in China, having many branded products such as "Tianyi", "My e Home", "BizNavigator", "Best Tone", being capable of offering numerous telecom services and multiple convergent services and sales channels.

6.1.2 Japan

Now the telecom market in Japan is mainly composed of three operators, which are NTT Docomo,

KDDI, and Softbank.

NTT DOCOMO is premier telecom provider of mobile voice, data and multimedia services in Japan. The company has achieved more than 59 million subscribers and thus become one of the largest mobile communications operators across the world.

The company is not only a technology and service pioneer in Japan, but also an influential force in world wide. In 1999, DOCOMO introduced i-mode™, the most popular platform services based on mobile Internet, including e-mail, browsing, downloading. In 2001, DOCOMO launched FOMA™, first commercial 3G mobile service based in the world, which has changed the mobile landscape in Japan while improving the DOCOMO brand globally

KDDI Group was established on the basis of merger of DDI Corporation, KDD Corporation, and IDO Corporation in 2000. Thereafter, KDDI become the only domestic company operating both mobile and fixed line business. The company is always proud to take these as its unique advantages and set it as the solid foundation for its growth. Its mobile business is totally operated by the band "au", leading the consumers having a unified understanding of services. Until Mar 31 2011, 33 million au mobile customers and 6.4 million fixed-line subscribers are using KDDI's services. Meanwhile, about 18,000 employees are supporting the company and ensuring it providing high quality services to customers.

SOFTBANK believed that "the further acceleration of the Information Revolution, primarily with mobile Internet, would bring about an age in which a variety of content could be enjoyed anytime, anywhere." Therefore, SOFTBANK decided to enter the mobile business area through acquiring Vodafone K.K. and converting it to subsidy in 2006.

Thereafter, SOFTBANK adopted activities in four perspectives to quickly improve its core competence: (1) Network Enhancement; (2) Handset Enhancement; (3) Mobile Content Enhancement; and (4) Sales Structure and Branding Enhancement. As a result, subscriber number has increased 70% to reach 25.41 million until 2011.

6.1.3 UK

The telecom market in UK is comparatively fragmented, in 2011, it is claimed that there are 45 active Mobile Virtual Network Operators, ranging from conventional MVNOs to resellers, including well-known name, such as Tesco.

In this market the bigger players are Everything Everywhere, O2, Vodafone UK, and Hutchison (Figure 16).
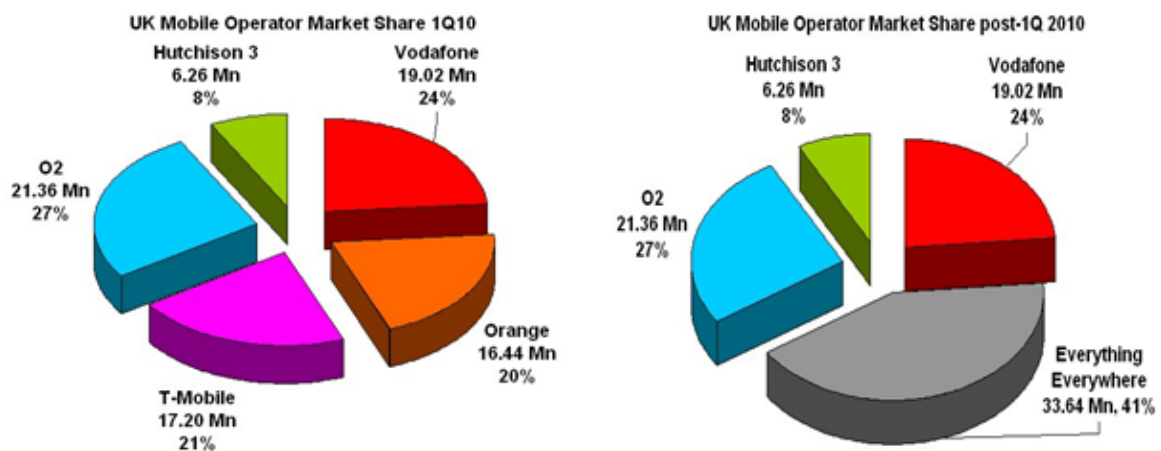
Figure 16 UK mobile operator market share (Telecom Market Research, 2011)

O2 was once the leading operator in UK, however, after 1Quater 2010, with the merger of Orange and T-Mobile, the Everything Everywhere (EE) immediately become the No. 1 with about 41% market share.

Everything Everywhere Limited is a mobile network operator and Internet service provider company with 28 million customers in UK. It is a 50-50 joint venture between Deutsche Telekom and France Telecom, operating under both Orange and T-Mobile brands.

The company has a tradition of innovation and growth. With the goal of making the life simpler, Orange is pioneer in offering innovative products and services in the UK, such as inclusive caller ID and plan minutes, per second billing, mobile conference calling, mobile TV, and HD voice calls.

T-Mobile brought innovations to the UK, including the picture messaging, broadband WiFi services on trains, Flext monthly plan with cross-network minutes and texts, and "Life's for Sharing" flash

mob advertising campaigns.

The company commits to continue the brand advantages in innovation and growth and aims to build the best mobile network and meanwhile provide outstanding customer services and customer experiences in the UK.

Telefónica UK Limited, part of Telefónica Europe plc, uses O2 as its commercial brand name in UK. It is a leading telecommunication company for individuals and corporate customers in the UK, with 23 million mobile, fixed line and broadband subscribers as at the end of 2011.

In UK, O2's 2G mobile network offers voice and data services to about 99% of the population. Its 3G network currently provides voice and higher speed data services, which cover over 84% of the UK population at speeds of 14.4Mbp and 21Mbps in major cities.

6.2 Business Models of Operators

As mentioned in previous sector, business models are not operated in vacuum, they will be affected by numbers of external factors. In the following part, three external variables, competitive environment, technology development, and policy and regulation will be covered to analyze the case countries. Moreover, according to the business model ontology defined in Chapter 4, the research components are going to cover Customer Relationship, Product Innovation, Infrastructure Management, and Financial aspects.

6.2.1 Business Models of Operators in China

6.2.1.1 External Factors

✧ Competitive environment

Chinese mobile telecommunication industry is dominated by three operators, which are China Mobile, China Unicom, and China Telecom. They are authorized with different 3G licenses at the beginning of 2009, and thus China become the only country in the world that operates three standards at the same time. The three operators altogether have covered more than 900 million users

(Table 2). Mobile internet users have achieved 356 million[7], which means year-on –year growth in 2011 is 17.5% and this number is expected to keep increasing in the future. Moreover, due to the development and popularization of 3G, more and more users are able to access mobile internet and thus make it become a common and prevalent way in people's life. All the above issues provide basic environment to explore mobile SNS and make this blue ocean strategy becomes possible and practicable.

(Unit: Million)

	Users (2G&3G)	Users (3G)
China Mobile	661.4	56.58
China Unicom	160.1	45.9
China Telecom	132.3	41.15

Table 2 User Numbers in China until Feb. 2012 [8]

When it comes to the situation of the big three operators in China, what should be noticed is the rise of China Unicom because of 3G network. According to the financial report of 2011 provided by China Unicom, its 3G business has achieved highest increasing rate in Chinese mobile industry. Its turnover of the company was CNY215.52 billion, increased by 13.3%, and 3G business has got CNY3.27 million，increased by 182.3%. 3G has already become the most powerful driving force of the company.

China Mobile once obtained the largest customer base in 2G time, which is also one of the biggest advantages in 3G area compared with the other two operators. However, in fact, the increasing rate of 3G business of China Mobile is slower than China Unicom during these years.

One reason is because the policy issued by the company is not as attractive as the one offered by China Unicom. Basically, China Mobile did not provide a powerful enough 3G subside policy to facilitate its 2G-user transfer to 3G. In 2011, the net profit increase 5.2%, better than 3.9% in 2010,

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[7] China Internet Network Information Center (www.cnnic.net.cn)
[8] http://news.cntv.cn/20120323/114381.shtml
http://news.cntv.cn/20110523/104740.shtml

but still much lower than 30% in 2008, which is just one year before the first year of 3G[9].

The other reason is that there are less smart phones that support TD-SCDMA channel. It is an alternative to W-CDMA developed by Chinese Academy of Telecommunications Technology (CATT) and it is granted to China Mobile in 2009. Detail description about this technology will be introduced in technology development part.

China Telecom has grasped the 3G market space and become the largest CDMA operator in the world. Its turnover in mobile service was CNY 68.2 billion and subscribers have achieved 126 million. Moreover, the company's market share in Chinese industry has increased to 13% and 3G user market share is 28.5%. Although China Telecom operated mobile service only for 4 years, it has already become the most important business sector in the company. With the good performance in 3G market, the importance of this company has become bigger and bigger. Together with the other two operators, they steadily push the number of mobile user to 1 billion.

✧   Technology development

In 2009, three operators are granted different 3G licenses: TD-SCDMA to China Mobile, WCDMA to China Unicom, and CDMA 2000 to China Telecom. From that year, Chinese 3G network has begun to enter large scale development period.

TD-SCDMA, short for Time Division Synchronous Code Division Multiple Access is a Chinese-developed standard. It is an air interface found in UMTS mobile telecommunication networks in China as an alternative to WCDMA (Wikipedia). The original intension was to avoid

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[9] http://www.finet.com.cn/news/dawjones/2012/0316/12820.html

relying on Western technology and thus save a large cost on patent fees.

In 2006, Ministry of Information Industry of China officially announced that TD-SCDMA is the country standard of 3G network. It was supposed to launch a national TD-SCDMA network by 2005. However, not until 2008, large scale commercial trails were reached.

After assigned the 3G license in January 2009, China Mobile put great effort to ensure the developing of new system. Until 2011, its TD-SCDMA network has covered countryside-level or above cities with 220,000 3G base stations. Data traffic has increase 58.4% and network utilization is improving, too. On the other hand, the terminal supply chain of China Mobile continues to mature. 60 TD- SCDMA model smart phones have good market performance, among which 32 handsets are over CNY1000 price.

Compared with TD-SCDMA, which is mainly found in China, the other two third-generation mobile standards adopted by China Unicom and China Telecom are more widely used in the world wide. W-CDMA (Wideband Code Division Multiple Access) is the most-commonly used member of the UMTS family and sometimes used as a synonym for UMTS[10]. While CDMA 2000 (IMT Multi Carrier) was first promoted by QUALCOMM North American Company and has a relatively long history. It can be compatible with its previous 2G iteration IS-95 (CDMA ONE). Rather than a simple terminology like WCDMA, CDMA 2000 is a registered trademark of the Telecommunication Industry Association in US[11].

In 2011, China Unicom keeps on improving the coverage area of WCDMA network in depth and width. 3G base stations have increased 56,000 and reached 239,000 in total. Thus the network of China Unicom basically covered all countryside-level or above cities and developed towns in East and Middle China. Moreover, in 56 key cities, the company finished HSPA+ update, which means that these WCDMA based 3G networks were enhanced with higher speeds for end users that were comparable to the newer LTE networks[12]. As a result, it ensures the core competence and advantage owned by China Unicom. The through rate was also improved from 98% at the beginning of the year to 98.6% at the end of year.

