

**A Framework for Global Business Strategy Planning for the Wireless  
Telecommunication Carrier**

by

**TETSUYA YAMASHITA**

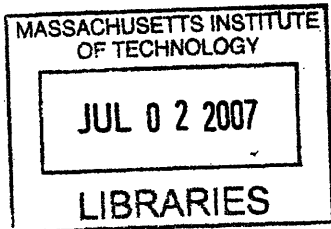
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# **A Framework for Global Business Strategy Planning for the Wireless Telecommunication Carrier**

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**TETSUYA YAMASHITA**

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Master of Business Administration

## **Abstract**

Within 27 years from 1979 when the first analogue cellular telephone system was launched, the Wireless Telecommunication industry has evolved drastically. Its technology and service are now in third generation: 3G, and already moving forward to 4G. Within a few years, it will enable the exchange of multimedia contents with huge digital data over the air. In the global market, most countries have deregulation and encourage now free competition. Especially emerging market e.g. BRICS is rapidly growing and intensifying the global competition. Furthermore, it seems that the internet revolution forces the industry to change their traditional business model entirely.

In this situation, wireless telecom carriers may not be able to survive if they fail to adapt to the new evolved environment. They need developing an appropriate global business strategy, taking into account all complex essential factors: integration with the internet, sustainable disruptive innovation, international technology standardization and market globalization. What framework and method can solve the problem? This is the essential question for the industry. In order to answer the question, I believe that any player in the industry has to investigate these dynamics and interrelation each factor has, and design business strategy to achieve sustainable growth in the complex market.

In the thesis, as one part of the solution, I propose (i) a hybrid analysis method how to investigate the industry and capture the complex dynamics, and (ii) strategy development procedure to support appropriate business strategy for future wireless communication business. In terms of (i), I introduce three analysis tools: my Triangle Pyramid Configuration Study (TPCS), Porter's Competitive Advantage Analysis and Lessard's RATs Test. Regarding to (ii), I clarify a scheme to integrate these analyses results obtained by (i) for the business strategy development. Finally, I conclude my research by describing essential issues for future wireless telephony business.

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Tetsuya Yamashita  
May, 2007  
Boston, Massachusetts

*This thesis is dedicated to all the people of NTT DoCoMo*

*And*

*Akiho Sasaki,  
the great leader of 3G mobile communication: IMT-2000*

## Chapter 1

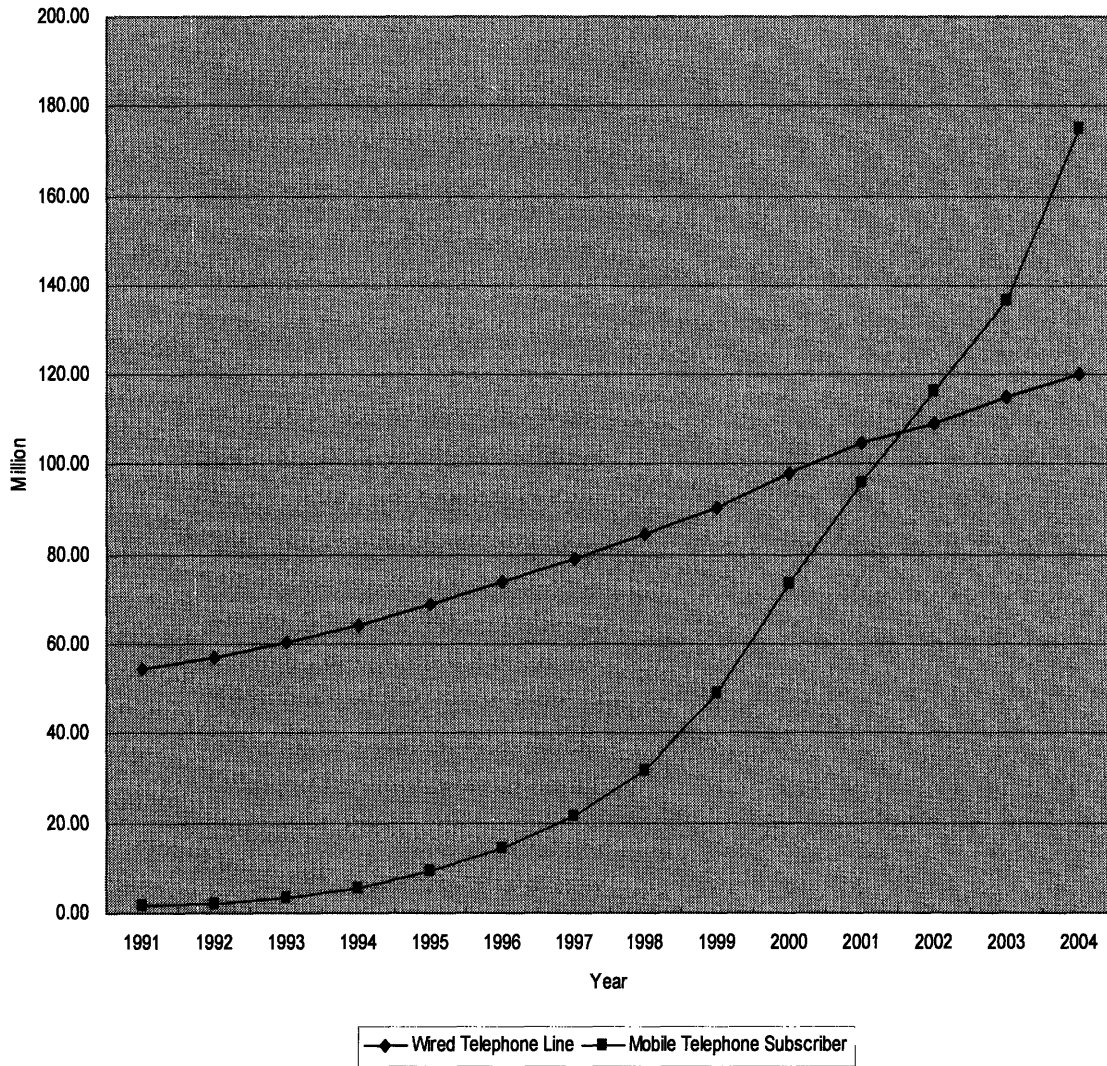
### Introduction: Executive Summary

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In the last decade, mobile telephony industry has evolved drastically. Nowadays, as you can see in Figure 1-1, the number of mobile telephone subscribers in the world exceeds the total number of wired telephone lines. It is not only enabling seamless personal communication service, e.g. “anytime, anywhere and anyone”, but also providing broadband connection over the air. It could be one of the good examples how to make a legacy service evolve by successive technology innovations. In addition, thanks to a huge effort to set common international standards, now it is very easy to make a call to anyone by own mobile telephone from everywhere in the world. Furthermore, epoch-making radio technology innovations, it is possible to send extra large digital data, e.g. video or music file, to anyone over the air.

However, now we also can see another paradigm shift in the industry with our own

eyes: from conventional closed telephony service to IP-based open network solutions.



**Figure 1-1 : Wired Telephone Line vs. Mobile Telephone Subscriber**

**Source : "Key Global Telecom Indicators for the World Telecommunication Service Sector", INTERNATIONAL TELECOMMUNICATION UNION, 2006**



It has been already on going in the fixed wired telephony market, driven by evolution of the Internet. It is forcing all existing public telecom carriers to reform their conventional business model, i.e. volume & tariff-based charges, hierarchical centralized network. There is no doubt that it would be changed to an IP-based, decentralized and open network. At that stage, we will see different players with brand-new business models beyond the existing telecom culture: quite low fixed charge, open interface, and smarter meshed & integrated networks.

Will it also happen in the mobile telephony industry? I believe, it would be definitely “Yes”. Regardless any difference of adopted technology for physical connection on wire or wireless, that wave of IP also must force the wireless telephony industry to proceed into next evolution phase. Like a recent wired network situation, existing business model and structure in the industry would be restructured sooner or later. Essential question of this evolution is when and how to be realized. When business players in the industry try to start new business and make strategies, everyone should deliberate upon this paradigm shift before making a business decision.

Furthermore, when they try to frame new business plan, they also have to contemplate the recent aggressive global competition in the industry. It can be described by various aspects: severe technology race for next generation global standard, confliction between carriers and manufacturers, and competition for acquiring new market. The mobile telephony service and product form complicated business model region by region, therefore, it makes applying single common strategy more difficult. Any global players, e.g. carriers, manufacturers and service providers must have to ponder these multiple sections, e.g. technology innovation and complex business structure, and then develop an optimized global business strategy.

In this paper, to analyze new business and technology innovation in the wireless telephony industry, I propose to apply a hybrid framework, (i) Triangle Pyramid Configuration Study (TPCS), (ii) Porter's Competitive Analysis and (iii) Lessard's RATs Test & Strategic Platform Analysis. Especially, the proposed TPCS can provide a fundamental structure (business model) overview of new business from four attributes: Technology, Product, Contents and Service. In addition, I give a method how to develop

global business strategy based upon that hybrid framework analyses. The proposed strategy development procedure describes a detailed procedure how to integrate the output of hybrid analysis to support required strategy design for new business.

In order to propose the above framework and method, first, I describe the outline of current wireless industry (in Chapter-2) and problems about new technology innovation for next generation (in Chapter-3) and complex global business structure (in Chapter-4). Second, I explain detailed structure and scheme of proposed hybrid analysis framework (in Chapter-5) and strategy development procedure (in Chapter-6). Finally, I show my conclusion in terms of future strategy development for the wireless communication industry (in Chapter-7). Figure 1-2 shows the chapter structure of this paper.

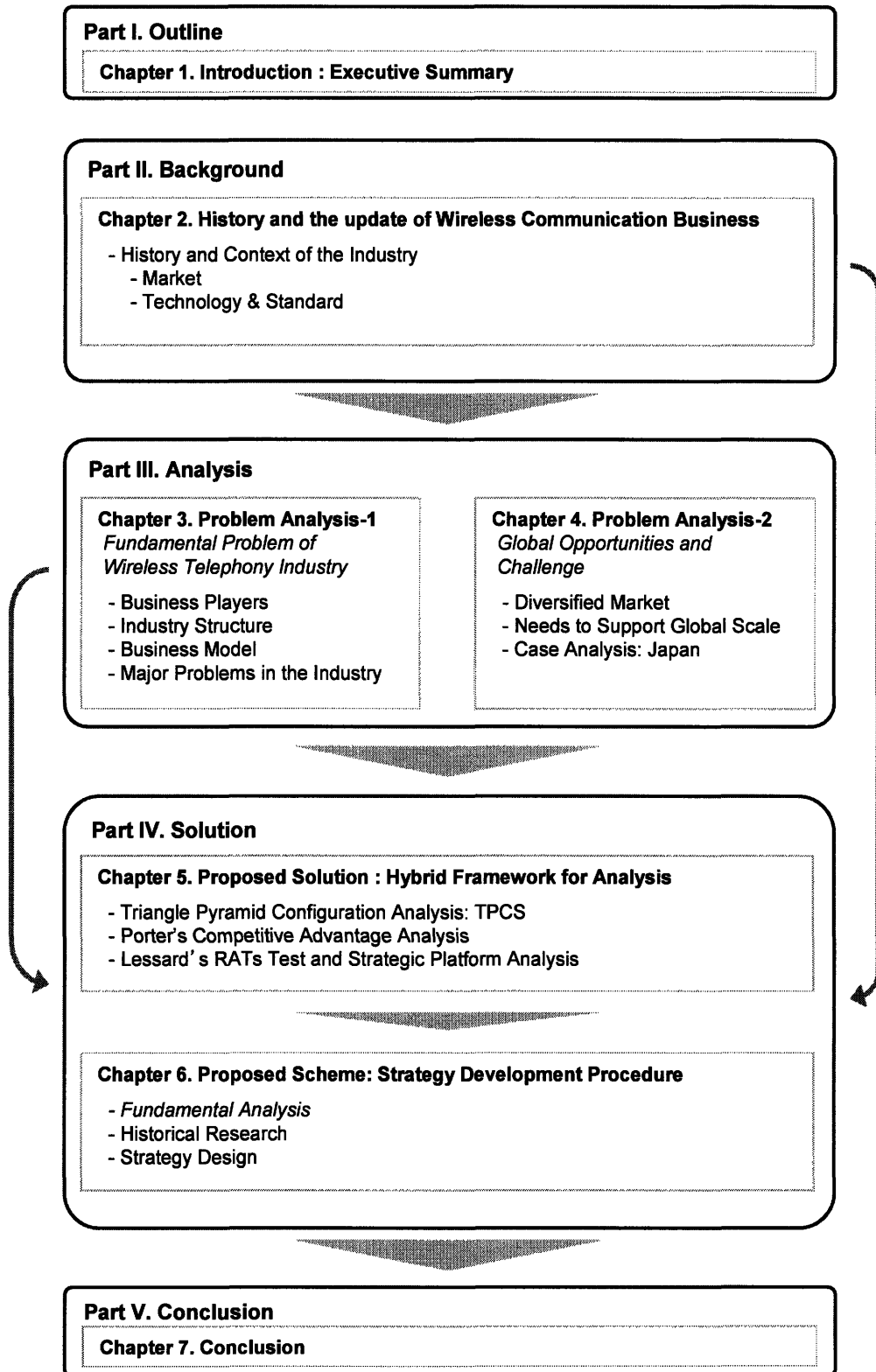


Figure 1-2: Contents Structure of the paper

## **PART II. Background**

### **Chapter 2**

#### **History and the update of Wireless Communication Business**

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To describe my new scheme for business strategy analysis and development for the wireless communication industry, I first outline and history of that industry, and then, I summarize recent problems in the industry regarding to technology innovation and global business issues.

##### **Chapter 2-1 History of Wireless Communication Industry**

In contrast to the conventional wired telephony service which has over 100 years history, public mobile communication service has only less than 30 years history. First practical commercial mobile telephone was launched in the U.S and Japan, the end of 1970's. From then on, it has grown very quickly and achieved a lot of disruptive technical innovation in the past three decade. It can be said that the mobile communication industry in the world has evolved drastically beyond anyone's imagination for less than 30 years.

It consists of the following three (3) phases:

Phase-1: “Rise of Wireless communication Market” (1980’s)

(1<sup>st</sup> Generation (1G) by Analogue Technology)

Phase-2: “Deregulation and Globalization” (1990’s)

(2<sup>nd</sup> Generation (2G) by Digital Technology)

Phase-3: “Standardization War and Wave of the Internet” (2000’s)

(3<sup>rd</sup> Generation (3G) by Broadband Digital Technology)

## **Chapter 2-2 Phase-1 “Rise of Wireless Communication Market” (1980’s)**

After World War II, many engineers had been tried to put “Radio Telephone” to practical use in the U.S, Europe and Japan. Postal, Telephone and Telegram (PTT) in each country launched several rudimentary systems as supplemental telephony service except the Nordic countries<sup>1</sup>. In that initial stage, there were many technical restrictions: (1) Inflexible Radio Frequency (RF) channels assignment, (2) handset size & weight and so on. Therefore, it was very difficult to provide the radio telephone service for every consumer with reasonable cost and product. Especially the above issue (1) was critical to secure enough system capacity in order to operate it as public telephony service. I would like to emphasize this capacity problem as permanent fundamental problem of the mobile communication

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<sup>1</sup> In steep fiord are, it is very difficult and costly to lay copper wire based telecommunication line. Therefore they aggressively implemented radio telephone system as core telecommunication lines for rural area. It is typical exception in the mobile telecommunication market due to their geographical conditions.

industry.

In 1970's, several solutions had been proposed. Of all others, it can be said that *Advanced Mobile Phone Service: Control Architecture*<sup>2</sup> (1979) is epoch-making paper to introduce excellent solution for the above essential problem (1). Thanks to this disruptive innovation introducing unique idea, e.g. dividing area by cell and making RF channel allocation pattern, PTT could implement the radio telephone network with desirable system capacity as public service. US, some European countries and Japan launched own proprietary system with no compatibility among them. Apparently this movement heralds coming of practical "mobile communication", however, in the phase, its market size was very small and fully regulated by each government.

We had to wait to have a smart mobile handset until the end of 1980's.

### **Chapter 2-3 Phase-2 "Deregulation and Globalization" (1990's)**

According to the rapid technologies evolutions, the industry succeeded to acquire more system capacity by applying digital modulation scheme for the radio transmission. In

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<sup>2</sup> "Advanced Mobile Phone Service: Control Architecture", Z. C. Fluhr and Philip T. Porter, Bell System Technical Journal, vol. 58, 1, pages 1-14, January 1979

addition, from analogue to digital, telecom carrier could enable the system to not only have huge capacity for nationwide service but also support international roaming. Equipment suppliers also succeeded downsizing of handset and reducing the cost. The wave of “deregulation” swept toward conventional telecom industry, then, many PTT were forced to be privatized and cut the tariff. Indeed, it was ready to become real consumer product and service in the global market. Thanks to the severe competition, it reached reasonable price level for any consumers. Then, both manufacture e.g. Motorola, Nokia, Ericsson and etc., and telecom carriers e.g. T-Mobile, Orange, Telephonica and etc. could expand their business domain from domestic to the global.