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[10] http://en.wikipedia.org/wiki/W-CDMA
[11] http://en.wikipedia.org/wiki/CDMA2000
[12]

Although China Telecom operated mobile services for only four years, it identified the 3G accelerated growth period and thus seized the precious chance to make it become the leading power of its whole mobile service. In 2011, the 3G network base stations of China Telecom increased 49,000 and achieved more than 200,000 in total. 90% of all the base stations work for both 2G and 3G, which means where there is 2G signal, there will be 3G network, too. Moreover, China Telecom is the first operator whose 3G network is able to cover all the countryside-level above cities and 90% towns in China. Thus, it will become the first operator to cover the most towns in rural area with 3G network[13].

✧ Policy and regulation

To gain a healthy and full market competitive environment, the reform in telecom industry has been executed over ten years. However, the government policies and guides still affect a lot on this market. For example, instead of auctioning 3G frequency channel with high fees in some other western countries, the licenses are assigned to big three operators by Chinese government with relatively low expense. Moreover, the, since China Mobile is the predominant operator with about 72% market share in GSM network and thus it is believed that it is the one that has enough financial and technology ability to support and develop the new system, so China-developed TD-SCDMA is granted to the company. At the same time, with the mature technology WCDMA and CDMA 2000, China Unicom and China Telecom will be balanced to be more competitive players in 3G market.

To continue the telecom industry reform, government has issued numbers of policies and regulations to enable the diverse price and package fee adjustment. Therefore, the development of 3G market in the future will be under a more loose, free, and competitive environment.

When it comes to law about telecom industry, there are plenty of laws and regulations such as "Law of the People's Republic of China on the Protection of Consumers' Rights and Interests" and "Telecommunications Regulations of the People's Republic of China" etc. On the one hand, only when all of the telecom companies obey those laws, customers will be retained and loyalty will be improved due to the enhancement of customer service and protection of their legal rights. On the

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[13] http://it.sohu.com/20120314/n337698327.shtml

other hand, telecom companies can use these law to ensure and protect their own interests.

6.2.1.2 The business model Components

Customer Relationship

When it comes to the ***Information Strategy*** of the operators in China, the dominant three telecom companies have already got a large customer base covering 900 million mobile users and 356 million mobile internet subscribers by the end of February this year. These numbers are keeping growing, too. Therefore, they enable Chinese operators big advantages of collecting plenty of customer information and providing tailor-oriented personal services. In detail, operators can access the basic customer information, consumer behavior data, customer preferences and other kinds of information, so that they have a great basic environment to provide precise marketing according to the customers' needs in the future.

What should be noticed is that, different from the customer information registered in traditional SNS, the telecom environment applies for real-name registration policy, which can be said as a congenital advantage of the mobile operator. A real-name registration system requires users to provide his/her real name and ID number to register and have a mobile number. So it is easier for operators to connect their real names with the tailor-oriented SNS services and thus better maintain their needs and requests and protect the interests and privacies of all the users. Moreover, with the help of fixing position by base stations, telecom companies have plenty of capabilities to offer better LBS services to their customers.

The mobile SNS can be delivered to the end users through various ***Distribution Channels***, including:

- Through the channels provided by operators, users can directly visit their favorite SNS through relevant app on their mobile devices;

- Access the SNS service by using the mobile browser;

- China Telecom has cooperated with the biggest social networking company Tencent and

achieved the agreement that the users can log in their QQ, the most favorite IM tools in China, with the telephone numbers as the register name. It is expected that it will be the beginning of a new distribution channel with the method of logging into multiple SNS services with the uniform platform provided by operators.

To build the *Trust and loyalty*, operators have their unique advantages. As stated above, telecom industry requires real-name registration to the users. Users can figure out who they want to contact, and who do not, so the possibilities of disturbing by pretenders or other unknown people will be largely reduced and user satisfaction will be increased respectively.

In China, operators have invested a lot to improved a wide range of customer services from call center, self-service through SMS and internet and they do achieved a good outcome as a result. Since some mobile SNS are owned by telecom companies themselves, such as 139 community of China Mobile and Yi-Communication of China Telecom, they are part of the value-added business of the firms and have the power of utilizing the existing high quality customer services network, which differentiate them from the traditional SNS providers from service perspective.

Moreover, due to the development of 3G networks, the quality and speed of mobile internet have been largely grown and thus the user experience has been satisfied. Customer services are never to be too important to maintain the existing customers' relationship and strengthen their brand loyalty.

Product Innovation

The ***target customers*** of the mobile SNS are the SNS users with mobile internet, who cannot access internet through PC all the time. Moreover, since 139 community of China Mobile has integrated various kinds of services, such as microblog, community, email, music share and so on, and it has been considered as the extension of traditional communication. Therefore, the target customers can be understood as all the users with mobile internet.

Basically, the ***value proposition*** of telecom operators is to provide diverse communication and interaction choices for social networking, apart from traditional SMS and Voice call. Moreover, base on the entertainment nature possessed by SNS, help the customers kill the fractional time.

However, different operators lay different emphasis on the value proposition. When it comes to China Mobile, which is the dominant player in this market, it believes that as a state-owned company, it leaves customers trustful, believable and serious impression. So when the company launched their own SNS service- 139 community, it addressed that this services should be promoted as an extension of existing communication channel with more convenient way to interact with users' friends, instead of overemphasizing the entertainment perspective of SNS.

As a result, 139 community is created to be a platform with different functions to interact with social networking, including Instant Message, 139 say and I-contact and some simple games. 139 say is nothing but a blog or personal spaces to record personal experiences and photos and shares with friends; while I-contact is a service to import the contact to 139-community. After interacting with friends through I-contact, the user can further invite their friends to join the community.

Due to the rapid development of 3G network and experiences in mobile telecommunication, the big three operators have the sufficient ***capacities*** to offer channels for SNS providers and ensure the service quality.

Infrastructure Management

The ***Activity Configurations*** of telecom operators in China can be classified into three types:

- Operators open their network resources for SNS service providers. The gap between network resources and applications means that operators have limited impacts on the latter ones,

restricting the operators' benefits from using the network resources.

- Second method is based on the capturing the value from the wide customer base. Operators in China cooperate and collaborate with providers to offer various applications and enable subscribers to access those services.

- Build their own SNS platform to satisfy the subscribers' social networking needs.

As the mobile telecommunication industry grow, it is hard to for operators to monopoly all services by them. Operators in China have begun to realize that their roles have been changing from the leading actor in the telecommunication value chain to cooperating and collaborating with other players in this ecosystem to offer better services, improve the stickiness of subscribers and maintain the customers' loyalty.

The Operators' *Partner Networks* include cooperate with SNS providers to fulfill the customers' social networking requirements. Various SNS providers, such as Tencent, which is the leading SNS company in China, Renren and Kaixin have close strategy development relationship with the big three operators. Through opening operators' network resources, the interdependent relationship benefits all the actors. On the one hand, the mobile internet can help subscribers to access their SNS at anytime and anyplace, social with other friends and entertain themselves. Thus avoid similar facts happened in 2008, when certain subscribers of Kaixin hired others to "Pick up vegetables" (a small game integrated into Kaixin) on holiday, because they were not possible to access the internet.

On the other hand, as SNS subscribers spend increasing time on mobile, the flow of telecom network grows respectively. Thus, operators can benefit from sharing the flow.

Apart from service providers, operators also collaborate with device manufactures to promote the 3G network. After analyzing user requirement about the price preference and mobile types, in the last year, China Mobile and China Telecom both emphasized introducing "thousand Yuan" smart phone, which targeted as the middle and low income users with comparatively low price. The better network quality and speed provide a basic guarantee for improving user experience.

The popularity of Iphone in China cannot be underestimated. As the first operator to introduce

Iphone into Chinese 3G telecom market, China Union has achieved great success. Over 20% percent of new users came from the contribution of Iphone. It even attracted some high income customers and Iphone big fans to abandon their previous operators and select China Union instead. As a result, the band and market influence of China Union have greatly improved and the 3G customer APRU has increased to CNY110, largely higher than their average APRU CNY47.3.

When it comes to the ***Resources and Assets*** part, in order to develop mobile SNS, operators have some advantages in nature. On the one hand, they possess precious spectrum and huge amount network resources. On the other hand, they accumulated large customer base through years of operation.

Due to their state-owned background with 71% state-owned share, about USD211.4 billion in total[14], the big three operators have impressed users as professional and reliable companies with good reputation. Meanwhile, in order to improve their market influence of brand, the firms also emphasized to understand customers' needs, adjust their market positioning respectively. For example, the slogan of China mobile changed from "The expert in Telecommunication" to "Mobile changes life".

Moreover, the value of human resources has been increasingly addressed by the operators. China Telecom has architected talents management system to match their developing business strategy. In detail, this system includes "a basic platform and three management systems". A basic platform is a hierarchy targeted as managing human resources according to their job responsibilities and requirements. Three management systems refer to productivity measure, salary and awards and team developing plans. As a result, the whole system would lead to a good cycle and achieve the balance with "value creation-value measurement-value return".

Financial Aspects

Until now the mainly method of obtaining revenue from offering SNS is to open the network resources and share the profits generated by the flow of data with service providers. Therefore, the financial situation of "data services" will partly reflect the development of mobile SNS.

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[14] http://it.sohu.com/20120313/n337579211.shtml

Currency: CNY   Unit: Billion

	Operating Revenue	Change	Net Profit	Net Profit (Year-on-Year Growth)	Net profit Rate	Data Services
China Mobile	527.99	8.8%	125.87	5.2%	23.8%	15.4%
China Unicom	209.17	22.2%	4.23	14.2%	2%	55.6%
China Telecom	244.94	11.7%	16.4	10.5%	6.7%	57.4%

Table 3 Comparison of Financial Statement

When it comes to the operating revenue and the growth rate of net profit, China Unicom is absolutely the No.1. However, due to the high level subsidy for Iphone and other 3G terminals, the company's net profit rate keeps at a low level, possibly influencing the continuous profit capability in the future. Although the operating revenue of China Mobile is much higher than the other two competitors, it should be noticed that their growth rate of operating revenue and net profit are the lowest in this industry, reflecting that it did not perform well in 3G market. When it comes to China Telecom, it seems that their financial data has nothing shining points, compared with the other two. However, given that the operating revenue in 2010 was only 5.4%, the growth rate (11.7%) of this year has accumulated a lot. Moreover, the mobile services got CNY68.24 billion, increased 43%, and contributed 27.9% operating revenue. Thus mobile services have already become the most important business of China Telecom.

According to financial statement of China Mobile, its data services increased 15.4%, occupied 26.4% of operating revenue, enabling data services become the first driving force of profits. However, China Mobile cannot be over optimistic about the future. Due to the restriction of TD-SCDMA standard, the monopoly position of China Mobile has already been weakening and thus the development spaces of data services is also limited, too. In order to adapt this situation, the company

invested to build and provide their own data services, such as wireless music, email, and 139-Community, aiming at innovating its existing business models with new emerging mobile internet services.

China Telecom keeps trying to improve its mobile services from various perspectives: attracting customers, marketing, distribution channel, service capacity, application development and brand building, through which its data services have achieved such good performance with CNY 29.62 billion revenue and 57.4% year on year growth rate.

As the rapid development of 3G network, the flow of mobile data increased 293.4%, making the non-voice revenue grew to 37.2%.

6.2.1.3 Summary

The summary of business models in China are as Figure 17:
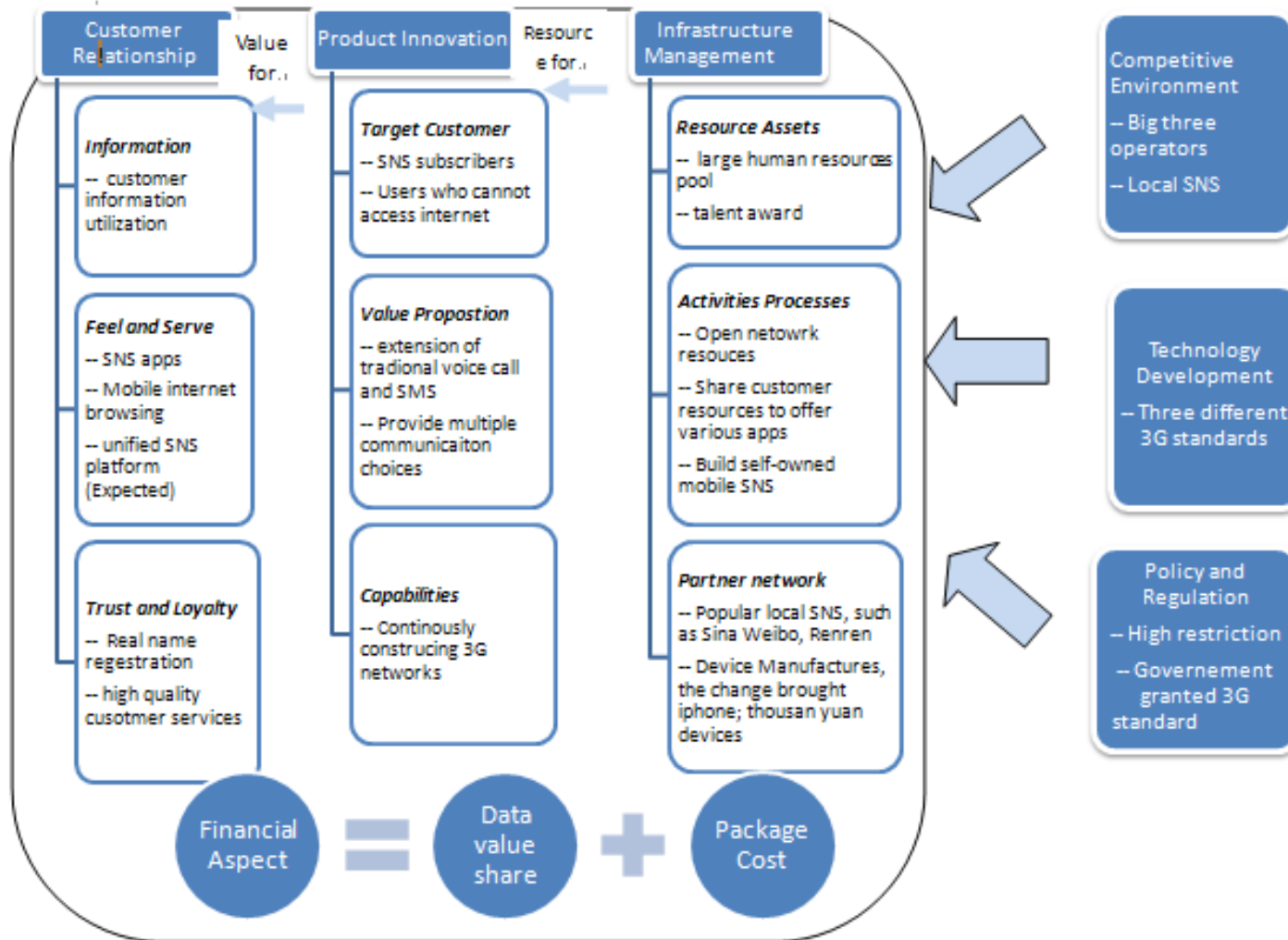
Figure 17   Business Models of Operators in China

6.2.2 Business Models of Operators in Japan

KDDI once surpassed NTT Docomo and became the No.1 in Japan at the beginning of transferring 2G to 3G. On the one hand, the adoption of CDMA makes them have the technology advantages. On the other hand, the company always tries to be "the first one" in various areas. Therefore, in this part, the business models of KDDI will be mainly introduced.

6.2.2.1 The External Factors of Business Models

✧ Competitive Environment

In October 2001, the leading Japanese Operator NTT DoCoMo introduced the world's first 3G commercial mobile network based on WCDMA. Then in April and October 2002, other two operators, KDDI and Vodafone K. K., also began to operate 3G commercial network.

In order to facilitate and enable the development of 3G market, the Japan government further assigned WCDMA license to Softbank and eMobile respectively, among which eMobile offered its commercial network in 2007 and Softbank also entered this market through acquiring shares from Vodafone. From then on, 3G business in Japan entered accelerated growth period and became the focal point of world third-generation mobile communication market.

It is predicted that the mobile data traffic would grow 18 times in five years between 2010 and 2015 due to the popularization of handsets such as smart phones. Under this circumstance, to build high-speed and reasonable networks and, furthermore, back and ensure their quality efficiently when traffics increase rapidly have become problems for Japanese Operators.

Expectations on Mobile Data Traffic in the Domestic Market

Approximately 18 times (2010→2015)

Traffic that can be contained in about 500MHz width

10 11 12 13 14 15

Source: Expectation by KDDI
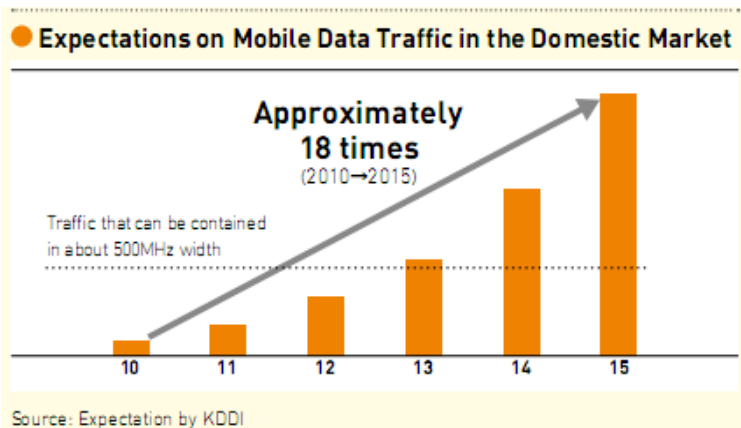
Now in Japan, the top three telecom operators are NTT DoCoMo, KDDI, and Softbank, whose market shares are 48.7%, 28.2% and 23%. DoCoMo is the leading operator with 59 million subscribers in Japan and the world[15]. It got top-level satisfaction both from business customers and from individual customers. The evaluation areas include but not at least include: responsiveness of sales contact, service quality, handset, network coverage and cost. Now over 90% of the company's customers has migrated to 3G network in 2009 and the company announced to terminate 2G services in March 2012.

Number of 3G Subscribers

(000 subs)	2007	2008	2009	2010	2011	2011 1Q	2Q	3Q	4Q
au	26,720	29,689	30,527	31,625	32,853	31,881	32,105	32,365	32,853
NTT DOCOMO	35,530	43,949	49,040	53,203	56,746	54,162	54,940	55,573	56,746
SOFTBANK MOBILE	7,660	14,007	18,654	21,877	25,409	22,573	23,474	24,400	25,409
EMOBILE	—	412	1,410	2,352	3,118	2,537	2,741	2,924	3,118
Total	69,910	88,057	99,631	109,057	118,126	111,153	113,260	115,261	118,126

Number of Subscribers for Mobile Internet Connection Service

Table 4   Subscriber shares of different operators in Japan[16]

Due to its unique foundation history resulting from the merger three firms operated in different business fields, KDDI is the only Japanese domestic company obtained both mobile and fixed-line

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[15] NTT DoCoMo Factbook 2012 (http://www.nttdocomo.com/binary/about/facts_factbook.pdf)
[16] KDDI Annual Report 2011

businesses and thus the firm has plenty management assets to lead the market. Its subscribers of 3G network, which is also named as the brand "AU", have achieved 35 million at the beginning of 2012.With the guidance of 3M Strategy, "More Connected! More Diverse Values! More Global!", the company is stepping towards a new stage of development.

Through acquired shares of Vodafone K.K. and converted the firm to subsidiary, Softbank Mobile entered mobile communication business area in 2006. At the beginning of 2012, the company planned to launch Platinum Band, aims to improve its network quality. Compared with 51% customer satisfaction about network quality, Softbank had only got 27% in the survey conducted in 2010. This Platinum Band will help the company fight fairly with DoCoMo and KDDI, who already obsessed this kind of technology support.

◇ Technology Development

In 2001, NTT DoCoMo launched "FOMA", the world's first commercial 3G network based on WCDMA technology. In these years, DoCoMo keeps allocating internal resources to promote researches and development efforts in order to response to the fast-changing market environment. Now the company is evolved the research and development of "Long Term Evolution" (LTE), which is using 3G spectrum and smoothly introducing to 4G. With LTE, mobile communication with higher transmission speeds, larger capacity and lower latency.

Like NTT DoCoMo, Softbank also chooses to construct WCDMA network. However, as the third mobile operator in Japan, coverage has become the biggest weakness of the company. According to the survey conducted in 2010, the first reason for churn is the poor coverage and the network satisfaction was only half of competitors' users. Therefore, the company endeavored to enhance its network satisfaction by adding the numbers of base stations and Wi-Fi spot. In 2 years, the number of base station grows 3 times and the connectivity ration has caught up with its competitors (Figure 18).
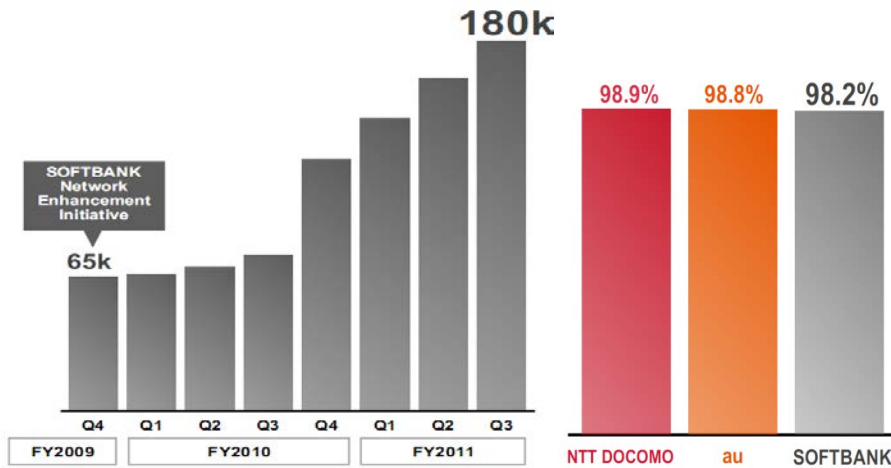
Figure 18 Number of Softbank's base station and the connectivity ration (Resource: Softbank presentation Material of 1st March)

More good news for Softbank is that the company has just received "Platinum Band", a 900MHz band, in 1st Mar 2012. With this band, the 3G signal will cover wider spaces and decay less in distance, and thus it will allocate Softbank to a fair fight with DoCoMo and KDDI in the future. The company has announced the quick expansion base station plan and it is expected that the "Platinum Band" will achieve 99.9% population in coverage in 2016.