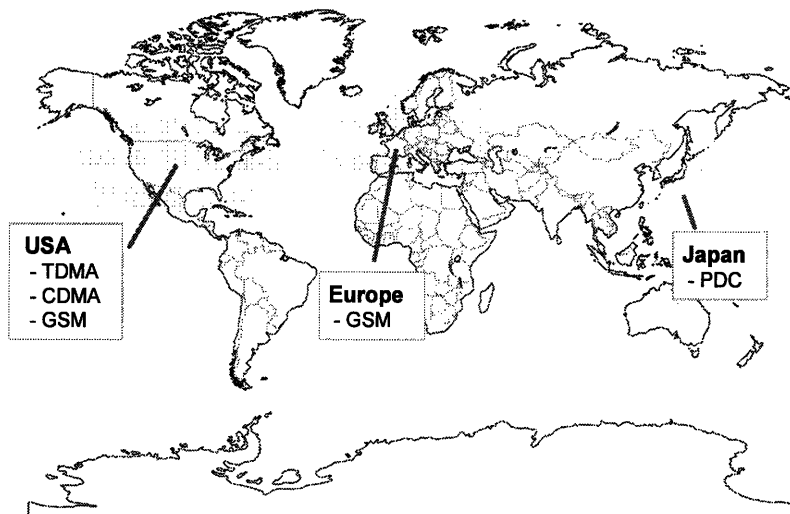


Figure 2-1: 2<sup>nd</sup> Generation Mobile Telephone Standard in each region



Manufacturers tried to export their products to uncultivated area, e.g. the Middle and South America, Africa, the Middle East and Asia. Carriers tried to enter those new markets by various ways, e.g. M&A, minor investment or alliance. However, it was remarked that there was no single global standard for the mobile telecommunication. In general, there were three (3) major 2<sup>nd</sup> generation standards<sup>3</sup> in this phase. The above Figure 2-1 shows the situation (what technical standard had been applied) of each region in Phase-2.

#### **Chapter 2-4 Phase-3 “Standardization War and Wave of the Internet” (2000’s)**

As rapid expansion of its global market, the demand for single common standard was increased more and more. In the industry, most parties and regulators had reached a consensus to develop it by year 2000. The international Telecommunication Union – Radio communication (ITU-R) defined it as next generation “3G” system<sup>4</sup>. In order to lead the development 3G and get dominant position in the market, many major players had been hotly fighting each other in the international standardization body.

In that phase, there was severe conflict between two groups: European & Japan vs. U.S.

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<sup>3</sup> US: CDMA (IS-95) and TDMA specified by TIA, European: TDMA (GSM) specified by ETSI and Japan: TDMA (PDC) specified by ARIB.

<sup>4</sup> It was called Future Public Land Mobile Telecommunication System (“FPLMTS”, renamed to IMT-2000 later).

The applied digital modulation and multiple access (Time Division Multiple Access: TDMA) schemes in Phase-2 could not have enough capability to support huge data transmission (more than 1M bytes) with reasonable system capacity. Most parties agreed that Code Division Multiple Access (CDMA) was the most applicable solution to achieve the proposition. The problem was how to migrate the existing system to the next generation. At least, carrier had to replace the existing infrastructures (especially all radio base station equipments and handsets).

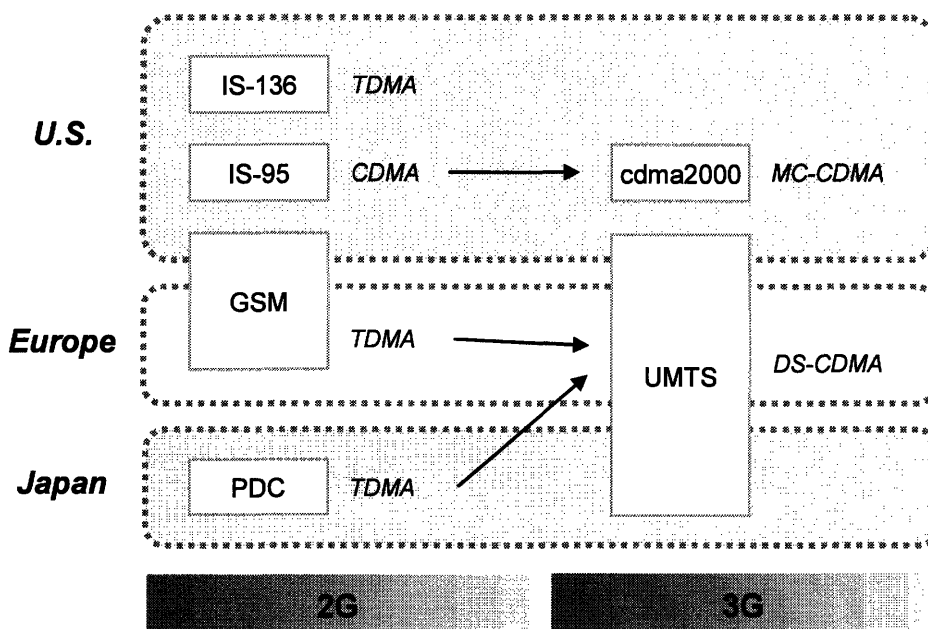
TDMA parties, European (using GSM) and Japan (using PDC) decided to apply brand-new technology CDMA even though it had no compatibility with the existing TDMA based radio system. European parties believe that it was possible to minimize the replacement cost by reusing the existing switching network.

Japan party decided to compromise with the solution proposed by European parties since they recognized the importance of common international standard. In phase-2, they developed own propriety standard (PDC). Unfortunately it was not compatible with any other standard in the U.S (IS-136 and IS-95) and Europe (GSM). In addition, they failed to

convince other countries to adopt PDC. Finally they could not gain any synergy from the global market in terms of PDC business. In order not to repeat the same failure, although it required extra cost to replace the existing system, Japan accepted to compromise with European parties' proposal from the global business standing point.

U.S had the complex situation. FCC issued additional licenses for mobile telephone service by using PCS (Personal Communication System) band: 1.9GHz from 1995. For that band allocation, FCC did not specify single common standard for radio transmission scheme. Alternately 6 schemes had been standardized and implemented in each licensed area. After the competition, mainly 3 major standards could survive: IS-136 based (TDMA technology), IS-95 based (CDMA technology) and GSM (TDMA based). Regarding to 3G, carriers who were operating GSM system in the U.S welcomed European's (GSM parties) proposal. Meanwhile, IS-95 parties believe that their existing technology would become dominant in 3G market. To sustain this advantage and secure the dominant position in the market, they had adhered to their policy that 3G must have a complete compatibility with the existing IS-95 system.

Finally, both European and Japanese based proposal (GSM/UMTS) and US based (cdma2000) has been specified as the global standard of 3G. Thanks to the 3G standards, it enables to send and receive extra large data e.g. several mega bytes over the air. However, it has not been achieved to have one common global standard yet. As mentioned, either GSM/UMTS or cdma2000 (cdmaOne 1X/3X) has been used<sup>5</sup>. Figure 2-2 shows the transition of wireless mobile telephony technical standard from 2G to 3G in major markets. As you can see, it can be said that UMTS/GSM has become a de facto standard in the world.



**Figure 2-2: Transition from 2G to 3G Standard in each region**

<sup>5</sup> Now GSM/UMTS has been introduced in many countries which regional carrier adopts cdmaOne (e.g. U.S, Korea). It means that GSM/UMTS solution is becoming “de facto” standard in the wireless telephony industry.

On the other hands, the big wave of internet also affected mobile telecommunication service. Both manufacturer and carrier had to change both existing traditional business model from voice centric service to multimedia application, and architecture from conventional switching system to IP based solution. Furthermore, as emerging countries, e.g. BRICs, are rapidly growing, the competition is very fierce. Major manufactures like a Nokia, Motorola and Samsung ship and sell “global standard” (common designed) handsets in any regions. Now, the industry in the world has become “global”.

## Chapter 3

### Problem Analysis-1: Fundamental Problem of Wireless Telephony Industry

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In this chapter, I investigate the structure of mobile communication industry and summarize the fundamental problems: Who is the dominant player in the industry? What are types of problems that limit the business?

#### Chapter 3-1 Business Players

In the wireless telephony industry, it can be said that there are 3 types of major potential players: *Carriers*, *Manufacturers*, and *Regulatory Authorities* (e.g. Government). Of course, there are also many other important players, e.g. application software developers, device manufacturers, music content providers and so on. However, to capture the essential system dynamics of the industry through simplified industrial structure, it is appropriate to focus on these three most influential parties. In addition, those supplemental players can be classified into one of these three categories, i.e. application software developers and device

manufacturers could be classified as Manufacturers. It is remarked that, according to the progress of deregulation, Regulatory Authorities have been losing their control over the industry, but still they are non-negligible player. Figure 3-1 shows the fundamental structure of the industry by three players and fundamental relationships.

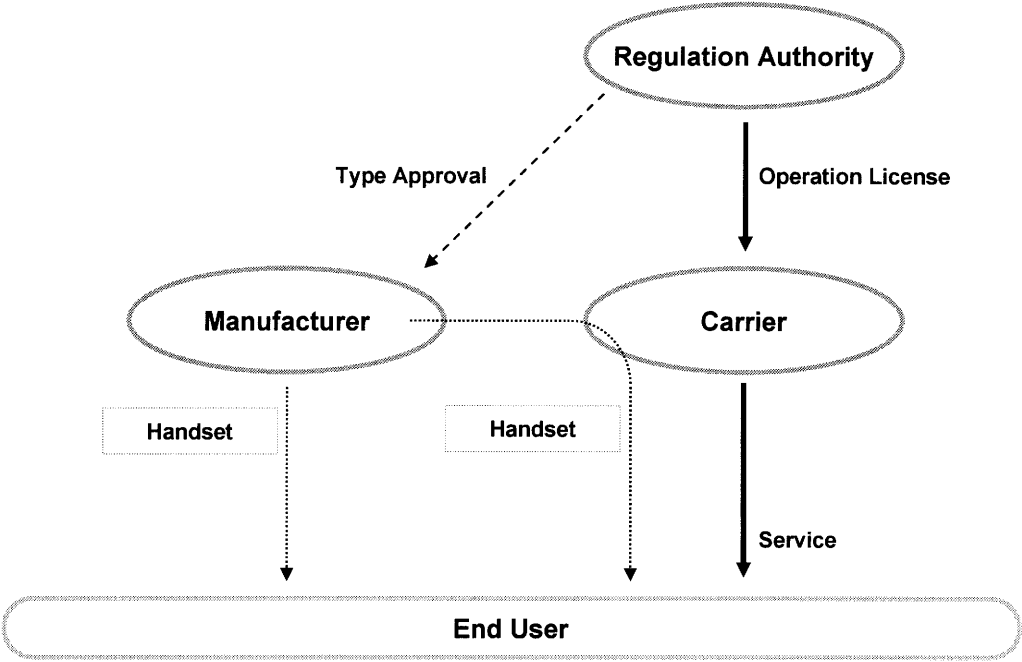


Figure 3-1: Mobile Communication Business - Industrial Structure

Recently new players are entering and driving new business. They are *Service and Content Providers* who offer and distribute multimedia service and digital contents. They have been on the rise in the Internet first. Now they are becoming more important player to

drive new business. In terms of the Service Providers, I will describe the overview and their business model in the later paragraph.

### Chapter 3-1-1 Major Player (1): *Carriers*

**Overview:** In general, in many countries, public companies owned by government (Postal, Telegraph and Telephone (PTT)) had provided mobile telephony service. It means that the service was fully regulated (controlled by the government) and monopolized.

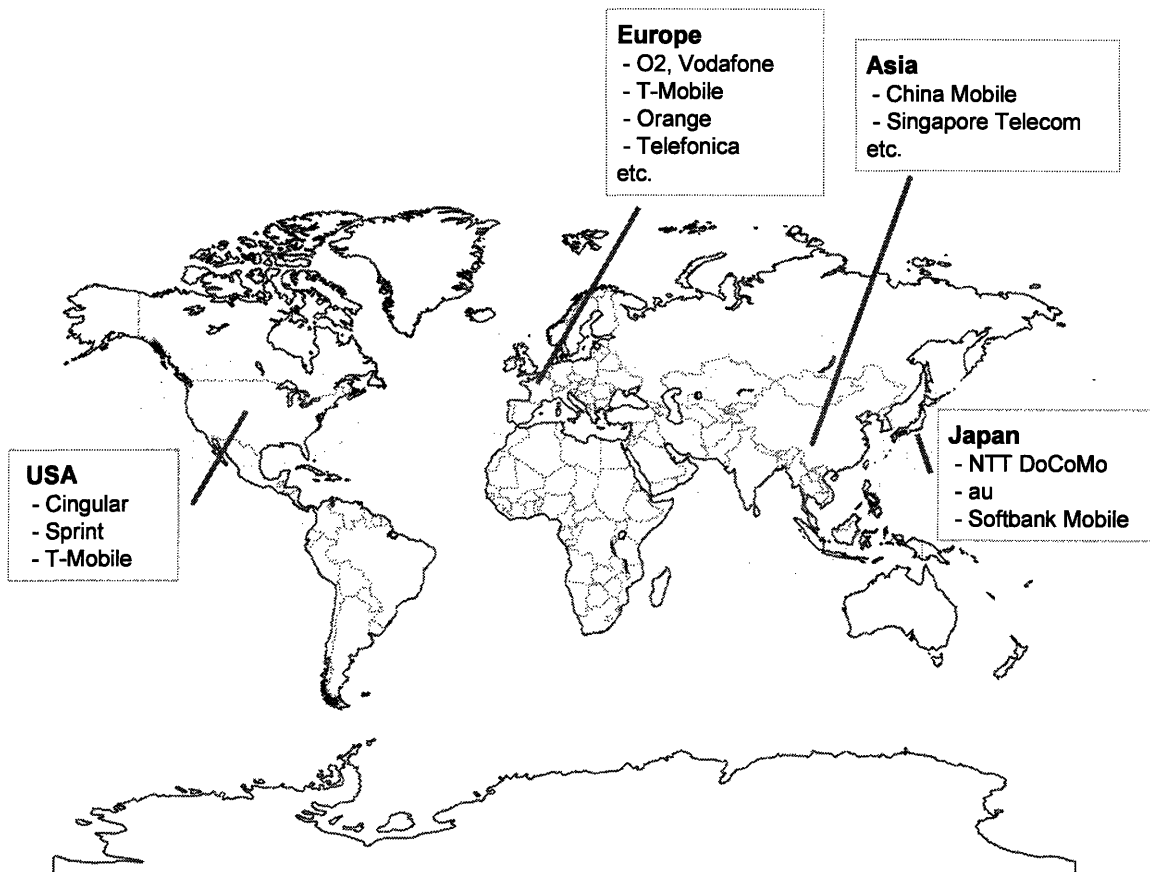


Figure 3-2: Major Mobile Communication Carrier

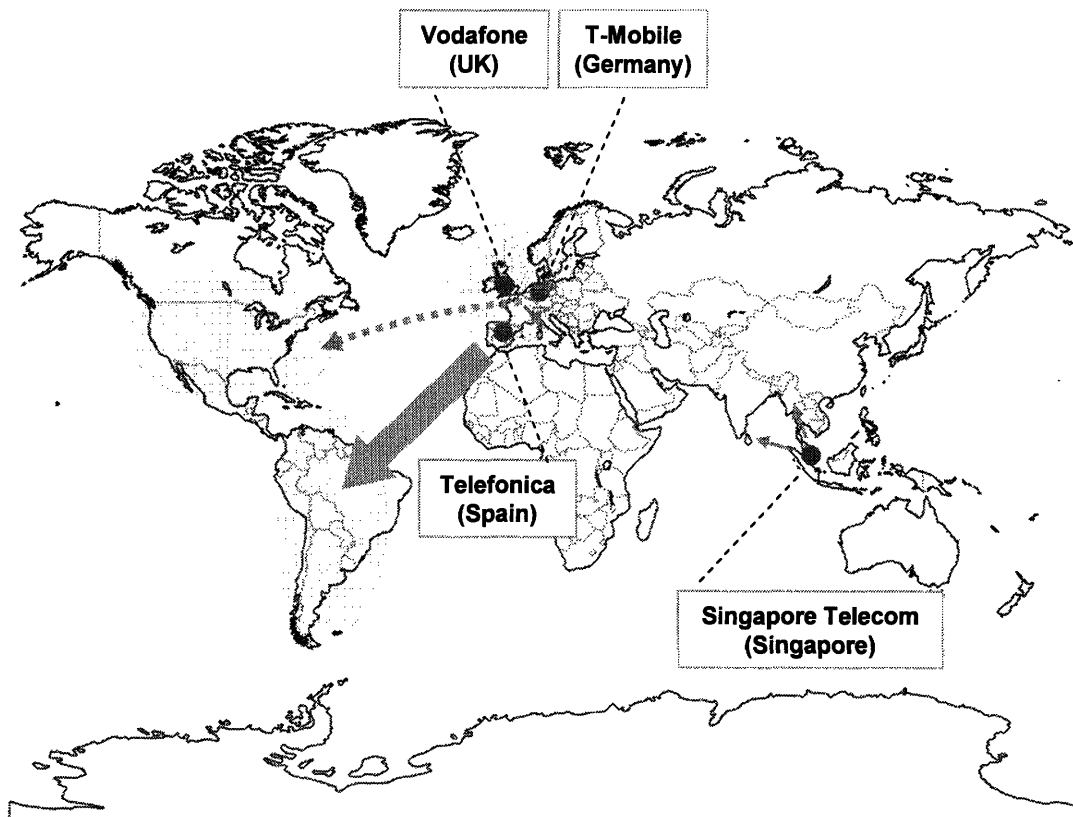


According to the de-regulation in the end of 20<sup>th</sup> centuries, not only most PTTs were privatized, but also many new common carriers have entered into the market. Refer to Figure 3-2. It shows the update situation of wireless telephony carriers in major countries. However, from national security point of view, the business is still strictly regulated in the most countries. Especially, radio frequency bands are considered as important social assets, therefore, it is required to obtain official permission (license) issued by regulation authority in each region if some one would try to operate mobile telephony service. It makes new entry more difficult since the number of license is very limited. It is a remarkable characteristic of the industry.

**Business Strategy:** After the de-regulation, the existing carriers (e.g. PTT or privatized PTT) have been faced serious competition in each home region. In order to keep sustainable growth, they need two things: (1) new subscriber and (2) additional communication traffic. It means that the market share is a potent factor in their business. To beat their competitor and acquire new subscribers and more traffic, they usually try to make differentiations of services and tariff. However, due to the standardized and interoperable telephony services, it is not easy for them to create significant advantage by unique

communication service. Finally, many of all carriers have to compete with each other by discounting the tariff.