Different with the other two rivals, KDDI engaged in CDMA 2000 commercial network in 2002. Since the company forecasted that mobile data traffic will grow rapidly in the next few years, KDDI takes actions to ensure the network connectivity and speed by measuring data offloading and introducing new technology to market. In Nov 2010, the company adopted "EV-DO Multi-Carrier" technology and began providing "WIN HIGH SPEED". Compared with the current "EV-DO Rev. A", the speed grow three times at maximum.

✧ Policy and Regulation

According to Kushida (2005), from the mid 1990s, the Japan's telecommunication regime shifted to "limited liberalization and strategic integration". The government gradually gave up the way of controlling the whole sector, but emphasizes its right in certain area over particular actors. It strengthened its regulations over NTT, kept control over the wireless sector via spectrum allocation, while deregulated most other sub-sectors and players (Table 5).

	Regime 1: "Bureaucratic Monopoly"		Regime 2: "Controlled Competition" (1985- mid/late 1990s)	Regime 3 "Limited Liberalization and Strategic Integration" (mid/late 1990s – present)
	(late 1800s to 1954)	(1954 – 1985)		
Gov't Actors	Ministry of Communications (MoC), which became NTT	Nippon Telegraph and Telephone Public Company, (State-owned monopoly), National Diet, MPT	Ministry of Posts and Telecommunications (MPT)	MPT* (MPHPT from 1999), Cabinet Office, Dispute Resolution Commission, FTC (Fair Trade Commission), possibly Judicial system
Industry Actors	MoC, cartel of OEM equipment manufacturers (NEC, Hitachi, Fujitsu, Oki Electric)	NTT, KDD, NTT "family" equipment manufacturers (NEC, Hitachi, Fujitsu, Oki Electric)	NTT, New Common Carriers (NCCs), NTT "family" firms	NTT, NCCs, startup firms (eg. Softbank), NTT "family," firms, non-family equipment manufacturers, foreign firms (eg Vodafone)
Gov't Industry Interactions	Government ministry (MOC) directly operates communications industry, equipment procured as OEM	Formal oversight by MPT and Diet, but actual control rests mostly with NTT	MPT wields classic "Industrial Policy" tools (Licensing authority, discretionary administrative guidance, etc), MPT interprets law and mediates conflict between carriers.	Increased legalization of rules. FTC, judicial system play larger role in enforcement. New formal institution for dispute resolution between firms.
Intra-Industry Interactions	Equipment manufacturers competing on the basis of quality for volume of OEM work.	Same as before. NTT providing large procurement demand.	NTT dominates competitors with interconnection rates. Actions of NCCs carefully controlled by MPT. NTT provides stable demand for equipment manufacturers; not all on OEM basis, but advantages to NTT "family" firms. Standards force NCCs to procure equipment from NTT "family".	NTT has less control over interconnection rates. NCCs no longer tightly controlled by MPT. Shift to non-NTT standards allow NCCs to procure equipment from outside NTT "family." New dynamics such as price wars, legal battles, use of Dispute Resolution Commission, and complaints to the FTC.
Standard-setting	MoC	NTT (nominally MPT)	NTT, MPT	De facto (eg., Cisco's routers), MPT, IETF, ITU

Table 5   Telecommunication Regime Shift in Japan (Kushida, 2005)

Different from the policies adopted in landline sub-sector, where market entry, exit, pricing were sweeping deregulated, the Ministry Posts and Telecommunications (MPT) has tightly controlled the market entry by allocating spectrum licenses, though pricing was deregulated. It is well known that spectrum is scarce resource and there were no policies about facilitating spectrum reselling in secondary market, so it is hard to enter this market without the permission of MPT.

On the other hand, the government took conscious effort to integrate the domestic market into international market. Since the late 1990s, the domestic market had begun to reconnect to global markets and changed its isolation status during the mid-1990s. Interactions and discussion between MPT and telecom operators, as well as the participating in the ITU 3G standard formulations made Japan gradually adopt international standards.

6.2.2.2 The Business Model Components

Customer Relationship

When it comes to the *Information Strategy*, it is well known that customers are the most precious property of operators. Thus how to maintaining the subscribers' personal profile, identifying their

distinctive needs, and offering tailor-oriented services accordingly would be serious problem faced by operators.

For KDDI, based on the existing entertainment categories, the company intended to combine ICT technology to provide rich social infrastructure and lifestyle-related categories with high quality and low cost, facilitating the company's business go even further.

Moreover, its R&D lab has developed technology to automatically collect information from users' profile (age, gender, occupation and preference, etc.) by analyzing the data posted on the blogs and BBS. With the help of this technology, the company can detect the word of mouth marketing information and further analyze what kind of thoughts are held by different age or gender. Therefore, improve their products and services accordingly.

When it comes to the ***Distribution Channels***, KDDI believes that, as the competition among operators, device manufactures, service providers and other actors become increasingly fierce, added-value business of operators will gradually be eroded by service providers from Internet. As a result, it is more likely that operators will finally be marked as "dumb pipe" in the future, which can only survive by offering telecommunication network while evolve with endless price competition.

Obviously, KDDI has no willing to become such kind operators. Instead, its target is to facilitate the consumer growth and become "smart pipe", which requires maximize its management resources to raise additional values. As a result, "3M" comes, multi-networks, multi-devices, and multi-uses.

In detail, it is believed that the increasing data traffic will be a big problem faced by operators. The solution of KDDI is developing multi-networks, in which WI-FI combines with mobile and fixed-line networks together to ensure the comfortable communication. Multi-devices, such as smart phones, tablet terminals and ebook readers have been introduced into the market to create a diversified usage experience for its subscribers. For multi-uses, the key words are seamless and collaboration. The company aims at creating such an environment where various services can be accessed through multi-networks and multi-devices. Moreover, KDDI will proactively seek powerful partners such as Facebook to work with open contents (Figure 19).
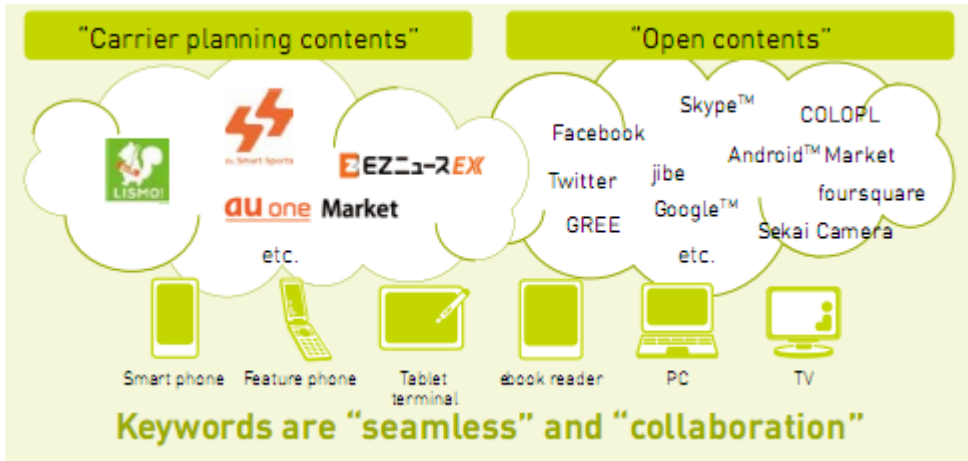
Figure 19   Multi-uses of KDDI

The president of KDDI has announced that the company should "recovery of au's momentum". From his perspective, Key Performance Indicators (KPI) are much more than sales and profit targets and he defined four most important indicators, which are churn rate, MNP, share of net additions and data ARPU.   It can be seen that retaining customers is positioned as No. 1 and the importance is highly addressed by the company.

KDDI believes that information security management is an effective way to increase the *Trust and loyalty*. The company highly emphasizes managing the safety of customer information and sensitive corporate data while providing a stable telecommunication services. Moreover, KDDI continuously takes efforts to enhance the information security from various perspectives, including maintaining the information security management system (ISMS) certification, raising employees' awareness and setting up a second in-house network, which makes multi-devices access possible meanwhile ensure the security.

● ISMS Certification at KDDI

Registration No.	Organization Name	Initial Registration
IS 76406	Operations Division (ex-Service Operations Division Solution Operations Center)	July 4, 2003
IS 85329	Information Systems Division	September 28, 2004
IS 95253	KDDI Corporation[1]	June 7, 2005
IS 500630	Operations Division[2] (ex-Network Operations Division Submarine Cable Systems Department)	April 18, 2006
IS 521724	Operations Division (Service Operations Division)	October 22, 2007

Table 6   Information Security Management System Certification obtained by KDDI

In addition, provide high quality network as well as keep the fees at a reasonable level are another method to retain customers. Nowadays, telecom industry has entered the age of the true Internet and thus how to adapt the environment with rapidly increasing data traffic becomes a problem. However, KDDI has confidence and ability to ensure the convenient and smooth communication environment, since the firm can efficiently handle the arising data traffic with its own multi-network and further reduce the total network costs.

Product Innovation

Due to the strategic relationship with Gree and Facebook, the *target customers* of KDDI is young generation, who prefer spend more time on social networking, and avatar playing.

Basically, the *value proposition* of KDDI is to be a "smart pipe". In detail, on the one hand, closely work with SNS providers by providing high quality networks, and customized mobile platform and services. On the other hand, from subscribers' perspective, deliver comfort and smooth social networking services according to customers' needs.

KDDI always emphasized the influence of increasing data traffic to operators. The company predicted that, in the future, the data traffic will be time times higher than now due to the popularity of data services and thus operators should prepare of the challenges and begin to improve their network *capacities* from now.

The company intends to maximize its advantages in operating both fixed-line and mobile networks and achieve the target of accessing various apps and services via seamlessly connecting multi-networks, whatever the users' devices are. In order to achieve this, KDDI promote 3M strategy to facilitate its whole capacities in network, devices and uses.

Infrastructure Management

Instead of becoming a "dumb pipe", which is no more than a simply pipe of sharing the telecommunication networks, KDDI's target is a "smart pipe". This position means that it should be take part in the game and become one of the most important actors in the mobile SNS ecosystem, but not a simple telecom pipe. In order to achieve this, the *Activity Configurations* of this KDDI

including:

- Invest and promote mobile SNS provider with huge potential and good contents;

  In 2006, when KDDI wanted to explore mobile SNS area, the company selected Gree as their partner and invested to be one of the share owners. After that, KDDI worked hard to promote Gree's services. What is more, KDDI also allowed Gree collaborate with other competitors and, just within several years, Gree has quickly become the second largest mobile SNS in Japan with more than 90% access from mobile devices. Finally, KDDI successfully achieved a win-win situation.

- Collaborate and cooperate with powerful brand SNS providers by providing customized services;

  In 2011, KDDI build the relationship with Facebook and begun to provide personalized services by enhancing the social contact address of AU terminals. The new services "JIBE" emphasized the ability of synchronizing and matching the Facebook information with the existing people in mobile contact list, with which users can immediately read the messages leaved by their friends and send back, when they open the contact list.

- Pre-install the partner companies' apps to the AU customized terminals.

  Pre-install the apps to customized terminals is an effective way, making the partners have a good start at the beginning, since they have already been exposure to the subscribers when they buy the device and thus obtaining a high possibility to be tried and used.

KDDI proactively strengthen the relationship with powerful *Partners*. The company promotes contents platform strategy through cooperating with partners with brand power and good contents. In 2010, the company and Skype announced a strategic alliance and begun to provide "Skype au" on smart phones. Moreover, in 2011, collaborated with Facebook to enable the easier and smoother communication between Facebook users and collect and share the individual information.

What should be noticed is the relationship between KDDI and Gree, the second largest SNS provider

in Japan. When KDDI hoped to quickly explore mobile SNS area in 2006, it chose not to develop by itself, but to cooperate with Gree by investing the company and pre-installing the app to KDDI's customized terminals. In addition, KDDI did not limit the Gree's right to collaborate with other competitors, allowing Gree quickly enhanced to the second largest SNS providers in Japan and formed a win-win situation.

The partner relationship between operators and terminal manufactures has been a tradition in Japan. In 3G market, operators keep their customized mobile phone strategy by continuously introducing new devices according to customers' needs. Moreover, due to the strategic relationship with SNS providers, operators will pre-install relevant app and add more services to enable the development of social networking services.

When it comes to the ***Resources and Assets*** part, KDDI possesses 18,000 employees to support and ensure its service quality. Employees with different values and diversified background, which is the result of merger of culture from 17 companies, form the most powerful talents basis for the company. "JIBUNGOTOKA" (taking things as own problems) and "speeding up" were taken as their key phrases to encourage their daily work and enhance the service level.

Moreover, aim at "3M"- Multi-networks, multi-devices, and multi-uses, KDDI continuously take efforts to enhance the research and development to offer more comfortable networks and more value-added services, as well as integrate into society without subscribers even noticing.

Different with other competitors, KDDI operate both fixed line and mobile services. Putting all mobile related service under the umbrella brand "AU", lead the customers to have a uniform and clear imagine of the company, instead of messing the market position of the company.

Financial Aspects

All companies are selling flat-rate for data communication fees and it is expected to improve data ARPU.

Operating Revenues

(Billions of yen)

	07	08	09	10	11
	2,677	2,863	2,719	2,650	2,591

(Years ended March 31)

Operating Income/ Operating Income Margin

(Billions of yen) (%)

	07	08	09	10	11
Operating Income	386	455	501	484	439
Operating Income Margin	14.4	15.9	18.4	18.3	16.9

(Years ended March 31)

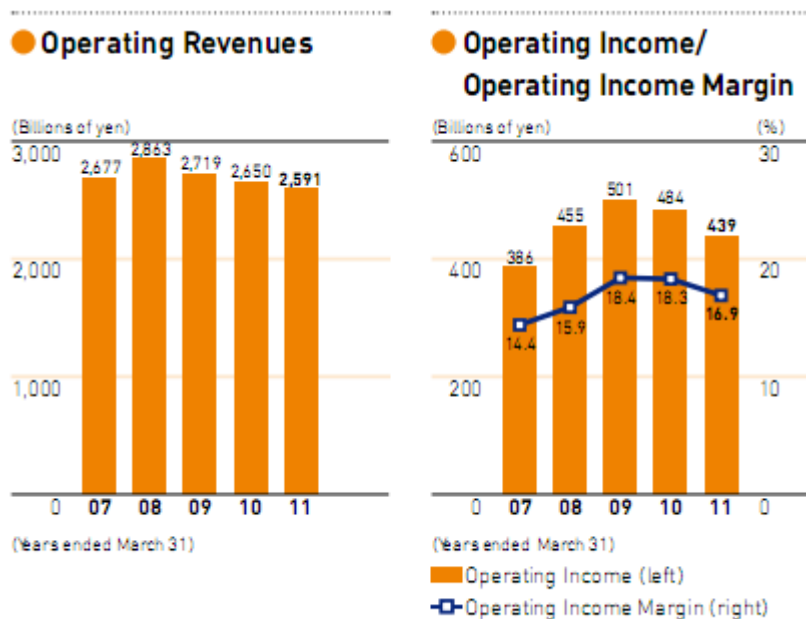- Operating Income (left)
- Operating Income Margin (right)

Figure 20   Operating Revenue and Operating Income of KDDI

In KDDI's mobile business, which centers under the brand "AU", the operating revenue of the company slipped 2.2% year on year, to JPY 2590.7 billion at the end of March 31 2011. This fact was resulted by the declining in voice ARPU, since more users shifted to the "Simple course" pricing plan. Moreover, the sales commissions (average costs of user acquisition and user retention) decreased accordingly, activities facilitating subscribers of non-triband handsets to transfer to triband handsets and the growing related costs accompanied by a rise in sales of smart phones resulted operating income declined 9.3%, to JPY 438.9 billion.

While in the year of March 31, 2012, the operating revenue is expected to increase 0.4% year on year to JPY 2.6 billion, since the increasing operating revenue from other business area such as the sales of handsets would compensate the decrease in operating revenues of telecom business resulted by the declining ARPU and the adoption of "Maitsuki Discount".
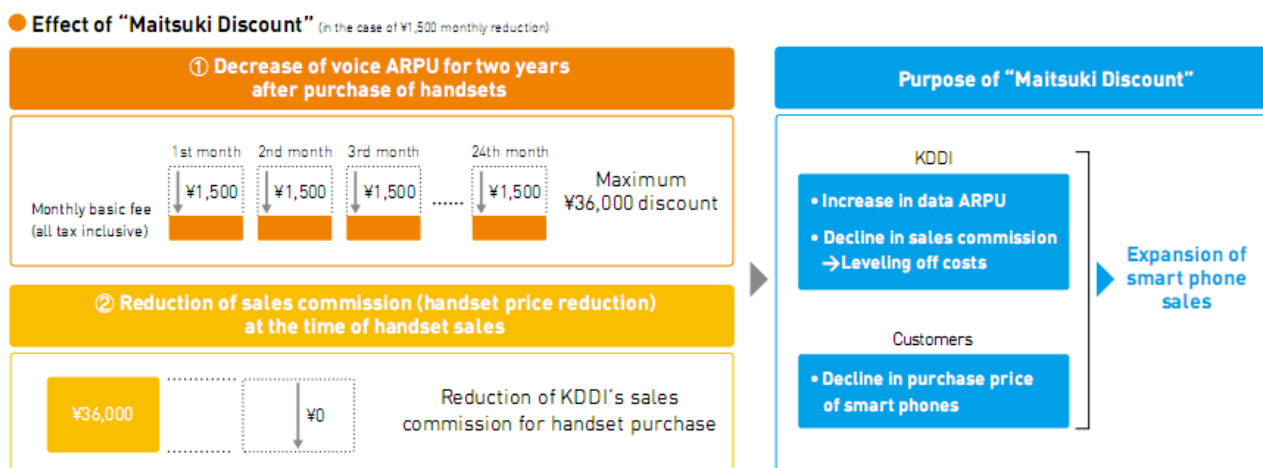
Figure 21   The effect of Maitsuki Discount

When it comes to the operating incomes, it would be slipped 2.0% year on year, due to the decrease in telecom business. However, efforts have already been taken to reduce sales commission by adopting "Maitsuki Discount", increase profits of sales handsets and decrease general expenses.

From the financial data of last two years, KDDI have already realized that the important influence caused by the decreasing voice ARPU, therefore, the company an effective and practical way to boost data ARPU through offer and improve the media and content services to compensate its loss. Nowadays, numbers of apps and services were developed for smart phone platform and it is quite easy for anyone to access. However, to differentiate from other competitors, KDDI keeps trying to identify and provide attractive apps and services, and collaborate with partner with brand power and good contents. Until now, contents and media business contributed JPY 71.2 billion in revenue, up to 31% year on year, continuing the trend of higher revenue (Figure 22).

● Content/Media Business Sales
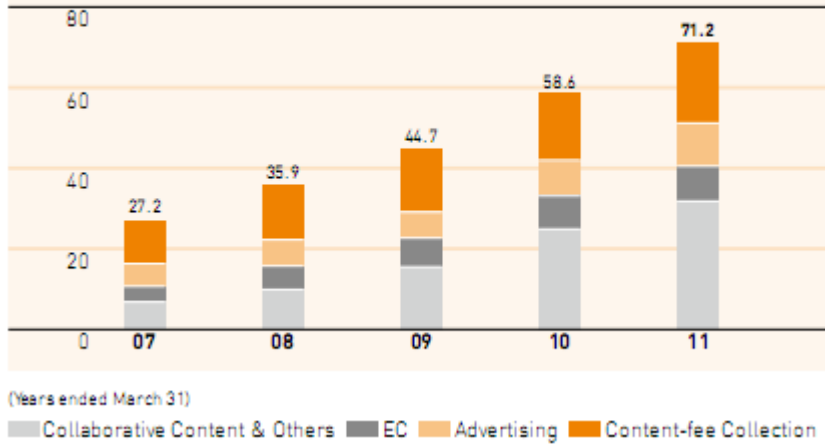
(Billions of yen)