When the coverage of mobile communication was not so high in their market, they could expect to be able to differentiate that on services and tariffs. But, once it has been saturated, it is very difficult to acquire either (1) or (2). To increase sales and revenue at that stage, alternately many of them are trying to acquire new market. Refer to Figure 3-3. As you can see, many mega carriers in the world, e.g. Vodafone, Telefonica Singapore Telecom and etc, are acquiring other carriers to secure new market.



**Figure 3-3: Globalization of Mobile Communication Carrier Business**

### **Chapter 3-1-2 Major Player (2): *Manufactures***

**Overview:** Simply, there are two types: (a) manufacturers of network infrastructure (e.g. switching system, base station transceiver, data base center and etc.) and (b) manufacturers of mobile handset. You can see significant contrast between them. Manufacturers (a) drive B to B business by delivering their product to only carriers in a long term. On the other hands, manufacturer (b) challenges B to C business by producing attractive new handsets for end customer in a short term.

**Business Strategy:** It can be said that manufacturer (b) business is “small profits and quick returns”. It needs enough volume of demands to enable profitable mass production. As like other electronic products (e.g. domestic appliance) manufacturers, they are trying to export their products to all over the world. Until Phase-1 “Analogue stage” described in Chapter-2, they had to customize and modify their mobile handset to comply with each regional propriety standard. However, from Phase-2 “Digital stage”, thanks to the international standardization, they have enabled to produce a common “global” handset. It could gain more profit from mass production and simplify their supply chain management. In other words, it has made some of them strong global business players.

Nowadays, some major manufacturers, e.g. Nokia, Motorola and Samsung, succeeded to establish strong brand image in the global market. Therefore, most carriers can not ignore their products and strategy if carriers wish to maintain the bigger market share.

### **Chapter 3-1-3 Major Player (3): *Regulatory Authorities***

**Overview:** In general, they are the civil service establishments (like FCC in the U.S.) and control regional telephony market by regulations. In terms of mobile communication, mainly they manage two issues: (A) radio frequency allocation and (B) operational scheme (especially, tariffs and conditions) of the service.

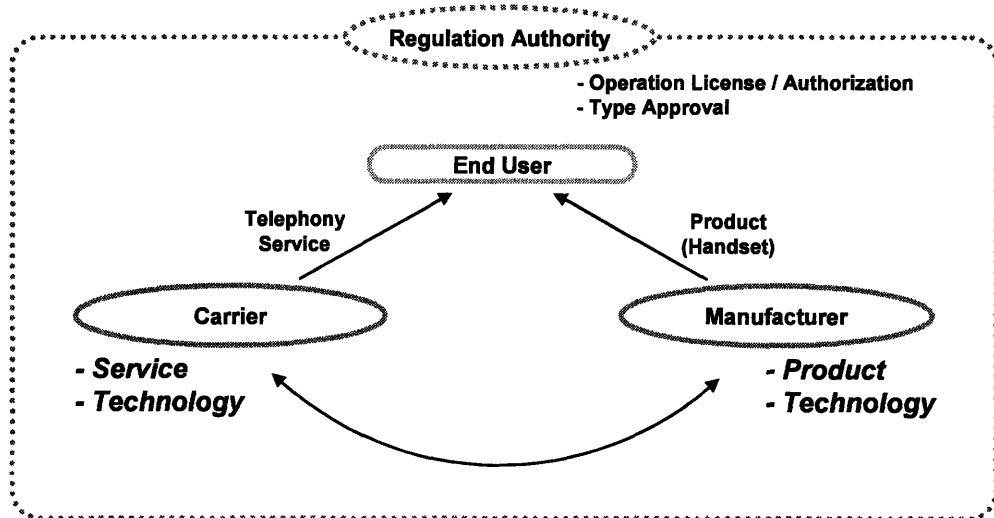
Of course, it is different country by country, but it can be said that most countries regulate the number of carriers since the available radio frequency bands are strictly limited. Therefore, it is not easy for any carriers to enter into the existing market in other countries (i.e. there is no available license). In many countries, government decided the deregulation, but no country allows public mobile telephone service without license. This is one of the main reasons why the globalization in mobile carrier business has proceeded far slower as compared with that of manufacturers.

## **Chapter 3-2     Industry Structure**

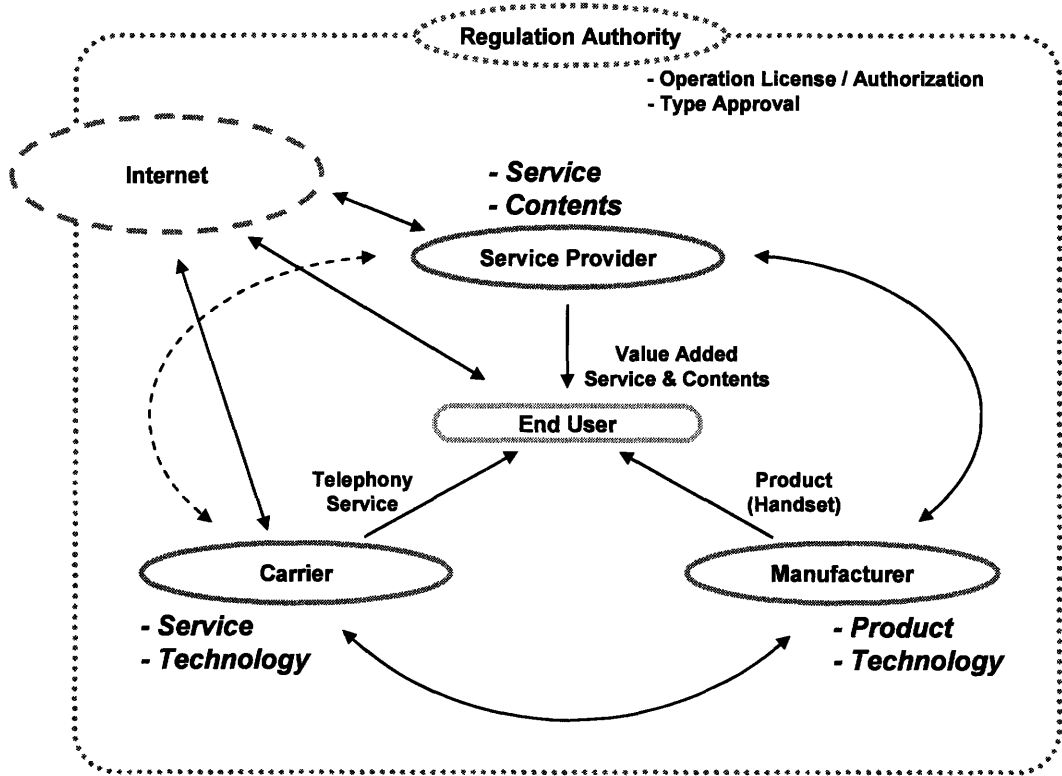
What's type of relationship and concern existed among these players? Figure 3-4 shows general industrial structure and relationships among major players in 1980's and 2000's. It is remarked that, the internet strongly affected the entire industrial structure, created new players and changed the power balance.

Until the end of 1990', "before the internet", it was only available to use conventional telephony (e.g. voice call) or primitive data service (short text messaging). Telecom carrier and manufacturer had controlled the market because they could control service features and technology through the closed standardization activities. Any telephony service is always required to have complete compatibility and standardized communication protocol. Therefore, it is quite usual in their standardization body to take 2 or 3 years to conclude the discussion and complete the technical specification for new service. As a result, out-of-date, self-righteous and ordinary service without significant differentiation had been launched. Unfortunately, there was no choice for end user. They only could choose carrier and manufacture from very few alternative.

**1980's – 1990's**



**2000's -**



**Figure 3-4: Mobile Communication Business - Industrial Structure**

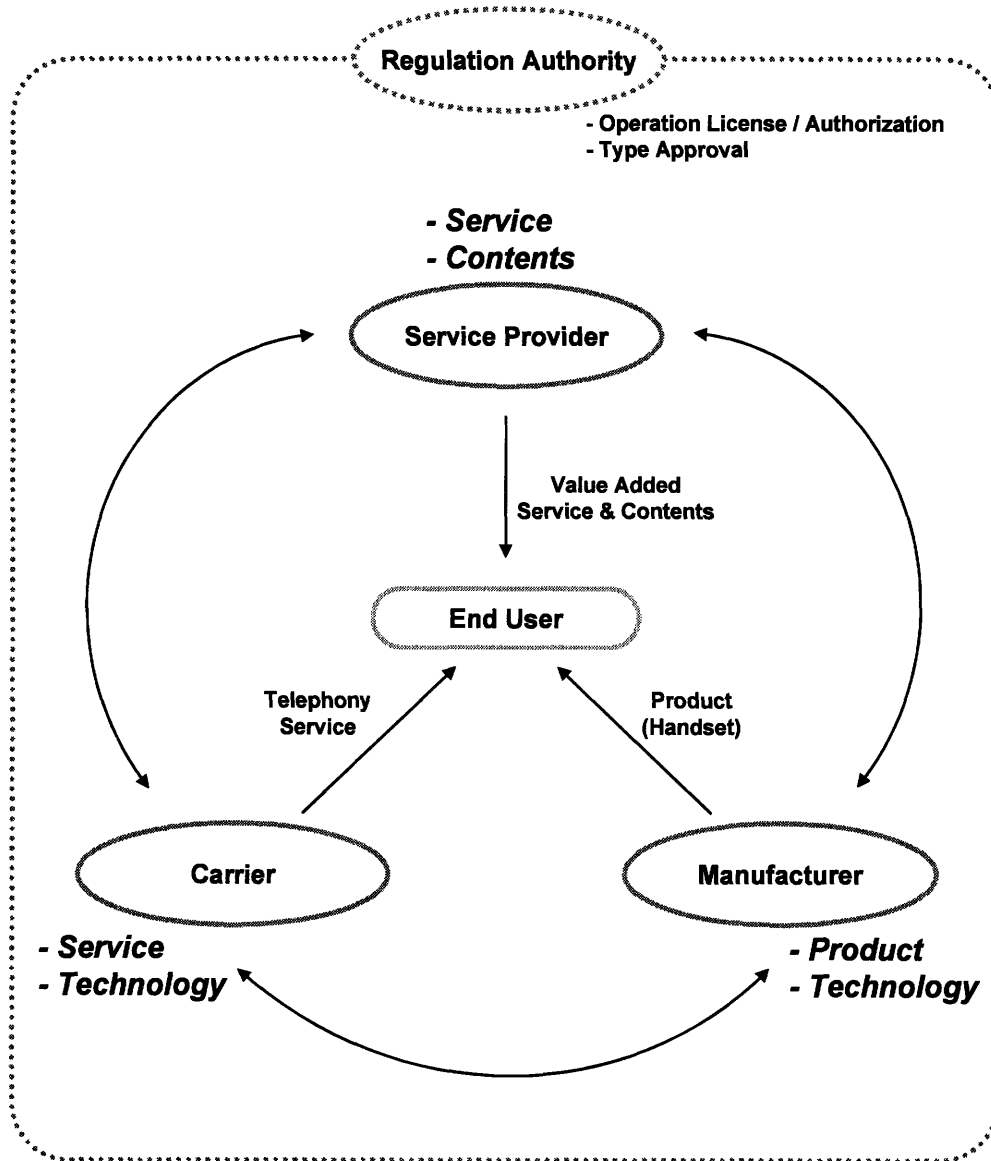
However, “after the internet”, it was drastically changed. In the internet, many disruptive innovations have happened and driven new evolution toward IP based open network. Simultaneously the performance and functionality of electrical devices, e.g. PC, digital audio player, memory, liquid crystal display and etc have been significantly improved.

Both big waves enable any third party to produce various multimedia services and create rich contents with affordable price. It names “Service Providers”. It could split communication service into two layers: bearer and contents. Now end user has many options. They are focusing on contents more and more.

What’s the system dynamics can be observed in the current industry? What’s the key role of each player in the industry? See Figure 3-5 and Table 3-1 as follows:

Player	Role
<b>Service Providers</b>	Service Contents
<b>Carriers</b>	Service Technology
<b>Manufacturers</b>	Product Technology

Table 3-1: Key Role of Each Player



**Figure 3-5: Mobile Communication Business - Industrial Structure**

As described in Table 3-1 and Figure 3-5, the current wireless telephony market has been driven by three major players who have specific roles. It is remarked that all players depend on each other. For example, if service providers wish to launch “music download” service



for cellular customer, they need Product, Technology and Service supported by carriers and manufacturers. In this case, at least the following issues are needed:

- (1) Product: Handset should support such new music service to download, save and play the music contents files. In addition, it should support critical feature (DRM: Digital Right Management) to prevent illegal copy. Of course, it should be offered with affordable price.
- (2) Technology: It is needed to enable downloading the file without stress and superior sound quality. It requires high speed bearer (e.g. more than 128kbps) and coding & compression scheme (e.g. AAC+: Advanced Audio Codec plus: It is applied for iTunes service) of the sound file.
- (3) Service: To offer this contents service, additional basic and supplemental service, e.g. packet data transmission, billing service and etc are indispensable. Those basic services can be developed by both Carriers and Manufactures.
- (4) Content: It is the most critical goods for service and content providers. In this case, the service provider should produce good contents (updated, excellent quality, enough number of variations, and etc) by themselves or buy in the contents from other source.

In deed, nowadays it is impossible to conduct any business without considering this hybrid system in the industry. It is very important point to understand fundamental structure and power balance in the current industry.

### **Chapter 3-3 Business Model**

Regarding to the business model of telecommunication, we can see a big paradigm shift between “telecom age” and “the internet world” in the wired telecommunication market. It must be quite important suggestion for us when we consider the future of wireless communication industry.

In the conventional “telecom age”, telecom carrier for wired communication service had collected large sums of revenue from “volume (time) based charge” on each call. They believed that the value of their business was “bearer connection service”, e.g. providing peer to peer communication. In the market, they had been protected by regulation and could maintain the value position of their core business. Under such oligopoly situation, it was not important to take into consideration what service end user wanted. From carrier’s and manufacturer’s viewpoint, they could make their business decision and determine the

market price. It means that they had conducted their business technology driven basis, without attention to the evolution of business model.

However, the big wave hit the industry. As it is becoming commodity and alternatives (e.g. IP telephone like a “Skype”) are becoming familiar, that relative value has declined. In “the internet world”, generally end user only pays the constant basic monthly charge for wired connection service (e.g. ADSL) even though the existing telephone line is used. On that internet connection, everyone can enjoy not only downloading huge video clips but also making a long distance call by IP telephony service without minutes based charge. This evolution changed the mind set of end users. Most people recognize the more value of application (service and contents) rather than conventional communication service. In addition, severe price competition in the industry due to the deregulation accelerates this value position shift. Finally, instead of paying more for new contents and services, end user is losing their willingness to pay for basic bearer, e.g. telephony service. Figure 3-6 shows such shift of value position in the wireless telephony market. It can be said that most end users can easily recognize higher value for the latest advanced application since it is recognized (and used) at the front.

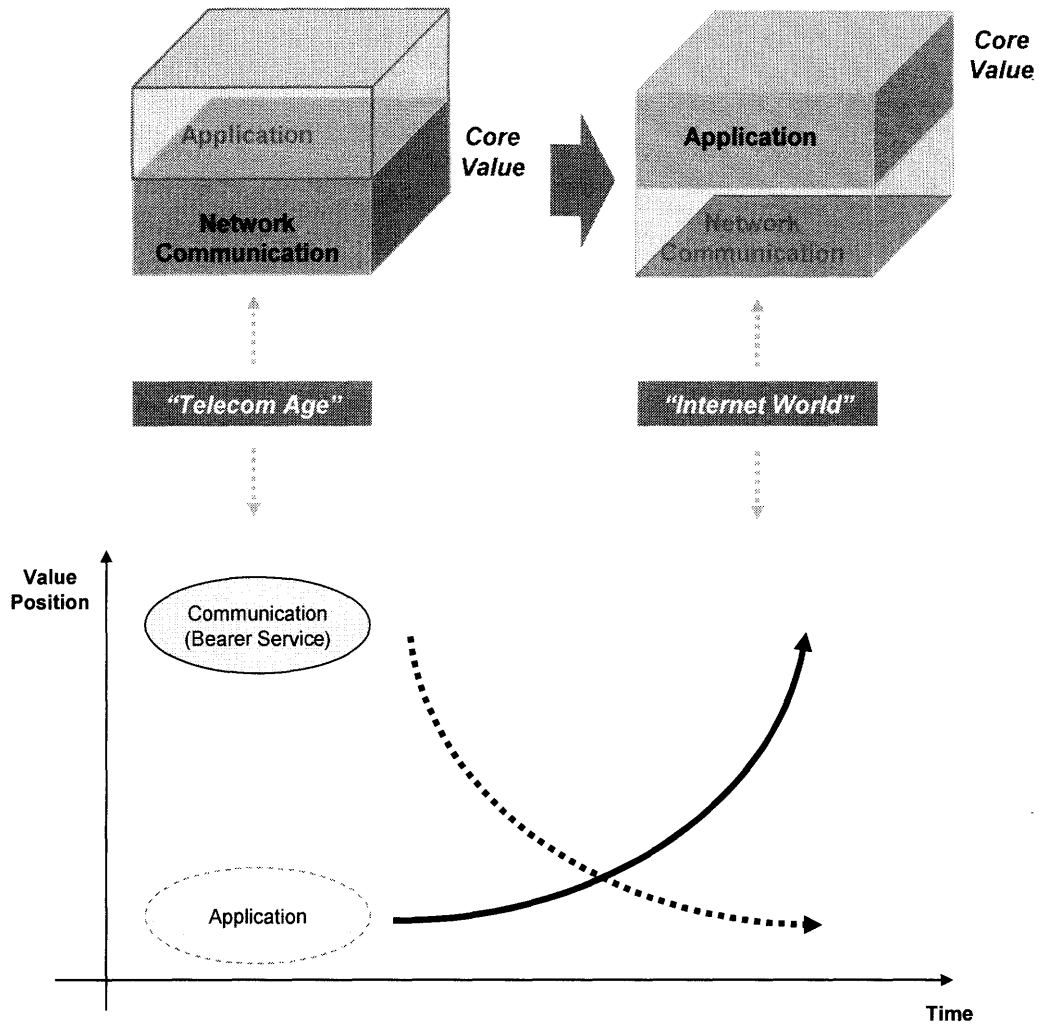


Figure 3-6: Changing the Value Position in telecommunication market

It is quite natural that completely same situation would happen in wireless communication industry. Apparently, in most advanced wireless market, e.g. Japan, there is an indication of this value shift. Many carriers have announced that they will introduce

fixed tariff regardless of length of calls and data size of sending & receiving. There is no doubt that the current value position of basic “wireless telephony service” will decline soon in that market. In the future market, carriers must reform their current business model from “telecom mind” based to “new value-added” basis.