Figure 22　Content and Media Business Sales

6.2.2.3 Summary of KDDI's Business Models
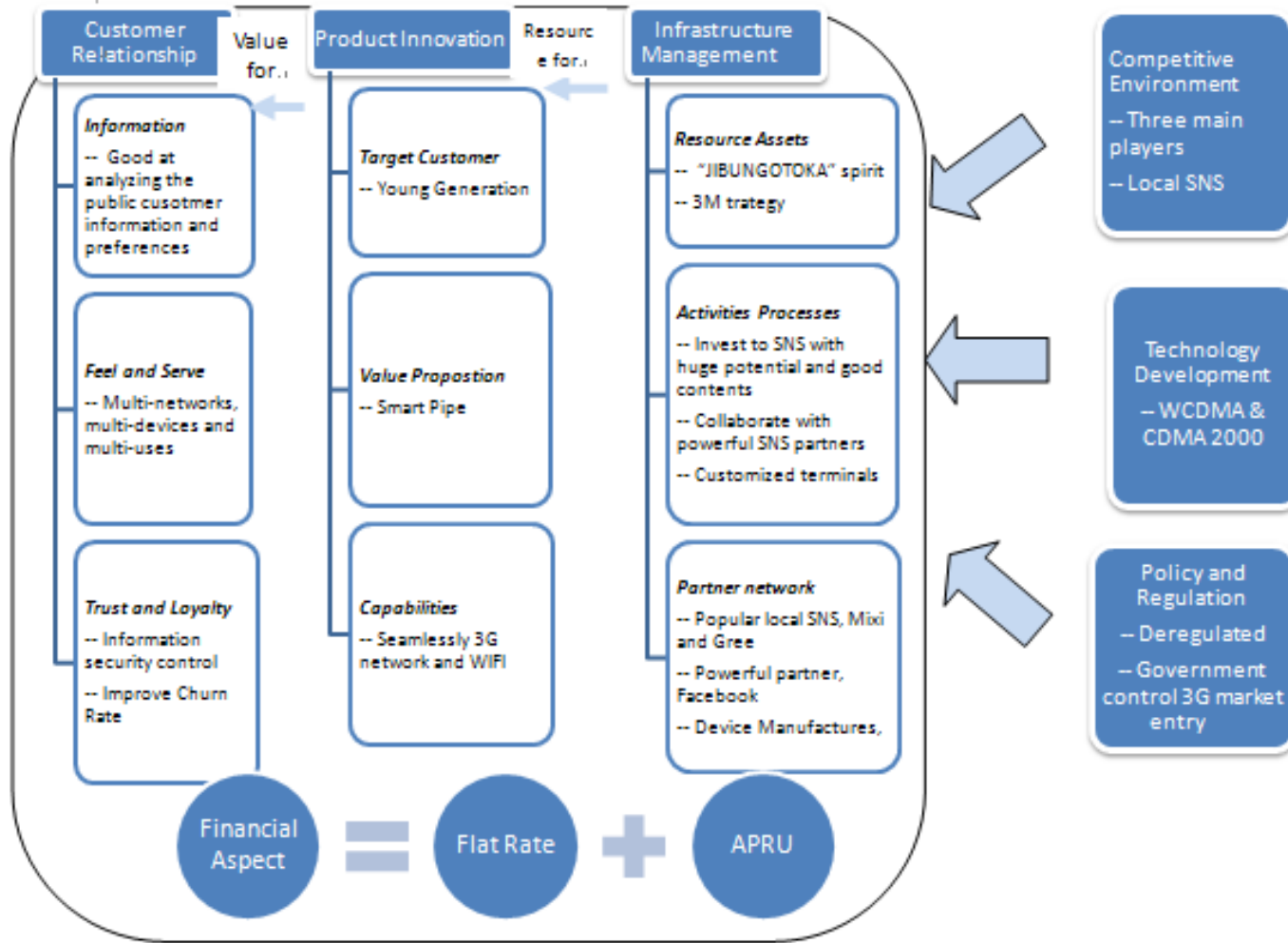
The business models of KDDI are summarized as below:

Figure 23   Business Models of KDDI

6.2.3 Business models of Operators in UK

After the merger of Orange and T- Mobile, Everything Everywhere has already become the largest operator in the UK. In the following part, the business models of EE will be mainly introduced.

6.2.3.1 The External Factors of Business Model

✧ Competitive Environment

UK Mobile Operator Trends 1Q 2007 - 2Q 2011
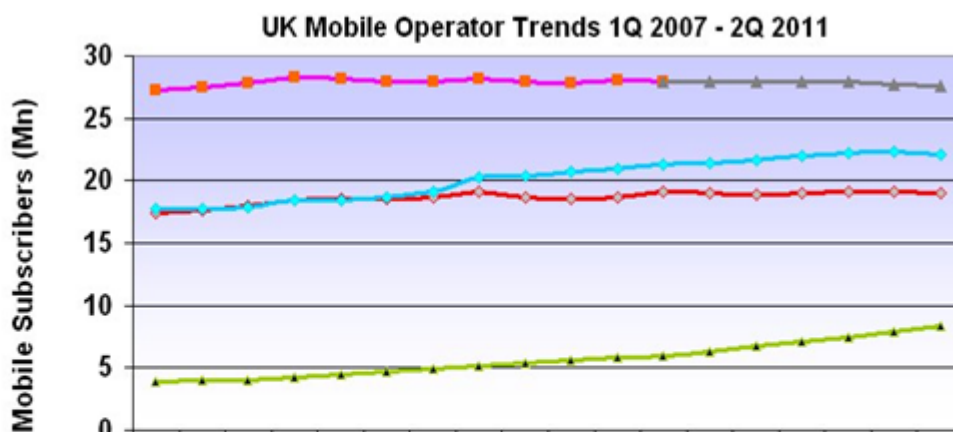
	1Q7	2Q7	3Q7	4Q7	1Q8	2Q8	3Q8	4Q8	1Q9	2Q9	3Q9	4Q9	1Q0	2Q0	3Q0	4Q0	1Q1	2Q1
Vodafone	17.41	17.65	17.96	18.45	18.54	18.51	18.72	19.17	18.72	18.56	18.70	19.11	19.02	18.85	18.98	19.17	19.15	19.01
T-Mobile/Orange (modelled)	27.28	27.43	27.80	28.26	28.19	27.93	27.98	28.14	27.93	27.84	28.07	27.98						
Everything Everywhere												27.98	27.88	27.93	27.90	27.98	27.73	27.54
O2	17.75	17.79	17.90	18.38	18.40	18.68	19.08	20.28	20.42	20.70	20.96	21.30	21.36	21.61	21.96	22.21	22.29	22.14
Hutchison 3	3.92	3.97	4.01	4.23	4.45	4.70	4.95	5.20	5.38	5.59	5.79	6.00	6.26	6.71	7.07	7.42	7.89	8.36

Table 7　UK mobile operator Trends[17]

As Table 7 shown, Everything Everywhere offers more than 27 million users mobile and fixed-line services through the Orange and T-Mobile brands. Moreover, the company is also taking charge of over a third of mobile calls, text message and data flow through its network in the UK every year. So EE has the ambition to understand and fulfill the fast changing requirement of subscribers in this digital age.

When it comes to the social networking sites in the UK, the most popular ones are definitely Facebook and Twitter. They already become an essential part of people's life. Even the operators

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[17] The Worldwide Directory of Mobile Network Operators 2011

have to create Facebook or Twitter homepage for interacting with customers, collecting their feedbacks and complaints and distributing companies' releases.

✧ Technology Development

In 2010, to build the best network and offer better customer services and experiences, EE launched the "big switch on", aiming to ensure the customers of Orange and T-mobile access each others' network anytime they want. Now, the 2G signals can already be shared and customers can utilize either company's network to make phone call or send SMS in more places without any more costs.

Furthermore, the company continues to expand this project to 3G areas, named "big 3G switch-on". From then on, all 27 million users of EE are possible to access the 3G signals from both networks, not just Orange or T-Mobile. As a result, the subscribers will have the opportunities to enjoy faster internet speed and, moreover wider signal coverage in UK than ever before.

This "big switch on" is just a beginning. EE will keep improving and constructing their 2G network to allow involve more customers in increasing more places in the UK. Just like Olaf Swantee, CEO of Everything Everywhere, said: "This is a significant achievement and demonstrates the latest milestone in our network vision and customer promise – to provide more things, to more people in more places than any other company in Britain."

Policy and Regulation

In the UK, the Office of Communications (Ofcom) was the regulator to ensure the practical implementation of the Communications Act. In other words, one of the most important works of Ofcom is to regulate the commercial behavior of dominant telecom operators who may lead a potentially negative influence on competitors and consumers.

Ofcom conducts market reviews on a regular basis (normally every 3-4 years) to evaluate whether a certain operator is dominant or, in the language of the Communications Act, has significant market power (SMP). If Ofcom found that the operator has SMP, it can impose specific SMP conditions to ensure that the SMP operator does not gain an unfair competitive advantage[18].

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[18] http://www.bcs.org/content/conWebDoc/18328

Although the Communications Act did not require telecommunications operators to hold a license to offer telecommunications networks and services, the spectrum use is still an exception. In 2000, the 3G licenses are issued through the way of auction. The operators who pay the highest prices will be the winner and gain the 3G spectrum, which is quite different from licenses grant method used in Japan and China.

6.2.3.2 The Components of Business Models

Customer Relationship

When it comes to the *Information Strategy*, it is well known that customers are the most precious property of operators. Thus how to maintaining the subscribers' personal profile, identifying their distinctive needs, and offering tailor-oriented services accordingly would be serious problem faced by operators.

EE has obtained professional staff in service center and retail shops across the UK to support the inquiries and needs from customers. Meanwhile, the well-build websites also can help the company collect and analyze the customers' requirements and provide high quality solutions.

When it comes to the *Distribution Channels*, the vision of Everything Everywhere is to build the best network in the UK. It is well-known that the network quality and coverage is the basic requirement of ensuring the customer experiences. Therefore, in 2010, EE launched the "big switch on", aiming to facilitate the customers of Orange and T-mobile access each others' network anytime they want. Now, the 2G signals can already be shared and customers can utilize either company's network to make phone call or send SMS in more places without any more costs.

Furthermore, the company continues to expand this project to 3G areas, named "big 3G switch-on". From then on, all 27 million users of EE are possible to access the 3G signals from both networks, not just Orange or T-Mobile. As a result, the subscribers will have the opportunities to enjoy faster internet speed and, moreover wider signal coverage in UK than ever before.

In mobile SNS aspect, Everything Everywhere use multimedia portals to combine all the popular social networking services such as Facebook, Myspace and Bebo togegher through just one-click on

their mobile devices.

The ambition of Everything Everywhere is to provide excellent customer experiences and customer services, which are one important method to improve Churn rate and increase **Trust and loyalty**. The company obtains over 11,000 customer service and retail staff across the UK, all with the ability to deliver professional and enthusiasm services and support. Moreover, EE's service center teams have to deal with over 86 million conversations with customers across the year, and more than 40 million customers come to retail doors, greeted and served by about 5,000 store staff. From On-line perspective, over 35 million visits happen every month to Orange and T-Mobile websites.

As a result of customer experience improvement, the churn rate of postpaid keeps at a low level at 1.1%.
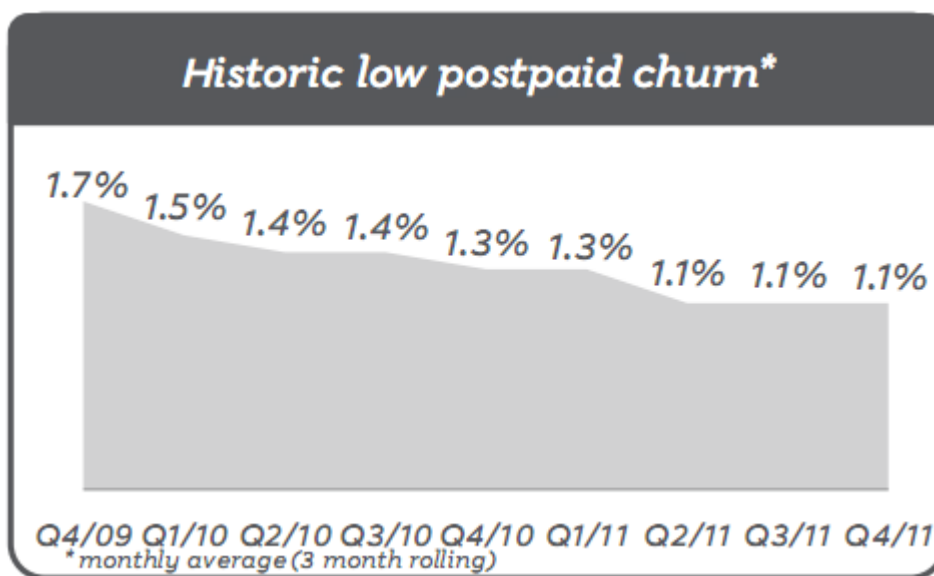
Product Innovation

Considering the content of Social life, the **target customers** would be the fans of Facebook, Myspace Twitter or Bebo, who have the willing to connect and interact with their friends at anywhere and any places with more convenient way.

The **value proposition** of Social Life, created by Orange, the sub-brand of EE, is to deliver a one-stop-shop for social networking on the mobile. Facebook, MySpace Twitter and Bebo are

aggregated in one internet portal, allowing customers to view, post, and update personal information and interact with other friends across all three social networks at the same time through a single log-in.

In detail, the users are available to do various things through Social Life, such as:

● Sending and receiving messages;

● Checking social network notifications, including events and requests;

● Uploading photos and updating personal status;

● Tracking friends' status updates in all three social networks;
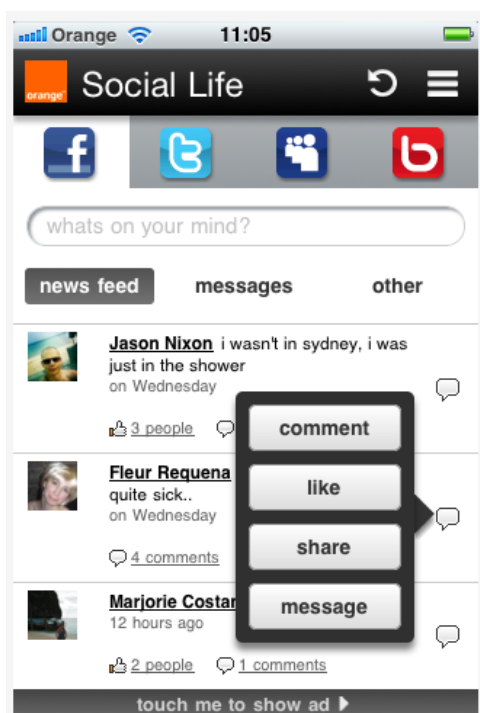
Everything Everywhere keep improving their *capacities*. From the network perspective, EE have launched the program that enables customers to access both Orange's and T-Mobile's networks seamlessly without no extra costs. As a result, customers can connect to mobile SNS at more places in the UK. EE's network has already covered 93% of the UK population, more than any other mobile operators'. Moreover, Orange has the largest integrated 2.5/3G network in the UK, so if users travel out of the company's 3G range, the services will be seamlessly transferred to 2.5G network.

Meanwhile, the smart phones base is increasing to 69%, allowing more people to have the opportunity to access the new services.
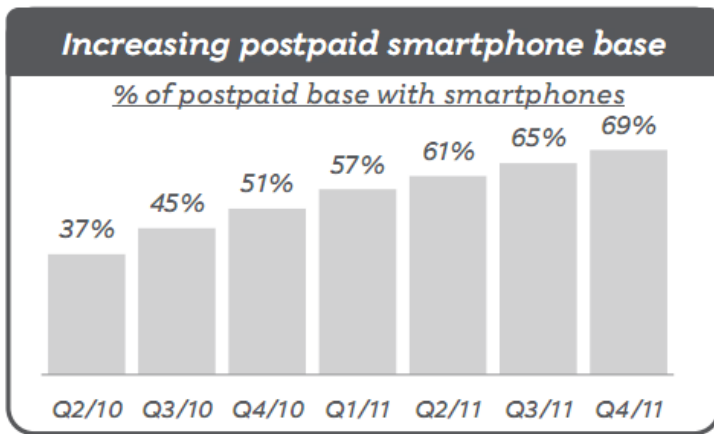

Increasing postpaid smartphone base

% of postpaid base with smartphones

Figure 24   Smart phone base in UK 2011

Infrastructure Management

Activity Configurations to deliver Social Life include:

- Operators open their network resources for SNS service providers.

- Cooperate and collaborate with popular SNS providers, such as Facebook and Twitter to offer aggregate internet portal to allow users interact with their friends and family across all four social networks at the same time.

At the beginning of offering Social Life, the SNS *Partners* only include Facebook, Myspace and Bebo in 2009. To improve customer experience and fulfill the changing customers' needs, Orange keeps trying to involve more and more popular SNS into their multi-social media portal. Therefore, Twitter seems to be a perfect partner, due to its increasing popularity among young people.

On the other hand, EE has also created close relationship with device manufactures. Numbers of smart phone are introduced into the market with attractive package. Users can select either "monthly pay" or "Pay as you go", according to their different situations. Moreover, due to the close partner relationship between operators and manufactures, popular apps can be pre-install to the terminals to improve the exposure rate to the customers, thus making their easier to be accepted by the users.

When it comes to the **Resources and Assets** part, EE had more than 15,000 employees, many in disadvantaged parts of the UK. They are backed by two of the world's leading communications groups, Deutsche Telekom and France Telekom, whose main brand T- Mobile UK and Orange UK were merged to create the UK's biggest telecom operator.

The brands mean a lot to Everything Everywhere, allowing it keeps the tradition of innovation and growth. Orange, with the goal of making the life simpler, is pioneer in offering innovative products and services in the UK, such as inclusive caller ID and plan minutes, per second billing, mobile conference calling, mobile TV, and HD voice calls.

T-Mobile brought innovations to the UK, including the picture messaging, broadband WiFi services on trains, Flext monthly plan with cross-network minutes and texts, and "Life's for Sharing" flash mob advertising campaigns.

Financial Aspects

To encourage utilizing mobile browsing, Orange provides two types of flat rate for customers. For "monthly pay" customers, 61.3p per day with upper limit of 25MB or monthly bundles with £5 a month for 500MB and £10.21 a month for 1GB internet access. For pay as you go customers, £1 bundle, for all day mobile access; £2.00 daily capped rate, so customers never pay more than this; and £5 for 250MB for one month internet browsing.

As of December 31 2011, service revenue grew 2.1% year-on-year to GBP 6,167 million. Strong postpaid addition achieves 894,000 in 2011 with the best postpaid growth of T- Mobile since 2006. Moreover, the company has achieved three consecutive quarters of industry leading 1.1% postpaid churn, caused by 3G network sharing of Orange and T- Mobile. With about 50% of the postpaid customer base, who generate five times more ARPU than prepaid users, underlying blended (prepaid + postpaid) ARPU increases 2.1% in Q4 2011.

In addition, the company continues the goal of increasing smart phone penetration and data revenues. In 2011, the smart phone base of postpaid customers has risen to 69% and non voice revenues (data and messaging) have also grow rapidly to 43% in Q4, against 36% in Q4 last year, with

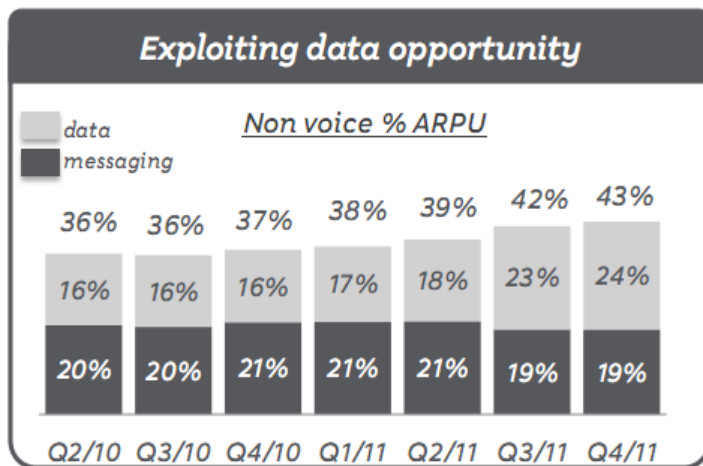non-messaging data revenue up to 24% against 16% in Q4 2010 (Figure 25).

Figure 25   Non voice data revenue of EE

6.2.3.3 Summary of Everything Everywhere's Business Models

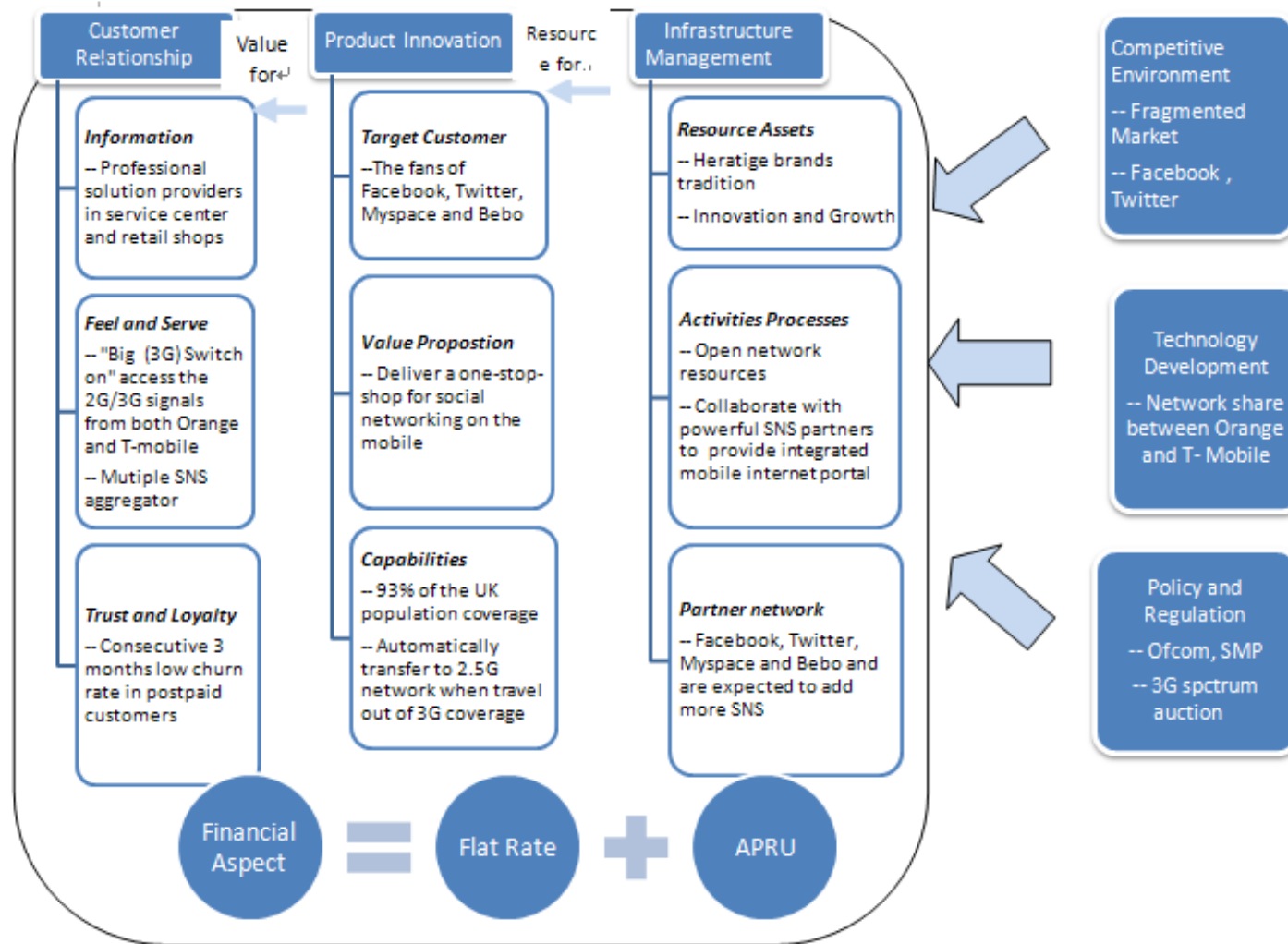The Business models of EE are summarized as below:

Figure 26 Business Models of Everything Everywhere

6.3 Summary of Business Models

China

In China, the telecom industry is highly controlled by government and the tree operators were all once state-owned companies. In 2009, China Mobile, China Unicom and China Telecom were granted three different 3G licenses and from then on, the telecom industry has begun to enter new 3G period. Among these distinctive standards, China Mobile's TD-SCDMA is totally developed by Chinese themselves. Due to the limitation of technology maturity and usage range, China Mobile has put much more efforts than the other two competitors did. The company continues to construct telecom network and introduce more terminals to retain the customers.