These evolutions of business model (the change of value position) can be summarized in Table 3-2.

Stage	Market needs	Key issues for success	Dominant Factor
<b>Stage-1</b>	Mobile voice call	Coverage & Quality	<b><u>Technology</u></b>
<b>Stage-2</b>	Value added NW service (messaging)	<i>Coverage &amp; Quality,</i> <i>+ Price</i> <i>+ Features</i>	Technology <b><u>Product</u></b>
<b>Stage-3</b>	Multimedia	<i>Coverage &amp; Quality,</i> <i>+ Price</i> <i>+ Features</i> <i>+ Availability</i> <i>(of application)</i>	Technology Product <b>Service</b>
<b>Stage-4</b>	Internet	<i>Coverage &amp; Quality,</i> <i>+ Price</i> <i>+ Features</i> <i>+ Availability</i> <i>(of application)</i> <i>+ Freshness</i> <i>+ Variations</i>	Technology Product Service <b><u>Contents</u></b>

Table 3-2: The Change of the Business Model and Key Factors

It is possible to classify the change into 4 stages. The most valuable service in the wireless telephony industry has changed from the primitive voice centric network service to the internet based application. It is remarked that, according to the change of stage, the dominant factor (classified in the Table 3-1) has been also changed. It means that the business model in the wireless telephony industry has changed. It will be happened to reform the current business model drastically after the Stage-4: the internet revolution. In order to achieve the restructure successfully, they must understand the speed and direction of this paradigm shift, and capture the sense of new complexity in the industry, e.g. power balance among three players: Service Provider, Carrier and Manufacturer, and four key factors: Technology, Products, Contents and Service.

#### **Chapter 3-4 Major Problems in the Industry**

Except the paradigm shift as mentioned in the above, what's problem in the wireless communication industry? At least, business players in the industry are facing three big problems: (1) Saturated Market, (2) Overheated Technology Innovation and (3) Diffusion of the internet. It can be said that, those problems under the paradigm shift make the market more chaotic situation, and business players are plunged into more difficult position to

judge the right course.

### Chapter 3-4-1 Problem-(1): Saturated Market

In the past two decades, many countries, e.g. US, Western Europe, Japan and some Asian countries, have achieved very high penetration (subscription) ratio of mobile telephone. See Figure 4-1 in Chapter 4. As shown in the graph, the penetration ratio in those countries has closed to or exceeded over 100%. Under this saturated situation, it is very difficult to acquire new subscriber. It gives huge negative impact for both players: carrier and manufacturer from the sales point of view. To maintain sustainable growth (of sales and revenue), there are two options shown in the following table 3-3: (1) acquire new market outside of home country, or (2) create new business.

Business Option	Tactics
<b>(1) Acquiring New Market</b>	(a) M&A (b) Minor Investment (c) Form the Alliance
<b>(2) Launching New Business</b>	(a) in same domain (b) in other (new) domain

Table 3-3: Options and Tactics to achieve sustainable growth

In terms of (1), it will be discussed in the following Chapter-4. Regarding to (2), it seems that, recently many carriers are exactly trying to launch “new service”. However, most of them are designed to simple stretch the existing business in a same domain with some differentiations. It is considered to neither reform the current business model nor challenge to produce new service in other business domain. Indeed, they are simply playing “zero-sum game” in the existing environment, not trying to expand (create) new market. If they fail to create new business and market, they would decline or be disappeared from the rapidly changing environment.

#### **Chapter 3-4-2 Problem-(2): Overheated Technology Innovation**

Another problem in the industry is “technology driven culture”. We can recognize same tendency in the IT industry. Carrier and manufacturer had pursued “the ceaseless evolution by technology innovations”. It is true that it achieved the outstanding evolution of wireless telephony service. But, in that process, they did not neither pay attention customer satisfaction (CS) nor consider their requirements: what types of service they want. Before the internet and deregulation, the industry had been protected and enjoyed oligopoly conditions without severe competition. In that situation, they could maintain the desirable



sales and revenue regardless the level of CS. Finally they had lost customer point of view when they tried to develop new service. They believed (many of them still believe) that advanced technology always must satisfy end user. Many people misunderstand that, any technical innovations surely enable to make remarkable differentiations and appeal to customers. They firmly believe, technical innovation and new features always provide business advantage in the market. Therefore they blindly concentrate on applying new technology and developing additional functions. This wrong logic can be found in not only the wireless communication industry but also everywhere of IT market. For example, in terms of popular IT devices, like a PC, VTR, digital camera and etc, most manufacturers are eager to add new technology, functions and features more and more. As you can see, exactly same situation has been happen in the cellular telephony market. You must find too many functions in your cellular telephone, and then you may notice you have never used almost functions.

Another example, the industry now claims and drives the Fixed Mobile Convergence (FMC) as the great technology innovation to stretch the horizon of current both fixed and wireless telecom market. FMC is not a brand-new idea, aiming to remove a wall between

fixed telecommunication and wireless, and merge both system and service into the integrated one. But, what types of benefit can be available for end user? Unfortunately it is almost nothing. Furthermore, most end user does not like to integrate two different telephone numbers (fixed and wireless) into one. Please imagine, do you believe young people want to receive their private call by fixed phone in the house (it may be picked up by parents) in stead of own personal cellular telephone? It means that, FMC may improve network efficiency and reduce the operation cost, but, it may not create new value for end user. However, carrier and manufacturer continue to ignore the true CS and push their self-righteous product and service. Once fallen into this trap, it is very difficult to exit.

### **Chapter 3-4-3 Problem-(3): Carrier vs. Manufacturer**

To understand the complexity and dynamics of the current wireless communication industry, we have to focus on the confliction between carrier and manufacturer. As mentioned earlier, in the industry, most players (especially carrier and manufacturer) believe that technology advantage promises business advantage. Manufacturer persists in making significant differentiation by product price and new technology innovation, and carrier also is particular about service price and unique technology too. If both parties reach

a consensus on their expectation, they might conduct desirable collaboration. However, unfortunately it must be impossible in most cases. For example, carrier really desires to make and maintain specific differentiation against other competitors (carriers). But, manufacturer wants to deliver their differentiated products to all carriers without customization since it can minimize the production cost and maximize their profit. Indeed, it can not be avoided to cause a severe conflict of initiative to define the specification of products.

#### **Chapter 3-4-4 Problem-(4): Diffusion of the Internet**

What's serious threat to the wireless communication industry now? I believe that the internet is becoming the serious threat and force them into changing the current business scheme. In the fixed telephony service, first, it seemed that the internet had been recognized as if it could activate the dull market. But it was not only diffused with astonishing speed but also took the major role from conventional telephony service. In many countries, the existing telephony (voice call) service has been becoming one of the supplemental features of broadband connection service. Existing fixed telecom carrier still can not establish yet any other appropriate business model in place of the existing conventional telephony

service. It has been happened in only 4 or 5 years.

There is no doubt that same evolution will be happen in the wireless communication industry too since both existing telephony business are substantially same. Many market researchers claim that FMC and next generation cellular system (4G) would enable the revival of existing (traditional) telecom carriers. But, I believe it must be wrong because the internet requires new business model far beyond the existing telecom business standard. Nowadays, it is no exaggeration to say that, any digital data have been generated, exchanged and used by the internet based architecture. Every business player in the industry must understand that the homage of communication business domain was changed. In order to survive in the forthcoming new environment, telecom carrier shall deliberate new business model and reform the existing business even though it would be quite painful.

In this chapter, I summarized the fundamental problems in the current mobile communication industry. In next chapter, I describe another section of the business, e.g. the global business situation of the industry.

## Chapter 4

### Problem Analysis-2: Global Opportunities and Challenge

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As mentioned earlier, a critical question in the wireless telephony industry is whether a player (manufacturer, carriers or content provider) needs to be global for success, or at least whether or not global expansion is a profitable strategy for any players. Is it possible to achieve sustainable growth through the global expansion?

In this chapter, I summarize the current wireless telephony industry from the global business point of view, and then show several critical issues to drive the business.

#### **Chapter 4-1      Diversified Market (1) - Incompatible Standard (*Technology*)**

When we focus on the current wireless telephony market in the world, we can find some mottled, but not united pattern. See Figure 4-1 (and refer to Chapter 3-4-1). This graph shows the penetration ratio of mobile telephone in each country. From the data, we can read the following points:

(a) Some developed countries market e.g. U.K., Japan and etc. have already been saturated.

It is very hard to expect further subscriber growth.

(b) Some countries e.g. Russia, Italy, Spain and etc. show extremely high penetration ration over than 100%.

(c) The penetration ratios are still very low in some developing countries even though they have huge populations (e.g. India).

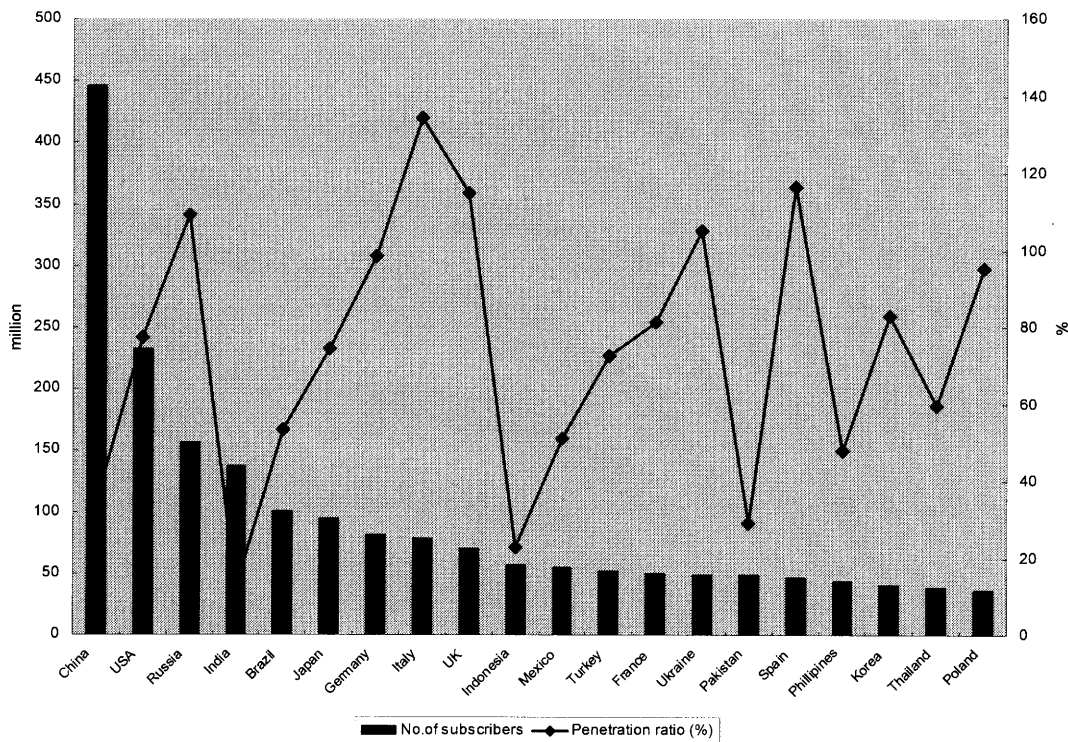


Figure 4-1: The Number of Mobile Telephone Subscriber and Penetration Ratio

Source: EMC World Cellular Information Service (InformaTelecoms & Media), February 15, 2007

Regarding to the wired telephony service, we can also recognize same situation as like (a) and (c). However, it is remarked that the inside of the market (a) is far different from the wired telephone even though it has similar high penetration ratio. For example, in the case of wired telephone, there is no significant difference among the countries about technical standard, interface and service. Practically, we can see almost same telephone terminal or FAX machine in your hotel room, and use voice, FAX or data communication by same manner regardless where you stay in the world. On the other hand, the market situation and conditions of mobile telephony service shows different aspect country by country. Especially we can see many remarkable differences in value added service. In Japan, “mobile payment” (e-commerce on mobile) has been already put to practical use and been popularized. It enables to use mobile phone as prepaid, debit or credit card for various purposes. In addition, the number of advanced cellular handset with digital TV tuner has exceeded over 10 millions. But, it is impossible for end user to use both services in Finland even though it is the home country of the leading mobile handset manufacturer, Nokia.

Vice versa, any major Nokia’s GSM handsets can not be used in Japan. Indeed, there are many incompatibilities about not only the lower layer interface (related to the basic

network service) but also the upper layer (regarding to the application). Table 4-1 shows the current condition of applied proprietary regional technical standards. Indeed, those incompatibilities (e.g. lack of common global standard) retard the growth of global mobile communication business. When we consider the global business regarding to the mobile telephony service, we have to understand such diversified technology standard conditions.

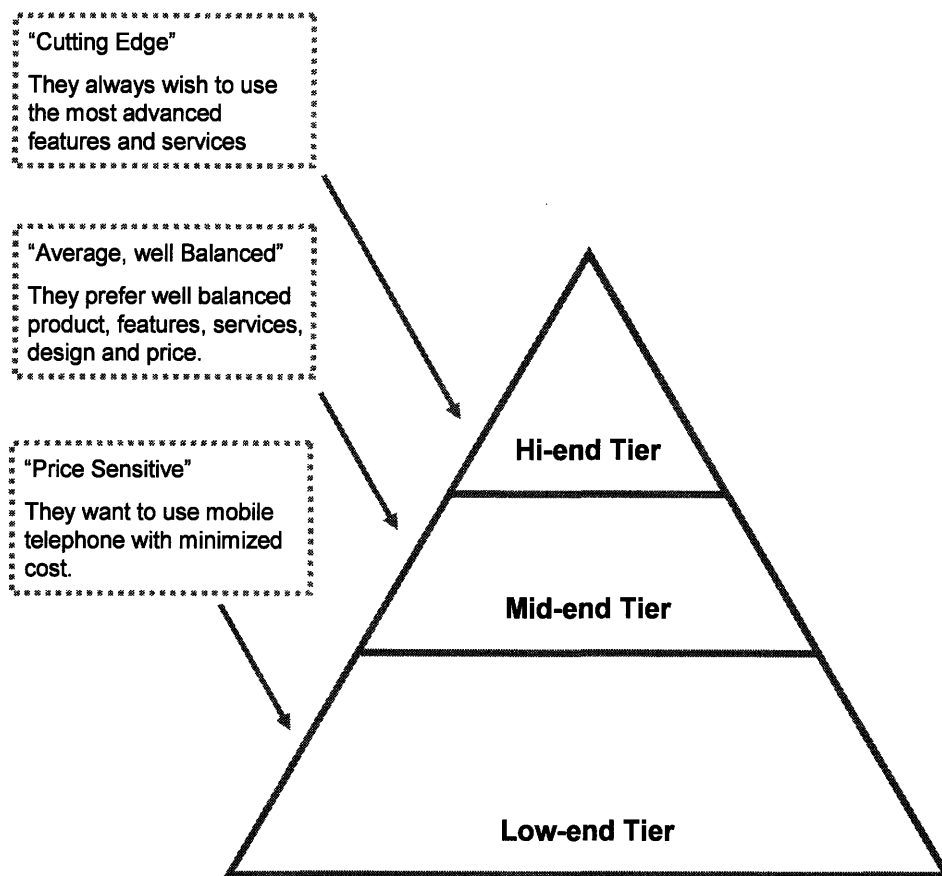
<b>Layer</b>	<b>Function &amp; Features</b> <i>(Regional Specification)</i>
<b>Upper Stratum</b>	<b>Application</b> - Digital TV <i>( Europe: DVB-H            Japan: ISDV-T)</i> - E-commerce (contact-less IC card) <i>( Europe: NFC            Japan: Felica (type-C)</i>
<b>Lower Stratum</b>	<b>Network Service</b> (Connecting features) - Radio interface <i>( Europe: UMTS+GSM            Japan: UMTS, PDC, cdma )</i>

Table 4-1: Layer structure and specification of mobile communication service



**Chapter 4-2    Diversified Market (2)**  
**- Different Customer Segment & Taste**  
**(Products, Contents and Services)**

In addition to the complex situation of adopted technical standard, each region and country has a marked different customer segment and taste. In general, the customer segment and structure in the wireless telephony market can be represented by a triangle form as shown in Figure 4-2.