When it comes to the business models of operators in China, the customer base is about 900 million, which may bring huge potential opportunities for telecom operators. All the big three operators have powerful service centers to provide high quality customer services and satisfy their needs. However, it can be found that the main distribution channel is still simply opening network resources and sharing the data value, which will easily lead the operator becoming a "dumb pipe" in the future.

China Mobile has launched self-owned 139- community, however, as a late market entrant, its services overlap too much with the existing SNS and cannot attract the eyeballs of customers. China Telecom has begun to collaborate with the Chinese largest social media provider- Tencent and it is hoped that a unified SNS platform will be created in the future.

Japan

Japan is the country with the best developed 3G networks and customers have already got used to live with mobile internet. In Japan, KDDI is good at analyzing the customer needs and preferences. Moreover, the company focuses on building the close partner relationship with local popular SNS providers (Mixi and Gree) as well as powerful worldwide brands (Facebook and Skype). KDDI would offer customized telecom service to ensure smooth communication through those SNS. What should be noticed is that the collaboration between KDDI and Gree, through investing to Gree,

KDDI quickly expanded their business to mobile SNS area. It pointed out a fact that operators do not need to do everything all by themselves. They can have other choices. Moreover, the customized terminals are also the big advantages of operators to work with SNS providers. Through pre-installing the relevant apps, the exposure rate of the specific SNS will be largely increased. Furthermore, the company adopts flat-rate for data communication fees and it is expected to be an effective way to improve data ARPU.

The UK

When it comes to the UK, operators needed to spend a lot to purchase the 3G spectrum from regulators, which are quite different from the ways of obtaining licenses in China and Japan. Moreover, compared with the telecom industry in other two case countries, the market is highly fragmented in the UK, who has more than 40 MVNO. Everything Everywhere is the largest one with 93% of population coverage and the best 2.5G/3G integration network. Different from the SNS providers in China and Japan, where the top popular SNS all belong to local brands, the powerful brands such as Facebook and Twitter are the favorites. Therefore, EE has launched a multi social media portal, aiming to deliver a one-stop SNS service for those fans. Meanwhile, the company adopts flat-rate to encourage data ARPU.

7. Conclusion

In this part, the summary of key findings will be firstly introduced and, then based on the previous empirical study results, the managerial recommendations will be given. Finally, the limitations of the study will be discussed.

7.1 Key findings of the business models

The first finding of the study is the business model ontology for case analysis. The components of this framework are based on Osterwalder's (2002) business models, which include *Customer Relationship, Product Innovation, Infrastructure Management and Financial Aspects*. Moreover, as Rajala et al (2001) claimed, a business model is not operating in a vacuum and it may be influence by various external factors. Therefore, *market, technology, and regulation* specified by Kijl et al. (2005) are selected and integrated into an adapted business model to better company with the telecommunications environment.

Secondly, through the examination of business models of operators in China, it can be found that the main distribution channel is to simply open network resources and share the data value, which will easily lead the operator becoming a "dumb pipe" in the future. China Mobile has launched self-owned 139- community, however, as a late market entrant, its services overlap too much with the existing SNS and cannot attract the eyeballs of customers. China Telecom has begun to collaborate with the Chinese largest social media provider- Tencent and it is hoped that a unified SNS platform will be created in the future.

Thirdly, the success business models of telecom companies in Japan and the UK are evaluated as the references for Chinese operators' development. Japan is the country with the best developed 3G networks and customers have already got used to live with mobile internet. In Japan, KDDI is good at analyzing the customer needs and preferences. Moreover, the company focuses on building the close partner relationship with local popular SNS providers (Mixi and Gree) as well as powerful worldwide brands (Facebook and Skype). What should be noticed is that the collaboration between KDDI and Gree, through investing to Gree, KDDI quickly expanded their business to mobile SNS

area. It pointed out a fact that operators do not need to do everything all by themselves. They can have other choices. Moreover, the customized terminals are also the big advantages of operators to work with SNS providers. Through pre-installing the relevant apps, the exposure rate of the specific SNS will be largely increased.

When it comes to the UK, operators needed to spend a lot to purchase the 3G spectrum from regulators, which are quite different from the ways of obtaining licenses in China and Japan. Moreover, compared with the telecom industry in other two case countries, the market is highly fragmented in the UK, who has more than 40 MVNO. Everything Everywhere is the largest one with 93% of population coverage and the best 2.5G/3G integration network. Different from the SNS providers in China and Japan, where the top popular SNS all belong to local brands, the powerful brands such as Facebook and Twitter are the favorites. Therefore, EE has launched a multi social media portal, aiming to deliver a one-stop SNS service for those fans.

7.2 Managerial Recommendations to Operators in China

Based on the key findings of last sector, managerial recommendations of Chinese operators' business models are given as Table 9

Business Model Framework	Managerial Recommendations
Customer Relationship	Focus on the customers' needs; Analyze and collect customer information; Utilize Operators' advantages, create unique SNS services; Build multi social media portal;
Product Innovation	Be a smart pipe; Due to the expecting increasing data traffic, ensuring the network capacity is important;
Infrastructure Management	Choose the most popular SNS providers as the partner; If necessary, investing to SNS with huge potential is also a practical way; Construct good mobile ecosystem
Financial Aspects	Consider adopting flat rate to encourage data traffic

Table 8   Managerial Recommendations for Operators in China

Customer Relationship

Customer base is one of the most precious properties obtained by operators. Especially, when they face 900 million users, the large customer base will bring numerous and important opportunities that far beyond operators' imagination. Therefore, the telecom carriers should keep improving the ability of maintain the subscribers' personal profile, identify their distinctive needs, and offer tailor-oriented services accordingly.

For example, according to KDDI's experience, a technology was developed to automatically collect information from users' profile (age, gender, occupation and preference, etc.) by analyzing the data posted on the blogs and BBS. With the help of this technology, the company can detect the word of mouth marketing information and further analyze what kind of thoughts are held by different age or gender.

Given that Chinese Operator are experiencing the 2G to 3G transformation period, the requirement

of mobile internet services would be increased accordingly. Therefore, how to construct unique services that will differentiate from other SNS services to attract users' eye balls would be a big problem. Again, the answers would lay on analyzing customers' needs and opinions and satisfying their requirements. Here, the technology used by KDDI would a good lesson.

As stated in the business models of Chinese operators sector, the distribution channels of most telecom companies are still on the stage of simply sharing the network services with SNS providers, instead of being a powerful and essential part of the ecosystem. To avoid become as "dumb pipe", China Mobile tries to deliver their own SNS- 139 community, however, the grade result seems not so good, because it is a late entry of the market and the main functions and services overlap too much with the existing SNS. To distinguish with other services, the advantages of operators should be fully utilized. For example, the location based information, the services based on the telephone contact books, or using SMS to remind friends' information update in SNS etc.

These tips are not only helpful when developing their own mobile SNS, but also practical when collaborating with existing popular SNS providers, such as the relationship between Facebook and new version of "Jibe", the contact book. Meanwhile, developing a multi social media portal would be a good choice, too. Operators can integrate a unified platform with multi social networking services through a simple log-on, allowing more convenient interaction and better user experiences.

Product Innovation

As clarified in the previous sector, to better capture the value caused by the increasing mobile SNS, operators cannot be a simple "dump pipe". Instead, the position should be acted as "smart pipe", which means, looking forward, they should fulfill the users' requirements and needs; looking backward, they should strengthen the relationship with their business partners and reflect the needs of customers.

Except for customer base, network resources are the other important property of operators. To encourage the utilizing to mobile internet services, telecom companies should have the capacities to ensure the network quality and coverage. In other words, the development of mobile SNS cannot live without the help of good telecom networks. Like what is happening in Japan, the data traffic is

expected to grow 10 times due to the increasing needs of mobile SNS, thus requiring the continuously improvement of multi-networks.

In China, they have the same problem. Customers gradually enjoy the happiness and convenience brought by mobile internet and the data traffic must be increased accordingly. Operators should fully think about this context and ensure the network capacity, because it is the basic prerequisite of promoting mobile SNS services.

Infrastructure Management

Continue to bring popular SNS providers as partners is an effective way to attract mobile SNS users. On the one hand, a successful SNS already has large customer base and thus can easily stick numbers subscribers, moreover, operators do not have to put too much effort to do the promotion. On the other hand, utilizing the existing SNS can decrease the pressure and costs to develop the relevant services by operators themselves.

In addition, from KDDI's experience, collaborating and coordinating with mobile SNS can go even further, which means operators can quickly expand their SNS business by investing to a company with huge potential. With the totally support of KDDI, Gree quickly become the second largest mobile SNS in Japan market, bring huge profits both to the company itself and the operators.

In addition, the operators should keep trying to construct a good ecosystem, among which all the actors' relationship should be strengthened. For example, with the collaboration with device manufactures, operators can customized their own SNS mobile phone with pre-installing operators' own SNS apps.

Financial Aspects

Operators in China should consider adopting flat rates. Now, in Chinese telecom market, the mobile internet costs would be included in voice+ SMS+ mobile internet package with traffic data limitation. There is no flat rate, with which subscribers can use the mobile internet as much as they can. As a result, the time spent on mobile is largely increased and it would be easier for catch the income caused by data value.

7.3 Limitation of the study

The limitation of the study comes from two parts: one is the business model framework and the other is the research methodology.

The business model framework adopted by this paper is based on the Osterwalder's e-business model. Although some external factors which may influence the business model are added into the ontology, it is still hard to the accurateness and completeness.

On the other hand, this paper adopted case study and interviews as the main research methodologies. However, the number of interviewees is only two, which is possibly too few to conduct as research grounds. Moreover, without the quantitative analysis, it is hard to measure the business performance and profits brought by mobile SNS.

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