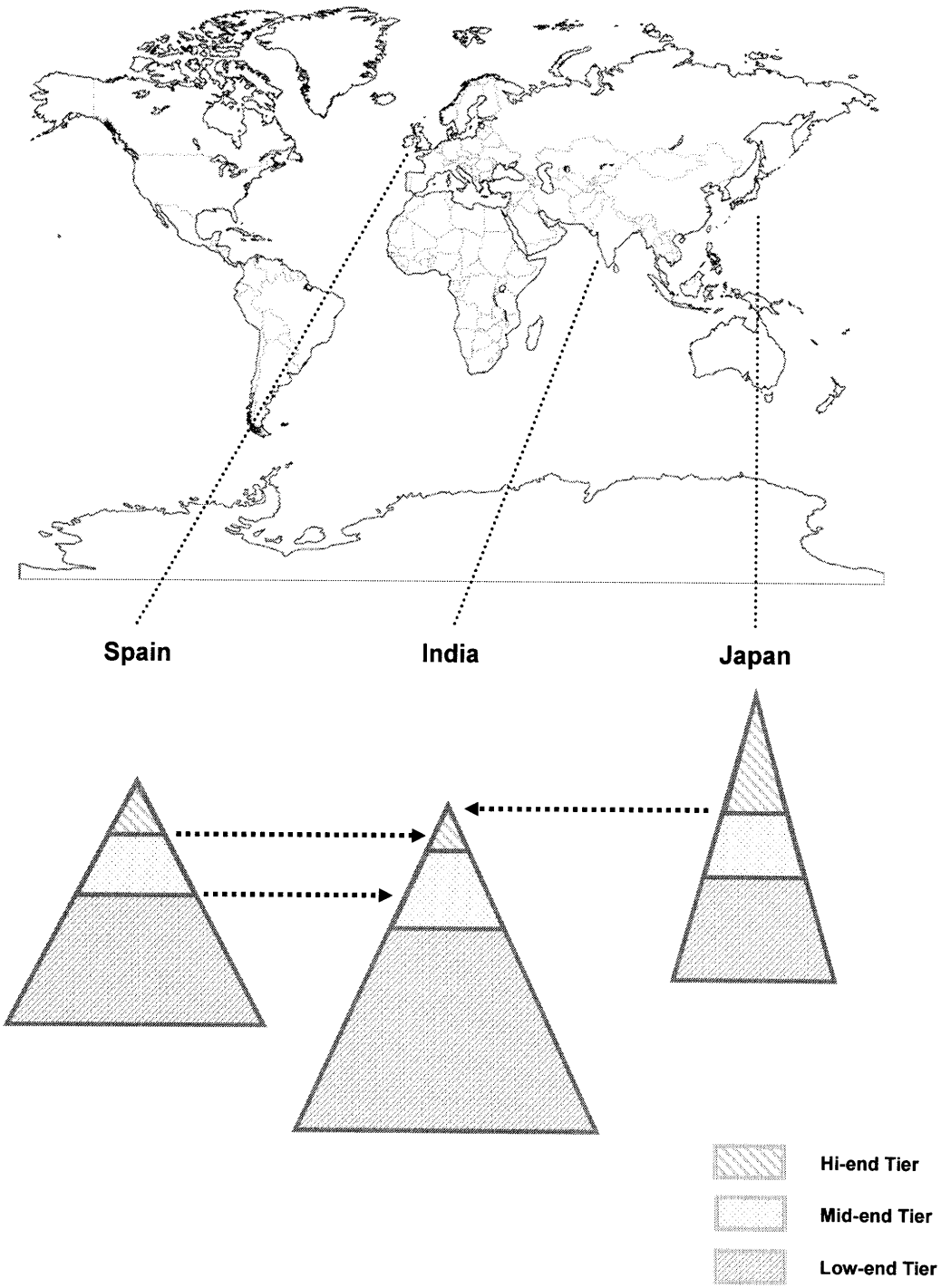


**Figure 4-2 : Market Segment of Mobile Communication Service**

As you can see, it consists of three segments: Hi-end (with small volume), Mid-end (with middle volume) and the largest group, Low-end Tier. In most countries, the Low-end tier has become majority in each market. But, it is remarked that the borderline (height in the triangle) between the segments is not same among each region.

Figure 4-3 shows thus “another” diversification, e.g. different configuration (and status) of regional market segments. For example, some “high-end” handsets in Europe, e.g. the latest smart-phone supplied by major manufacturer, would not be recognized as “high-end” in Japan market. Vice versa, the existing “mid-end” handsets in Japan must be sales as “high-end” in Europe. Furthermore, each segment exact ratio in the market is also different. Finally each country in the world shows very complex different attributes. This quite diversified situation makes a common (single) business strategy for manufacturer and carrier more difficult.

As shown in the following Table 4-2, this diversified market conditions can be broken into the following three major factors: Products, Contents and Services



**Figure 4-3: Market Segment of Mobile Communication Service  
Different Configuration in each country**

Factors	Japan	France	India
<b>Products (Handset)</b>	Retail Price ¥1 - ¥35,000 (\$0.008 - \$296 <sup>1</sup> ) Functionality Extremely high-end. Full spec. to support all multimedia and cutting edge features	Retail Price 1euro- 639euro (\$1.36 - \$869 <sup>2</sup> ) Functionality Moderate/Mid-End Support major multimedia feature (video/music/game)	Retail Price INR1,000 - INR5,000 (\$24 - \$120 <sup>3</sup> ) Functionality Mid/Low-end Increasing Mid-end handset with multimedia features
<b>Contents</b>	Full range of multimedia Almost same as the internet	Mobile music and game It is closing to the internet based contents	Mobile music and game. Due to the handset capability, it is limited to primitive level.
<b>Services</b>	Full range of multimedia Almost same as the internet E-commerce and digital mobile TV now available	SMS/chat service strongly supported. Trying to support new value added service: e.g. E-commerce, TV	SMS service strongly supported.

Table 4-2: Diversified Business Conditions in each country

At this moment, exactly we can see the significant different aspects in each country.

Some item, e.g. Product price level, is firmly related to the economic status of each country.

However, in terms of other items (contents and services), we can see clear steps and

cascade among those markets. Figure 4-4 shows the transition of mobile communication

market. As shows in the figure, both Contents and Service have been evolved successively

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<sup>1</sup> \$1=¥118

<sup>2</sup> \$1=0.73euro

<sup>3</sup> \$1=41.6INR

based upon the series of Technology and Product evolution. In deed, those diversified market situations can be described by this chart as the aspects of cascading evolution.

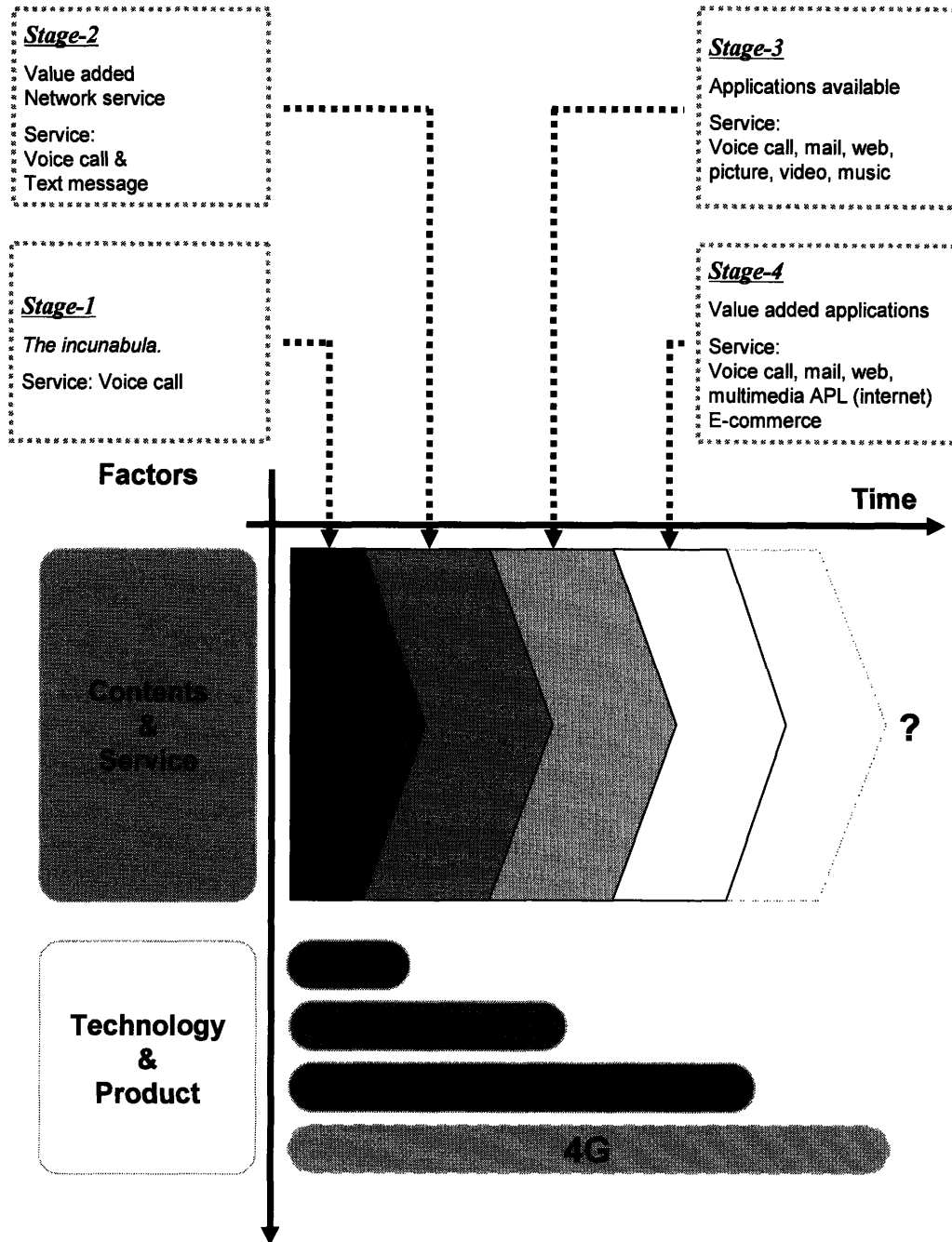


Figure 4-4: Cascade Matrix Chronology of Mobile Communication Industry

For example, the current market in Japan is located in Stage-4. It seems that France is at Stage-3 and India is in between Stage-2 and 3. Note that in the leading edge countries, e.g. Japan, this stream is continuing with alternation of generations one by one. However, some emerging countries, e.g. India, the transition has been accelerated, skipping over the next stage. It could be explained that, the latest products and services in the leading edge markets were also available in other emerging market through the global business operation by the carrier and manufacturer. It enables to realize the up-to-date stage without any transition phase. These two types' diversifications complicate the global business in the industry, and not allow expanding the market by the unilateral strategy (only one, simple and common product and service).

### **Chapter 4-3     Needs to Supports Global Scale**

As described in Chapter 4-1 and 4-2, it is not easy to entry the other market from home territory and to succeed the business by same and unilateral strategy. However, anyway many of business players in the industry must try to engage with the global expansion for the following reasons:

(1) *The limitation of demand:* As mentioned in Chapter 4-1, the market in many countries, especially US, Europe and Japan, turn into the saturated status. In order to increase the sales and revenue, there are three options: (a) press replacing products quickly or using more service on end user, (b) continue alternation of generations in terms of technology solution & service or (c) acquire new other market. It seems that most carriers and manufacturers are trying to do all. But, it is inescapable to reach the end soon in the case of (a). In the case of (b), it is possible to execute it in some time span, e.g. about 10 years interval, however, it is not easy to repeat such huge investment in a short time frame. For example, to launch 3G system, at least carriers had to invest several billion dollars (or more) for not only purchasing the equipment but also acquiring the operation license. From financial point of view, it is not allowed to re-invest enormous money for next generation before achieving enough return from the current generation business. Finally, it is quite natural for all business players to focus on the option (c) as the best business strategy to achieve sustainable growth.

(2) *Acquiring the scale merit:* As many other industries are doing, the mobile communication industry has also aimed to acquire the scale merit by expanding their business into the global market. It is easy to find out this movement from major

business players behaviors in the BRICs market.

(3) *Reinforcing the competitive advantage:* Furthermore, they also need to maintain and reinforce their current competitive advantage in terms of major business factors, e.g. product, technology, service and contents. Especially, many manufacturers are trying to improve the cost efficiency of product designing & production by the division of related tasks or outsourcing in the global market. Of course, it is firmly connected to the above subject (2) as the suppliers matter, but we should focus on this effect for the emerging market how to accelerate the market growth from customer's point of view.

As a result, many new strong manufacturers and carriers, e.g. Nokia, Samsung, Vodafone, O2 and etc. are rising and gaining power in the global market. Their controls have reached throughout the almost countries and become to influence the growth pace of each market dominantly. Nowadays, it is impossible to establish appropriate strategy for future business without considering the effect of these global market conditions.

#### **Chapter 4-4 Case Analysis: Japan**

Is there any peculiar case in terms of such globalization in the industry?



Regarding to the option (b) “*the continuous alternation of the generations*” for the issue (1) “*The limitation of demand*” mentioned in the above, I emphasize the exceptional case in Japan. In this sub chapter, I focus on the case of Japan and describe another aspect of the global vs. domestic business in the industry.

The mobile communication industry in Japan succeeded to not only transfer the major technology generation in the shortest interval but also introduce minor new technology solution and service frequently. In that process, they achieved those development and implementations within the closed domestic market. The reason why they have accomplished those quick alternations of the generation is summarized the following three points:

- (i) *Government Policy*: From macro economic point of view, the government strongly desires to maintain the sustainable growth of the industry. It is well known that the Japanese regulation authorities are earnest about supporting the investment for R&D by several ways, e.g. national project, tax reduction and etc. Regarding to the 3G introduction, they decided not to charge the license fee for new frequency allocation even though US and most European countries had

imposed. As a result, Japanese carriers could avoid over-investment and keep enough capital to enable further investment for next generation.

In addition, it is remarked that Japanese regulation authority had also maintained the “non tariff wall” to protect their market from global business players. It can be recognized in the existing regulations. For example, the radio frequency allocation for transmitter and receiver of cellular handset has been revered from the global standard. As a result, it helped manufacturer to control the domestic market without severe competition with the dominant global competitors, and then, their development teams could comply with difficult technical requirements from Japanese currieries. It should be noted as one of the reason of successes.

(Vise versa, we have to notice negative impact of that policy preventing to stretch their business into the global too.)

*(ii) Sales Strategy:* As you can see in Table 4-2, the actual retail price of handset in Japan is held down within affordable range. High incentive from carriers enables this situation. The reason why carriers are continuing the payment for such high incentive is that they need to prompt end user to buy new handset in

order to introduce new service, e.g. digital-TV, e-commerce and etc (Those innovative services require handset to support special function). Therefore, it was impossible to make many end users change their handset from 2G to 3G in very short term. As a defect, this scheme significantly reduces operational income when the market is saturated (= it is impossible to cover the incentive cost by revenue from new subscriber). Now Japanese carriers seriously consider when and how to terminate the scheme with minimizing negative reaction from the market. But they have not found out appropriate solution yet.

*(iii) Powerful R&D:* To achieve disruptive innovation and put such technology to practical use, it is absolutely necessary to establish the complete eco-system which enables to produce innovative commercial product and maintain competitive conditions to motivate aggressive R&D. See Figure 5-6. As shown by Porter's competitive diamond analysis, Japan succeeded to establish suitable environment for that purpose. Many excellent manufacturers have fierce competition to produce core electronic component & software, e.g. high resolution liquid crystal, ultra small devices to control radio frequency (RF), very thin and long life battery, unique operating system for small device (e.g.

i-TRON), advanced application software and etc. Top players have accomplished No.1 share in the global market and been leading the innovation. Carriers are also continuing severe competitions to make advantages and differentiations by technology innovations. They do not hesitate to invest for those R&D. It generates a strong incentive to promote R&D among manufacturers and reinforce the cycle. Therefore, the mobile communication industry in Japan can urge the difficult alternation of technology generations.

As a result, Japan has still maintained sustainable growth by option (b) “the continuous alternation of the generations”. But, it is true that this condition provides comfortable business environment for most carriers and (handset) manufacturers and prevents them from trying to wrestle with difficult global business expansion. From long term point of view, they are losing precious time and opportunity to stretch their business horizon and reinforce their current advantage by engaging with global competition. For example, we can see an evidence of the problem in the current status of Japanese manufacturers. Although many Japanese component manufacturers have achieved excellent results, e.g. No.1 or top groups of market share holder in the severe competitive global market, most

Japanese handset manufacturers (NEC, Panasonic, Sharp and etc) have faced an uphill struggle for increasing their market share in the global market. Some companies started to shrink the global business or exit. Regarding to the status about Japanese carriers, we can also recognize the similar situation too. Exactly they can maintain the sustainable growth and have a chance to increase the sales and revenue by the only domestic business for the time being. However they can not obtain the scale merit and reinforce their competitive advantage in the global market. Sooner or later, they may face the limitation of growth in home domain. That weak point should become a fatal problem to them to adopt new business environment.

**Chapter 5**

**Proposed Solution: Hybrid Framework for Analysis**

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In Chapter 3 and 4, I focused on the problem analysis regarding to two domains: (1) the fundamental structure of mobile communication industry and (2) its globalization. In those complex situations, how can they frame an appropriate strategy for the future business? Based upon the investigation results, in terms of mobile communication business, I propose a hybrid method how to capture power balance among major factors and assess the business feasibility in each market.

**Chapter 5-1 Analysis Tool for Business Planning**

As described earlier, we have to understand that the mobile communication industry has the complex multiple aspects and continue the disruptive technology evolution beyond our anticipation. In order to grasp the system dynamics and analyze the situation, we should use flexible and multiple frameworks which enables to extract the essence from several angles.

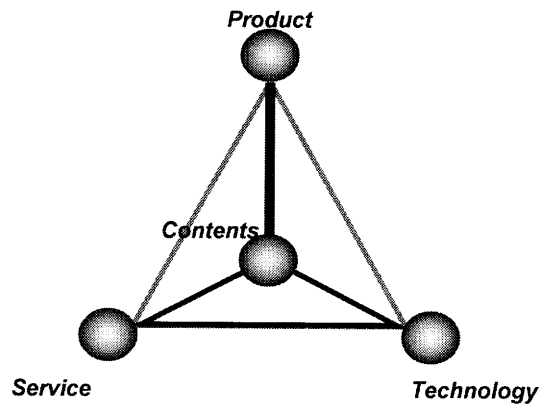
Based upon these requirements, I propose to apply the following three analysis methods:

- (1) TPCS (Triangle Pyramid Configuration Study)
- (2) Porter's Competitive Advantage Analysis
- (3) Lessard's RATs Test and Strategic Platforms Analysis

General structures of three tools are summarized in Figure 5-1.

The most important point is that we should not apply a result of each assessment to required strategy development individually. The results of three assessment results should be treated as piece of the essence. When we develop a desirable business strategy, we have to integrate the results of those analyses into a picture showing whole situation of the market from the global business point of view. The procedure how to integrate the results is described later in Chapter 6. In this chapter herein, I explain the detailed scheme of each analysis methods.

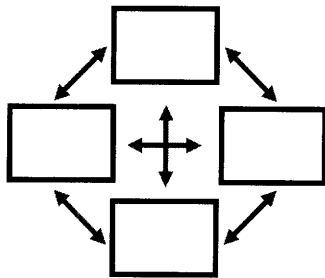
## Structure Analysis



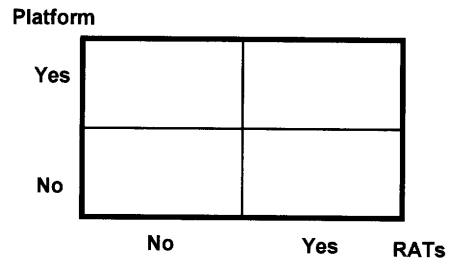
(1) TPCS: Triangle Pyramid Configuration Study

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## Market / Competitive Analysis



(2) Porter's Competitive Advantage Analysis



(3) RATs Test

Figure 5-1: Hybrid Methods for Structure and Market Analysis



## Chapter 5-2 TPCS: Triangle Pyramid Configuration Study

In Chapter 3, I designated that the mobile communication industry business can be resolved into four factors: Technology, Product, Contents and Services. In order to assess essential attribute of each factor and reveal the dynamics between the internal and external environment, I propose my framework what I call TPCS: ***T**riangle **P**yramid **C**onfiguration **S**tudy*.

Figure 5-2 shows fundamental business structure of the current wireless telephony industry formed by TPCS. As you can see, it can be described by the above four major factors. Each apex of the triangle pyramid indicates the market positioning (and power) of each factor for specific business. If some factor (apex) is located at a point closing more outside, it means that external resource is more critical in order to drive the business.

The size of sphere represents the weight (importance) of each factor in the business. For example, primitive mobile telephony service in the earliest stage, e.g. only voice call available, can be described by a very small triangle pyramid in Figure 5-3. In this case, it was possible to urge the business by only internal resource without involving any contribution from external resource.

**MARKET  
(Eco-system)**

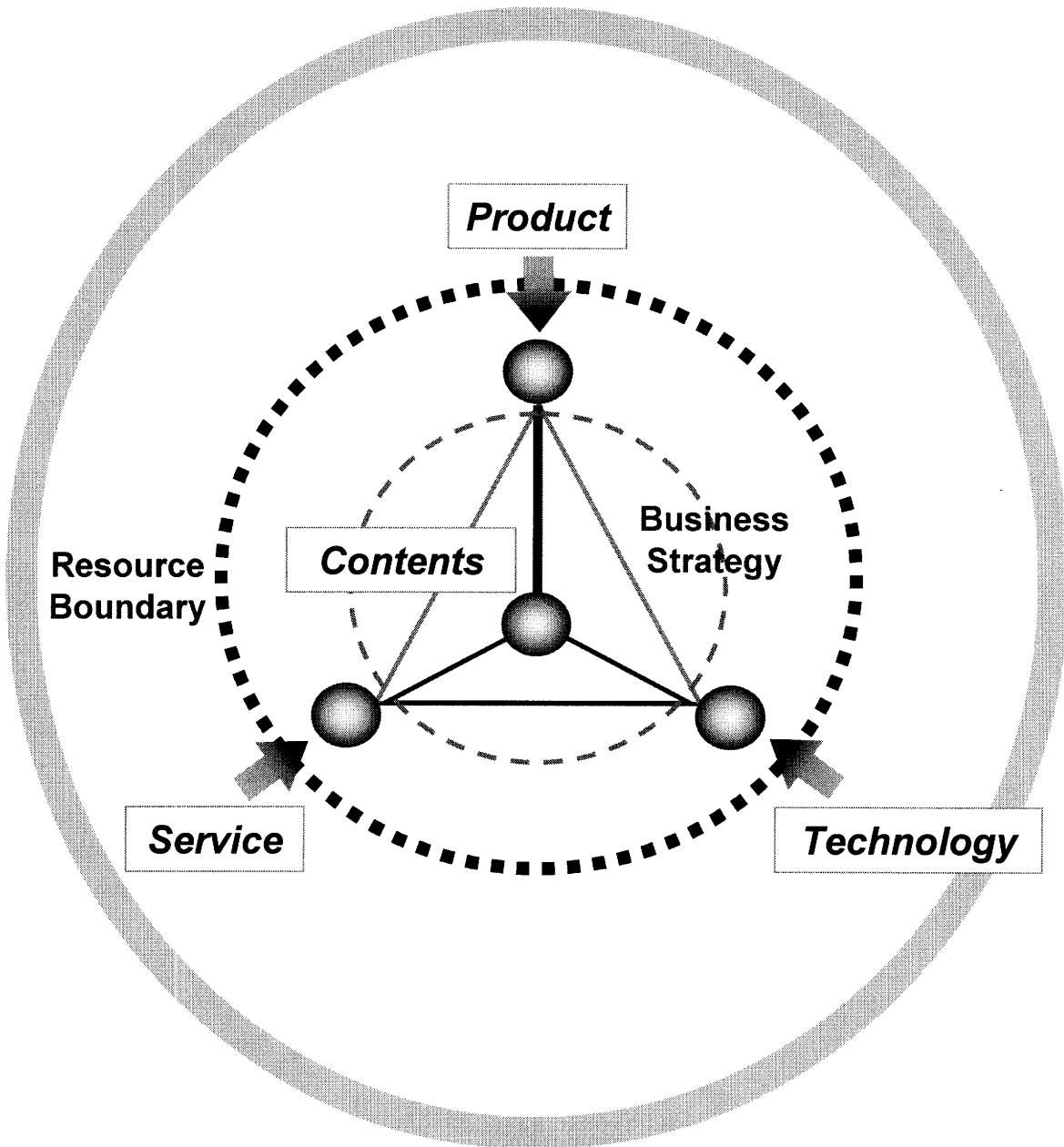
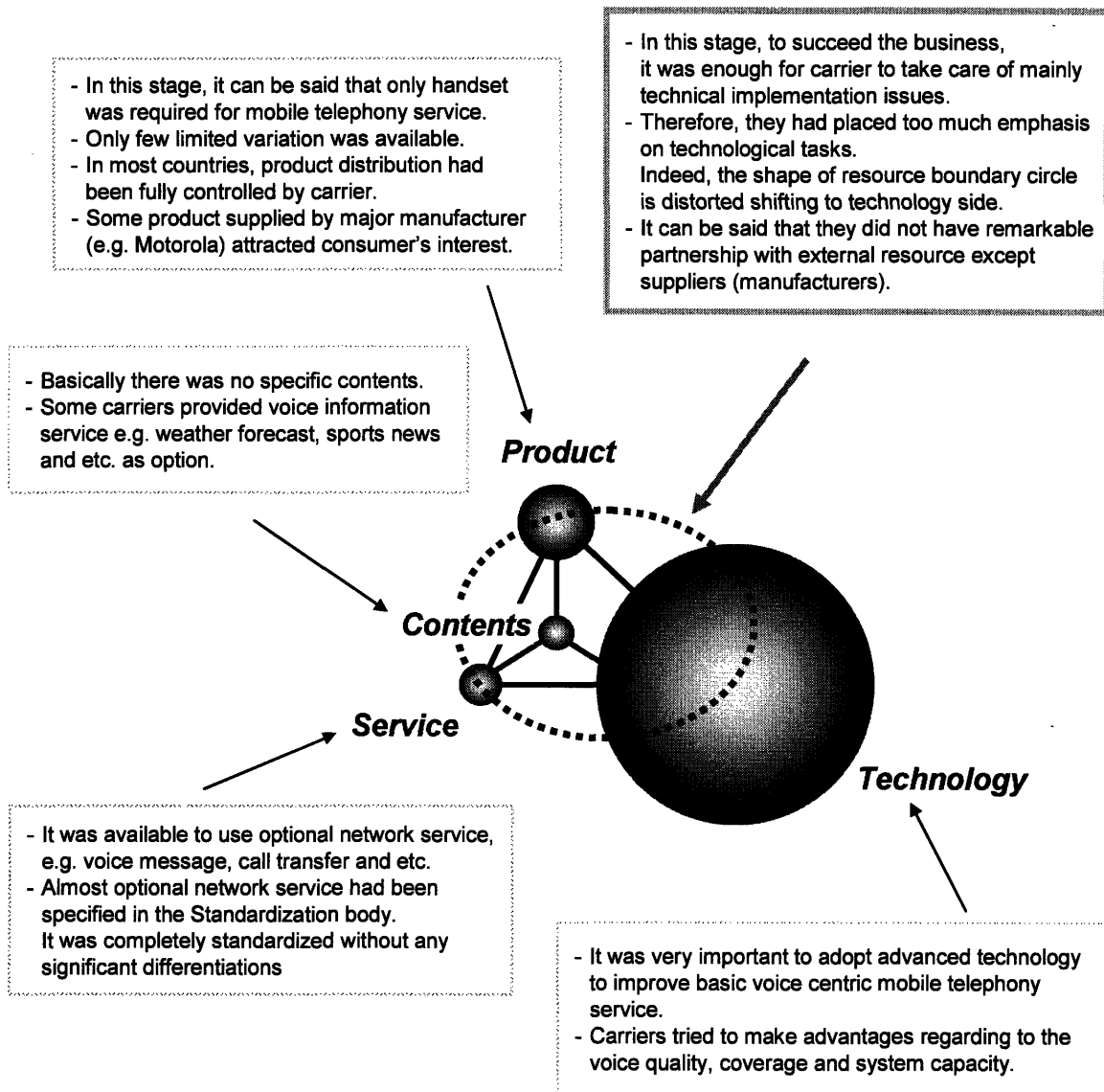


Figure 5-2: TPCS: Triangle Pyramid Configuration Study



**Figure 5-3: TPCS result for mobile telephony business in the earliest stage (1980's)**

So, how have that shape changed along shifting the position of each factors? Figure 5-4 shows the change of power balance among key factors in the industry.

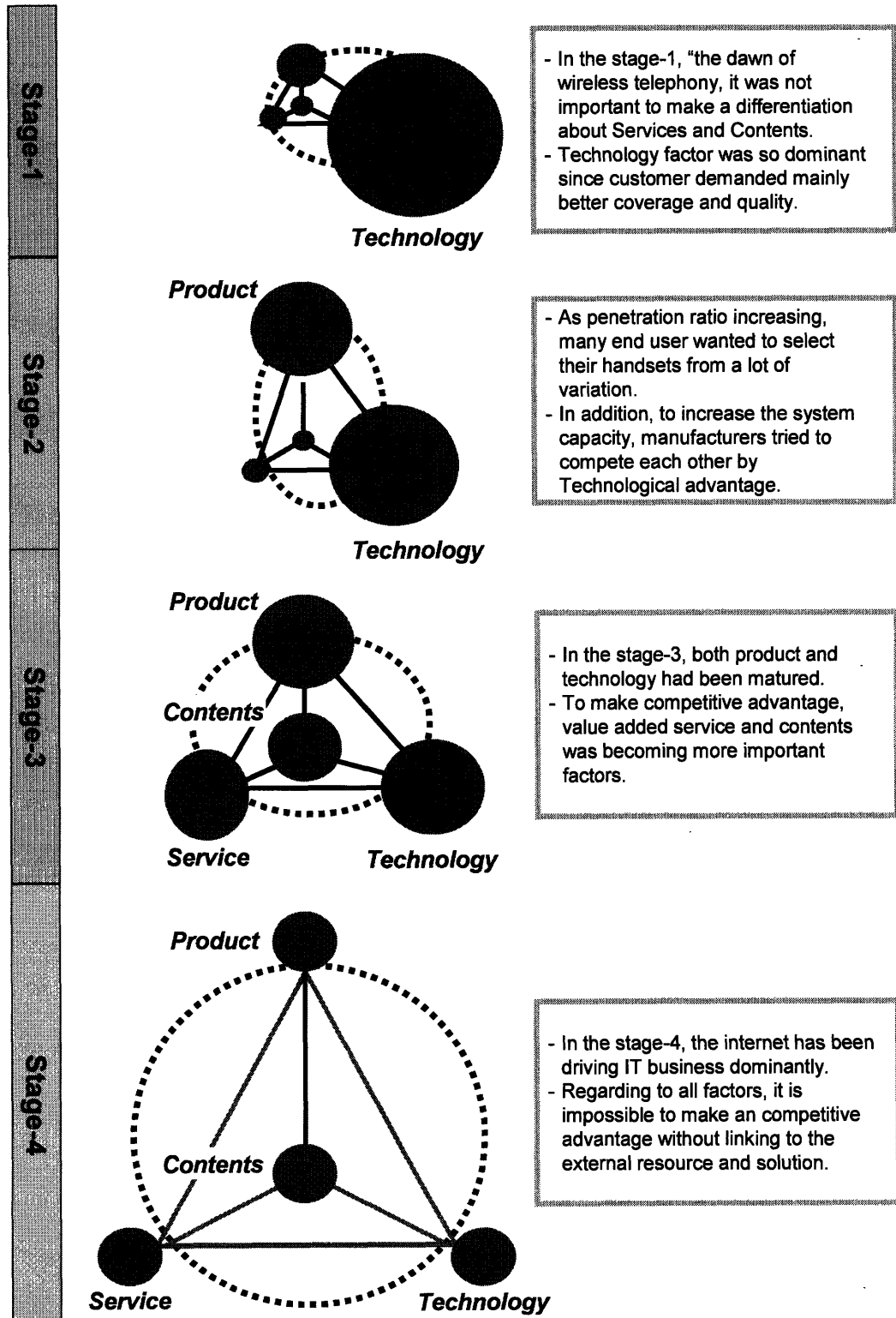


Figure 5-4: TPCS result for the change of dynamics in mobile communication business

As you can see, the position of each attributes has been changed, and finally the triangle pyramid apparently has been stretched into the outside. It means that any new business in the industry depend on external resource more and more. As increasing the correlation with the internet, this inclination is becoming a nonreversible paradigm shift. When we consider new mobile communication business, it is very important to understand this attribute well.

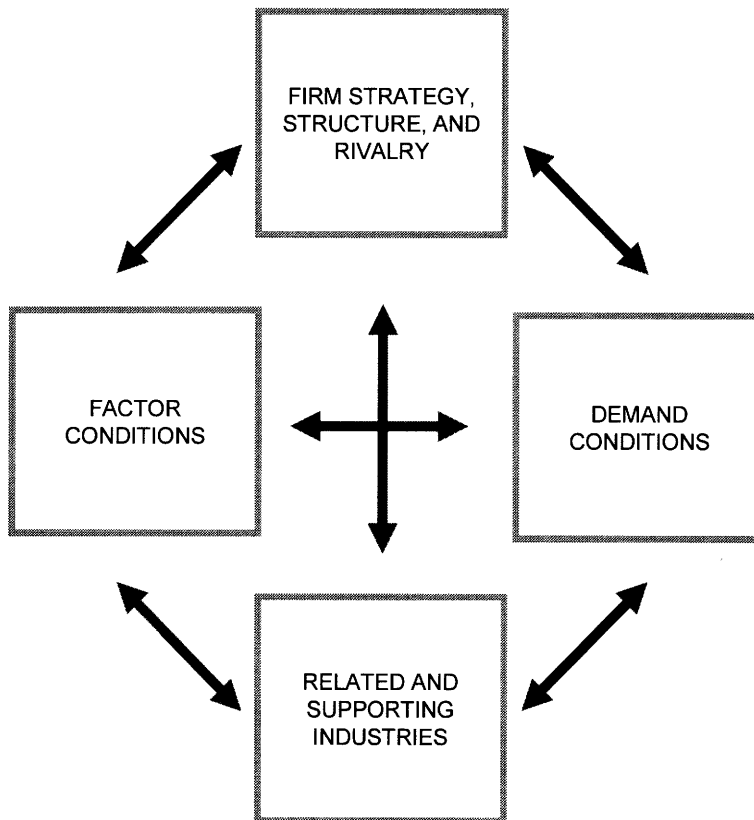
### **Chapter 5-3 Porter's Competitive Advantage Analysis**

How can we clarify competitive advantage of each regional (country) market? Porter's virtual diamond is one of the typical methods to analyze regional advantage (gained by combination resources). It is quite useful to illuminate each regional industry structure and relationship among key attributes of the industry.

Figure 5-5 shows Porter's diamond form with *four broad attributes* to analyze competitive advantage of target market, Michael E.Porter described in his book "The Competitive Advantage of Nations"<sup>1</sup> as follows:

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<sup>1</sup> Michel E.Porter, "*The Competitive Advantage of Nations*", pp.71, THE FREE PRESS, 1990



**Figure 5-5: Competitive Advantage Analysis**

Reference: Michel E.Porter, *"The Competitive Advantage of Nations"*, pp.72, THE FREE PRESS, 1990

1. *Factor conditions.* The nation's position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry.
2. *Demand conditions.* The nature of home demand for the industry's product or service.
3. *Related and supporting industries.* The presence or absence in the nation of supplier industries and related industries that are internationally competitive.
4. *Firm strategy, structure, and rivalry.* The conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry.

By this analysis, we can obtain a simplified picture to not only show the structure of market and the current condition of the above major attributes, but also reveal the essential advantage & disadvantage behind superficial status of the market.

Figure 5-6 shows my analysis result of Japanese market case by this method. According to the figure, we can see that, it has a strong advantage in the 3<sup>rd</sup> attribute, *Related and supporting industries*, but also has a structural weak point in the 1<sup>st</sup> and 2<sup>nd</sup> attributes, *Factor and Demand conditions*.

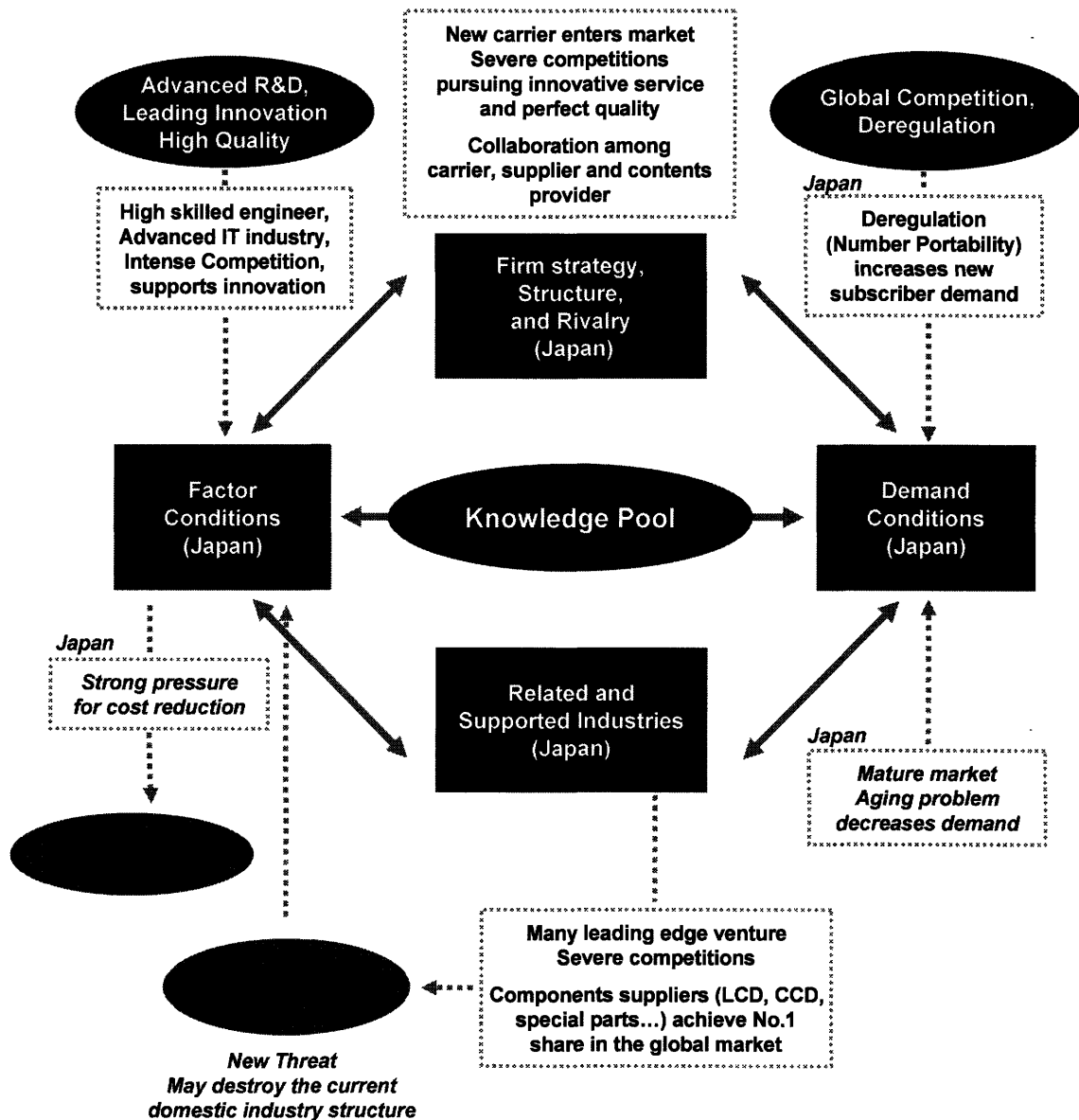


Figure 5-6: Competitive Advantage Analysis of Japanese Mobile Communication Market



More specifically, regarding the 3<sup>rd</sup> attribute, core component manufacturers and other related industries maintain the leading position in the severe competitive global market, and contribute to the technical evolution of mobile communication industry. However, the 2<sup>nd</sup> attribute *Demand conditions* in Japanese market are quite unique and different from other markets. Therefore, in terms of the 3<sup>rd</sup> attribute *Factor conditions*, handset manufacturers have not yet found out suitable scheme to make the most of their technological advantage cultivated in home market (Japan) for the global business expansion.

The above case analysis of Japanese market can tell us about the effectiveness and limitation of this method. Exactly it explains the simplified overview of market conditions and relationship among the attributes. It is possible to estimate some causes of problems, however there are some risks of misleading us into developing the unilateral solution with limited horizon. For example, it does not include aspects related to the dynamics regarding to the alternation of generations. That dynamics has some common attributes in the global industry and different positioning in each regional market. (e.g., it is the most essential moving force behind their rapid evolution in Japan. But, it is not emphasized in the U.S market as powerful attractor.) To develop desirable strategy and solution, it is indispensable

to clear up significant contrast between home (regional) market and the global conditions.

In the following sub-chapter 5-4, I will explain the RATs Test as appropriate method to solve that problem.

#### **Chapter 5-4      Lessard's RATs Test and Strategic Platforms Analysis**

The most important thing to expand the business into the global is to investigate major attributes of both markets: home country and other region and to select appropriate market as primary target in which it is possible to make the most of their advantage. Lessard's RATs (Relevant, Appropriate, and Transferable) test clarifies business attitude and target market status from the following points<sup>2</sup>:

1. *R – Similar customers, tastes, appeal?*  
*R – Similar channels?*
2. *T – Have we done it before, does org. support?*  
*T – Do we have the competencies*
3. *A – Access to/power with channels, advisors?*  
*A – Will spillovers be valued?*

To stretch the existing business in home country into the global market, company is required to have a *Strategic Platform* which enables to not only maintain their competitive advantage, but also reinforce their core competence. The Strategic Platform can be defined

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<sup>2</sup> Donald Lessard, class notes on 15.223 Global Markets /Global strategy, MIT Sloan Fellows, 2007

by the following requirements<sup>2</sup>:

- a. *Countries/locations that strengthen core competencies*
- b. *Countries/locations that facilitate development of capabilities that provide access to other segments, activities*
- c. *Countries/locations that create/extend the virtual diamond*

**Platform**

<b>Yes</b>		
<b>No</b>		
	<b>No</b>	<b>Yes</b>
	<b>RATs</b>	

**Figure 5-7: Combined Chart of RATs and Platform Analysis**

Reference: Donald Lessard, "Managing for Global/Regional Integration and Local Responsiveness", pp.5, lecture note for 15.223 Global Markets /Global strategy, MIT Sloan Fellows, 2007

The results of the above assessments can be combined and plotted as matrix. As you can see in Figure 5-7, this dual attributes analysis provides useful information which market would be suitable for primary target in the global expansion and what factor would affect dominantly. By this tool, company can have a bird's-eye view which shows desirable and inadequate market from own business standing viewpoint. In addition, it is possible to reconfirm the current competitive advantage and feasibility of own core competence for the global market.

For example, let's analyze the case of mobile communication carrier business from Japanese carrier's point of view. Based upon the attributes analysis of each regional market, the global market can be classified into three coherent groups which have common attributes respectively as Table 5-1. In the table, I described the attributes and status of each market in terms of three viewpoints, (a) penetration rate, (b) related industries & factor conditions, and (c) other IT business conditions. It is believed that these conditions contribute the growth of new mobile communication services and enable to reinforce the evolution. Regarding to the RATs test, based upon the above market classification, it can be summarized as the following Table 5-2:

Category	Countries	Attributes and Status
<b>Group-1</b>	Africa, Middle East,	(a) Low penetration rate (but growing) (b) No related industries and poor factor condition (c) Other IT business conditions: weak
<b>Group-2</b>	China, India, Russia	(a) Low/Middle penetration rate, rapidly growing (b) Strong related industries (IT/manufacturing) and (c) Other IT business conditions: strong (growing)
<b>Group-3</b>	East & South Asia, South America	(a) High penetration rate (b) Not strong related industries (c) Other IT business conditions: weak/moderate
<b>Group-4</b>	US, Europe, Australia	(a) Extremely high penetration rate (saturated) (b) Strong conditions, but shifting to other Groups (c) Other IT business conditions: Strong

Table 5-1: Classification of the global mobile communication market

Category	Group-1	Group-2	Group-3	Group-4
<b>R</b>	No	No, but closing	No	Yes, but gap increasing
<b>A</b>	No	Yes	No	Yes
<b>T</b>	No	No	No	Yes but declining

Table 5-2: RATs Test result of the global mobile communication market  
from Japanese carrier's viewpoint

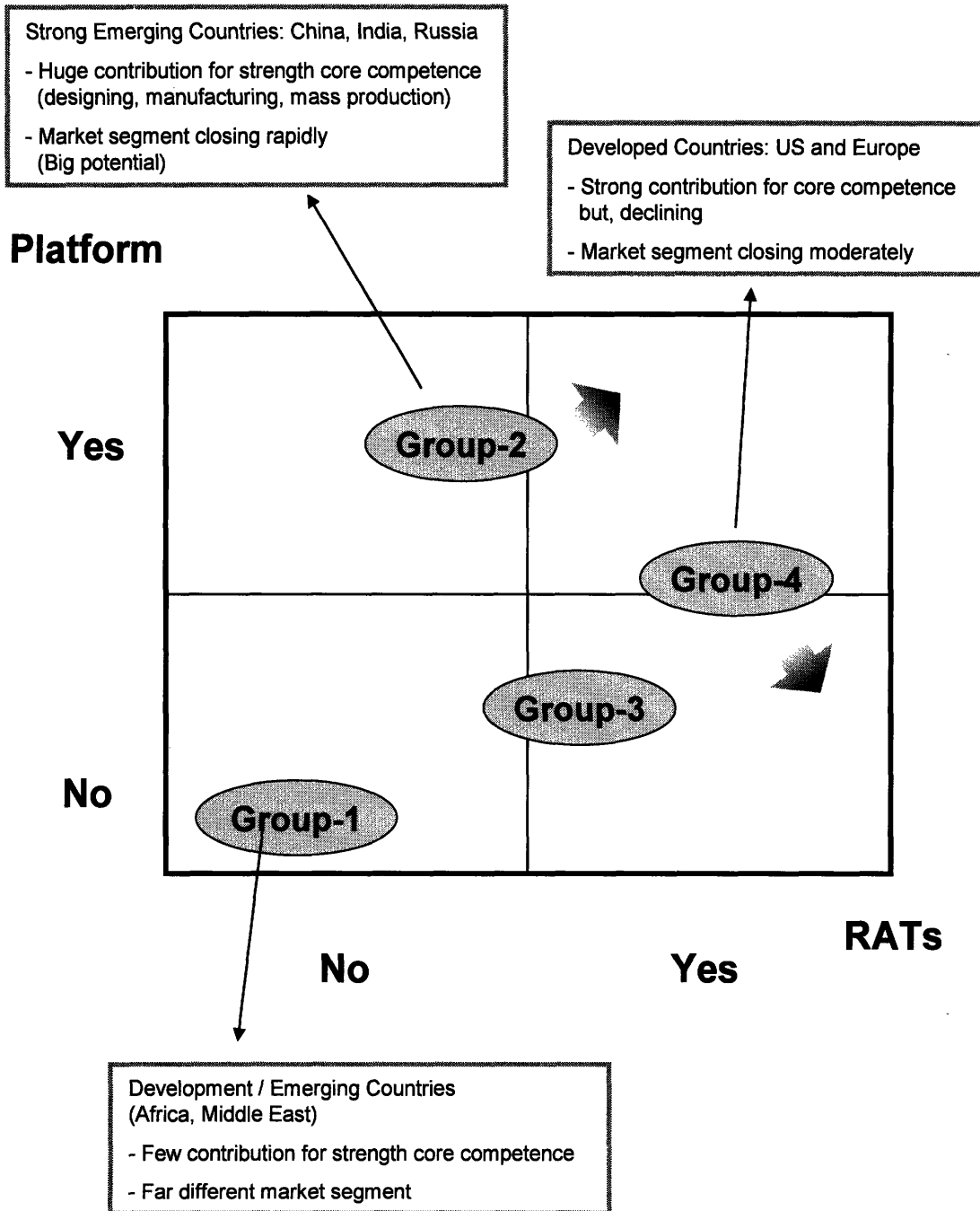


Figure 5-8: RATs/Platform Analysis about the global mobile communication market

According to the both investigation results, finally the matrix shown in the above Figure 5-8 can be obtained. It suggests that, Japanese carriers should focus on Group-2 and 4 when they try to expand the business into the global.

Especially, from the strategic platforms point of view, Group-2 has a remarkable strong fundamental, e.g. many excellent and skilled engineers, affordable labor cost, rapidly increasing demand conditions and etc. There is no doubt that there is a huge potential to boost mobile communication business. However, in reality, most Japanese handset manufacturers have not succeeded yet to acquire enough market shares in China even though other global competitors, Nokia and Motorola have done well. Many dominant carriers also believe that Group-2 and 4 is suitable target for the global expansion in accordance with similar analysis, and then are trying to enter the market. But most of all also have not achieved significant results yet, they are, rather, facing many problems. Why are many players facing problems at the global expansion? How can they frame appropriate strategy for the global business from those strategic analyses?

In next chapter, I propose an appropriate scheme for the required strategy development procedure with integration of three proposed analysis tools.

## Chapter 6

### Proposed Scheme: Strategy Development Procedure

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To analyze the complex condition of the global market and wireless telephony industry, I introduced three analysis tools in Chapter 5. Exactly each tool is able to gain an insight into the complex situation. However, we have to pay attention that, it is a snapshot that captures the current static status. Unfortunately, the individual tool does not show a series of the complex dynamics of industrial evolution from multiple dimensions with the successive period. To succeed business in the industry, we have to quest this dynamics of cascading evolution. By combining all investigation results of three analyses and exploring the dynamics of the evolution path, we can have a picture to understand a stream of the evolution in the global wireless telephony market.

In this chapter, I propose a method how to integrate investigation results by the proposed analyses and a framework how to develop appropriate global strategy.



## **Chapter 6-1 Overview of Strategy Development Procedure**

In this section, I describe an overview of proposed business strategy development procedure for the global wireless telephony industry. The procedure can be divided into three phases:

(i) **Phase-1 “Fundamental Analysis”:**

It aims to investigate the context of market and industry, and to clarify the complex conditions.

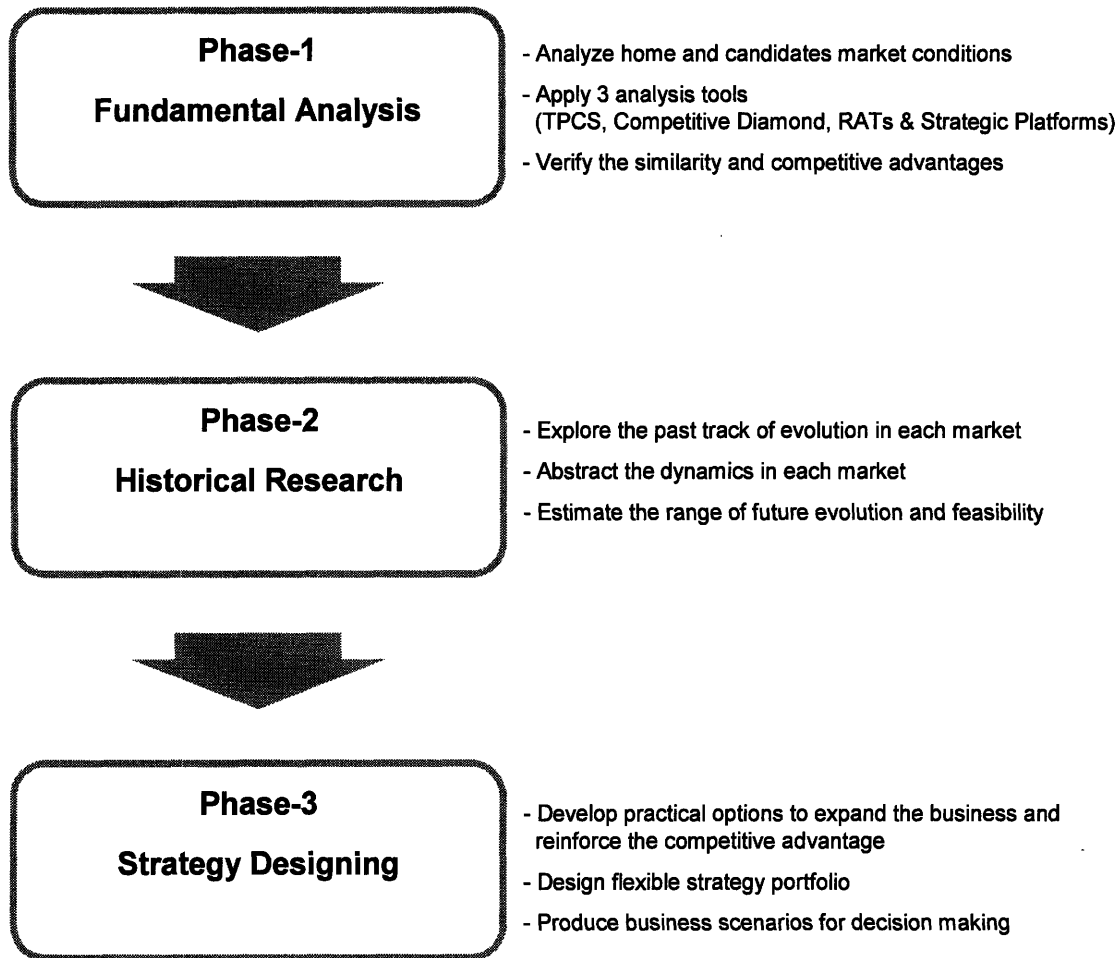
(ii) **Phase-2 “Historical Research”:**

In terms of home and each regional market, it explores the past track of evolution, abstracts the dynamics and estimates possible range of future evolution and feasibility.

(iii) **Phase-3 “Strategic Design”:**

To support the future strategy development, it designs recommendatory options, builds strategy portfolio and produces business scenarios for decision making.

Regarding to the entire flow and tasks in each phase, it can be summarized by vertical flow as shown in Figure 6-1.



**Figure 6-1: General Flow and Tasks of Strategy Development Procedure**

## **Chapter 6-2 Phase-1 “Fundamental Analysis”**

In this phase, in order to probe the market and industry conditions, three proposed strategic analysis tools in Chapter 5, TPCS, Competitive Diamond and RATs test & Strategic Platform analysis are used. It is needed to conduct two types’ analyses in Phase-1:

Industry and market analysis.

For the industrial analysis, TPCS should be applied. For the market analysis, it is required to use both the competitive analysis by virtual diamond and RATs test. The most critical point to integrate two analyses is to clarify the strategic platform by obtained TPCS result. According to the TPCS result, we can understand which factor is dominant and how the current business platform can work (be stretched or reinforced) in each market.

At the end of Phase-1, all gained information and investigation results help a company (wireless telecom carrier) to select target business and market based upon own advantage of the strategic platforms.

*Output: Addressed target market and attractive business for the market*

### **Chapter 6-3 Phase-2 “Historical Research”**

According to the analysis in Phase-1, we have appropriate target market for the global business expansion. In order to develop desirable competitive strategy that enables not only stretching the business boundaries but also reinforcing the existing competitive platforms

(and advantage), we have to capture the complex dynamics of target market and define critical factors accurately in this phase. First, it needs to explore the past track of the evolution and context. As assessment tool, the cascade matrix chronology and TPCS help this investigation. Figure 6-2 shows that chronology summarizing the past evolution path and current position of each market in the industrial stage.

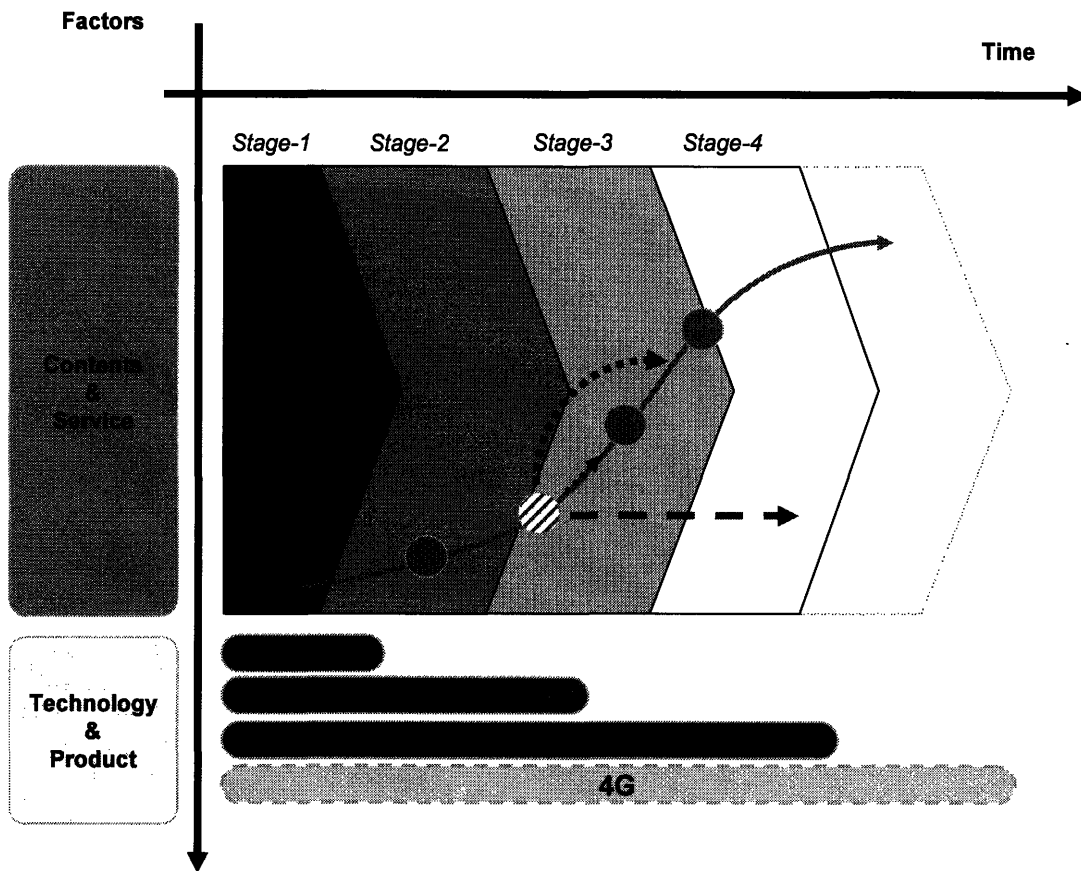


Figure 6-2: Cascade Matrix Chronology of Mobile Communication Service

Regarding to the target market, we are able to demonstrate the past course and vector of evolution by adopting this cascade matrix chronology. There are some remarkable turning points on that evolution path which navigates direction of future evolution. For each specific turning point, TPCS can clarify which factor has worked dominantly and what conditions are required as minimum.

Based upon this historical review, next it needs to try predicting future variable range of parameters regarding to the major attributes (Technology, Product, Contents and Service). It has to also verify the feasibility and required conditions too.

*Output: Evolution map for the past & future and feasibility assessment result*

#### **Chapter 6-4 Phase-3 “Strategic Design”**

Finally, to support the competitive strategy development, we have to prepare concrete information which describes future conditions of various cases. First, we need to produce possible (and desirable) business options based upon the outputs of (i) and (ii). Each option should clearly exhibit the most important attribute (core value), expected return (or effect), prerequisite conditions, fluctuation factors, side effect and uncertain issues. In effect, these options should be practical business plan. To bundle the individual options, then, it needs to

devise appropriate portfolios. Finally, according to the portfolio, it prepares possible business scenarios as reference for making decisions.

*Output: Possible business options, the strategy portfolio and scenarios*

Figure 6-3 shows the overview of this proposed strategy development procedure. As you may find out, the above proposed method does not provide firmly specified and simplified strategy itself. The reason why it does not aim to define the fixed strategy is to maintain flexibility to adapt the rapidly changing business environment and conditions. This proposed method should be recognized as “function” to assist executive officers in establishing the business strategy and making decisions.

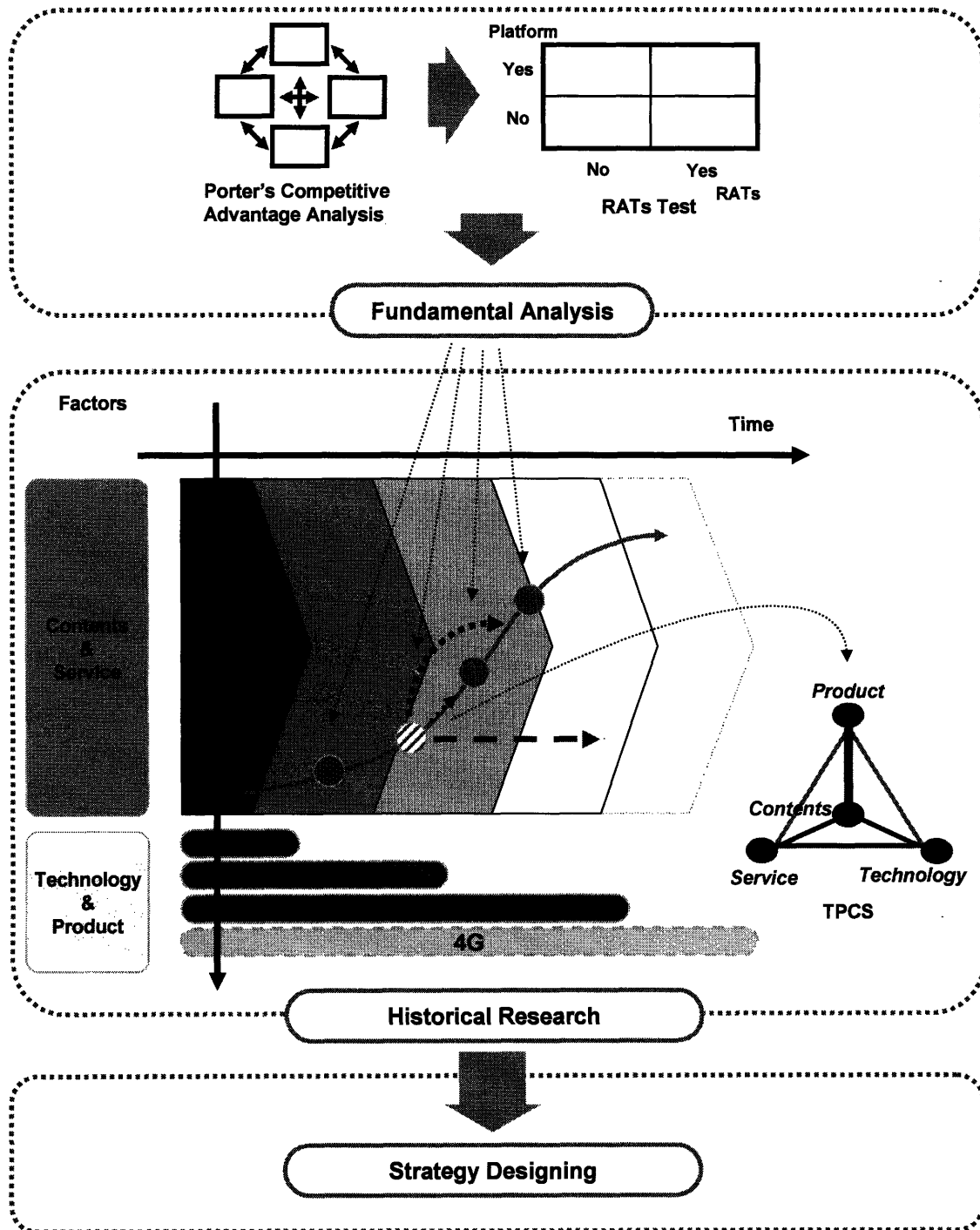


Figure 6-3: Overview of the Proposed Strategy Development Procedure

## Chapter 7

### Conclusion

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From Chapter 1 through Chapter 7, I described the mobile communication industry and business, and then proposed the way how to investigate the recent complex market conditions and frame new business plan in the global market. In Chapter 2, 3 and 4, I focused on illuminating the context and problems of mobile communication industry. In Chapter 5, as one of the solution, I introduced three analysis tools: TPCS, competitive analysis by virtual diamond and RATs test & strategic platforms analysis. In Chapter 6, I explained the procedure how to use the proposed multiple tools and integrate those outputs as recommended framework for the business strategy development.

At the end of my research, again, I would like to reconfirm the original proposition. For the forthcoming decade, what issue would be the most critical to create and drive new business in the complex global mobile communication market? What factors would become



more dominant? What type of risks should be considered?

In this last chapter, to answer for the above important questions, I explain my own idea based upon the fundamental concepts of proposed solution and then conclude my research.

### **Chapter 7-1      Complexity of Mobile Communication Industry**

When we think about new business for the global mobile communication market, we have to understand the complexity of that industry. What type of attributes does the industry have? How can the proposed framework capture such industrial complexity?

As described in Chapter 3 and 4, the industry consists of various elements which have been continuously evolving and shows the different and complex aspects in each market respectively. Furthermore, this complexity is now increasing more by crossing with the internet. Sooner or later it must force the mobile communication industry to reform the current business model entirely. Regarding to thus complex situation, I proposed an analysis method, TPCS, to summarize the industrial attributes by four major factors: Technology, Product, Service and Contents. Through the TPCS lens, we can find out the remarkable point: all factors have been rapidly changing and evolving. According to the

evolution, external related environments have been also changing. This is exactly the essential cause of the industrial complexity. In the most cases of other industry, e.g. agriculture, chemical product, car, domestic appliance, finance, travel service and etc, one or plural factors (for example, only product, or product & service) had been evolved in some short time frame. But, it must be very rare that, all factors have been continuously evolving from the beginning, never stopped, and rather accelerated. Therefore it is quite hard to capture the context of current mobile communication business and anticipate the future by the single analysis method.

It is not easy to illuminate the context and dynamics of mobile communication industry even though we apply the hybrid analysis method proposed in Chapter 5. However, at least the combination of proposed analysis tools, e.g. TPCS for verifying the industrial dynamics, the competitive analysis by virtual diamond and RATs test for clarifying the market conditions, can capture the complexity well and describe the coherent context since it has concrete multiple dimensions viewpoints. I believe that, this comprehensive scheme covering multiple aspects of the industry can be effective for the strategic analysis even if the current picture of the industry or global market would change considerably.

## **Chapter 7-2      Importance of Non-Determinative Hybrid Analysis**

It goes without saying that, it is very complicated to develop appropriate business strategy for the global business in thus complex industry described in the above. Addition to the complex status and attributes of the industry, the deeply diversified each market conditions in the world make the development of global business strategy more difficult. It seems as if trying to solve complex simultaneous differential equations. For such proposition, there is no single method to evaluate the general solution. As known well, in the complex system, it is impossible to predict exact future situation. We can only approximate it with some uncertainty.

However, it seems that many mega carriers have duplicated to implement the irrelevant single and rigid strategy based upon the determinative solution. They have certainly conducted feasibility study for target markets and decided their business plan in accordance with the study. For example, Vodafone has been trying to expand their “global common standard” mobile data service, *V-live!*, into the global market. In some countries, they are going well, but, they could not achieve any desirable results in Japan, and then finally they

had to quit. Why did it end in failure? It is possible to list many reasons (organization, culture, management structure and etc). But, the most vital failure was that they tried to adopt same (single) strategy with determinative presupposition, just like, “Global common major brand handsets (provided by dominant manufacturers) and services must be attractive in any markets. The sales data proves this strategy to be right”. Unfortunately, it seems that they might not clarify well the dynamics of Japanese market and the past track of evolution. In Japan, all carriers are severely competing with others by launching the fully customized propriety handset, not manufacturers’ common handsets. In addition, the technology and service evolution speed is the fastest in the world. All carriers in Japan have been taking high risks to invest enormous money for new innovation with high uncertainty. Indeed, to succeed the mobile carrier business in Japan, Vodafone had to understand uncertainty market conditions and then deliberate whether or not it was possible to modify their global strategy to fit thus exceptional regional condition without losing the competitive advantage on their strategic platforms.

How can we avoid such strategic failure? The most important point is that, we have to understand this uncertainty of the future business in the industry and not to drive the

business by the determinative scheme. In terms of designing the strategy for future mobile business, in Chapter 6, I proposed the flexible hybrid framework to assist it with making allowances for the above uncertainty. As described in Chapter 2, 3 and 4, the context of mobile communication industry in each regional market are so different that it would respond differently to same product or service (produced by common strategy). In addition, continuous evolutions by rapid innovation will change the market conditions unexpectedly. The proposed hybrid framework is designed to not only capture the dynamics and significant attribute of the market but also track the evolution path with considering the correlation the industry dynamics with market features. Therefore, I believe that it can be enough robust and effective for the strategic analysis if unexpected situations would be suddenly happened in some market.

### **Chapter 7-3 Other Key Issues for the Future Mobile Communication Business**

Regarding to the future mobile communication business, in order to succeed expanding the existing business into the global market and drive new business in the future, what any other issues should we remark when we try to build the strategy? As closing of the paper, I give my view based on this research.

First, we have to notice the speed gap between technological evolution and its implementation (diffusion) in each market. Exactly any new technology innovation is now immediately spread over the world. However, the required period to be diffused and utilized for commercial use is remarkable different. For example, in terms of mobile e-commerce service, most technology solutions have been available from 2001. Then, in Japan, commercial mobile e-commerce service was launched in 2004, three years later from the innovation. Now, 30 million handsets in Japan support this feature. However, any other countries have not accomplished to introduce this commercial service into the home market yet. It means that, the penetration of technical or service innovation in each market must progress in accordance with different time table respectively. It can be said that the time table is determined by the status of major market attributes status, e.g. Technology, Product, Services and Contents. The proposed cascade matrix chronology and TPCS can help to estimate the time scale of each market for the diffusion.

Second, a paradigm shift suddenly changes the existing power balance in the industry. It has been proven in the wired telecom industry (as described in Chapter 2). Relationships

among business players, value position, dominant factors and etc would be altered drastically in a short time frame if it happens. Unfortunately the proposed strategic analysis framework does not predict when it will happen. But new situation can be simulated by anticipated scenarios described in Chapter 6. To survive after the paradigm shift, we have to prepare such big wave before we notice.

Finally, it should be remarked that it takes a long time to change the existing mind set of people and grow appropriate eco-system (business model). The proposed framework can help to analyze the context and design new business strategy. But it does not show the difficulties and required period for the restructuring. We must pay attention to such human factors very carefully when we challenge new business.

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