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How CATV Survive in the Era of Convergence?

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***Abstract*—**The purpose of this paper is to analyze the case of the U.S. Pivot and to suggest an appropriate model including entry strategies and success factors for QPS of Cable TV. The telecommunication companies have been operating QPS including IPTV service, which enables them to cross over broadcasting areas. Due to this circumstance, the Cable TV operators are now concerned and are planning to add QPS with the mobile service. Based on the Porter's five forces model, an analytical framework has been proposed to MVNO in Cable TV industry in the United States. As a result of this study, MVNO in Cable TV industry has to have a clear killer application with their sufficient contents. Subsequently, the direction of the future Cable TV industry is proposed.

***Keywords*—**CATV, MVNO, Pivot, QPS

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I. Introduction

IN the digital convergence era, traditional concept of broadcasting and telecommunications are lost and the concept of convergence evolved. Digital convergence has brought together the world of audio, video and data telecommunications. Today we can access the same services and contents(e-mail, music, television) using different terminals over different types of networks. The boundary line between different industries is increasingly blurring[1].

The convergence of broadcasting and telecommunications gave opportunities for telecommunication operators to advance into the broadcasting market and hence allowing the broadcasting operators to progress into a high-speed internet market and an internet phone market, VoIP. Because of the convergence, it is expected that the market would be able to witness the intense competition within the operators. The telecommunication operator based on capital began to threaten the broadcasting market earnestly by introducing the IPTV. CATV and IPTV is not a complement but a substitution. As a result, Cable TV operators are concerned about the consumer's drop-off because telecommunication operator's QPS(Quadruple Play Service) includes broadcasting service which is IPTV. These reasons bring keen competition between, broadcasting operators and telecommunication operators to look closely in the new market, QPS.

Users are not interested in telecommunications and broadcasting service providers. They are only concerned about meeting their needs and minimizing the inconvenience in usage. With this regard, users can receive reduced price for using different services. They will not be paying to different operators for different services that they use; such as wired phones, wireless phones, high-speed Internet, and broadcasting services through integrated billing and bundling. Accordingly, the bundle service, TPS(Triple Play Service) which contain voice, data and video, comes into request. Furthermore, the QPS, the combination of TPS and the wireless voice, also have the same functions[2].

Compare to TPS, QPS is not yet a verified business model. It needs not only much investment cost but also a complex system. Complicated tasks such as planning, marketing and regulatory issues are also difficulties in introducing QPS. However, in spite of this uncertain marketability, QPS is expected to be emerging in the near future[3].

Cable operators' QPS, a potential market, has already been tried in the U.S. In late 2005, Comcast, Time Warner, Cox Communications, and Advance/Newhouse Communications announced a joint venture with Sprint Nextel to offer wireless service as a part of their bundle service, which was called Pivot, but has failed in the end. Despite of Pivot's case, Cable TV operators need QPS in order to survive under the convergence environment.

This paper consists of five parts. Chapter two explains market analysis of Cable TV and detailed about Pivot service. Then, in chapter three and four, the application and implication of Pivot's case are explained by using Porter's five forces model that found why Pivot was failed and what it need. Finally, chapter five describes what is needed to do QPS for Cable TV operator.

II. Literature review

A. Market Analysis of CATV

The main interest of the initial cable TV industry was the hookup cable TV, using RO(Relay Operator). Because of high competition with RO, SO(System Operator), and satellite broadcasting are moving into a high-speed Internet service market. The cable TV industry offers high-speed Internet access service as a bundle with multi-channel broadcasting services. Using economies of scope, it is natural that System Operators are interested in the high-speed Internet market. The economies of scope means that the company which makes two or more products can produce lower-cost products than the companies which make each product individually. Providing high-speed Internet service directly through SO is that more competitiveness in the multi-channel broadcasting market. Cable television operators could also recruit additional subscribers by providing cable TV service which is bundled with high-speed Internet services. SO is currently in the

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competition with the RO in the satellite broadcasting and the other similar areas[4].

Now, cable operators are currently providing TPS, cable television, high-speed Internet service and VoIP. According to Cox Communications, which is one of the major cable television operators in the U.S., they provide bundle service, DPS and TPS. As of 2005, the number of subscribers was increased by 240 millions, which represents an increase of up to 33%[5].

The introduction of IPTV is expected to act as a signal of restructuring broadcasting industry toward Media Big Bang. Consequently, cable TV operators require making a new method of earning and have to prepare a foundation for mobile communications service in a QPS environment. In the case of TPS(telephone, Internet, broadcasting) is the combination of household system so a synergy effect occurs insufficiently.

In order to succeed QPS business, they are considering in entering mobile communication market. Due to high barriers in entering, Cable TV operator wants to be entered into MVNO (Mobile Virtual Network Operator) rather than MNO (Mobile Network Operator) directly.

B. What is Pivot

In late 2005, Comcast, Time Warner, Cox Communications, and Advance/Newhouse Communications announced a joint venture with Sprint Nextel to offer wireless service as a part of their bundle services. The cable companies had hoped that they could integrate mobility into their offering to add more value to existing services like telephony, TV, and broadband in one package. According to Comcast CEO, killer applications for Pivot are interoperability, wireless e-mail and place shifted television. Using Pivot, users will be able to watch television listings using a programming guide, surf websites, check e-mail and use voice-mail functions. Also they can make unlimited calls between their digital voice and wireless phones without a wireless plan minutes. They can receive a consolidated monthly bill for using all of the services[6]. However, by the end of 2007, demand for this service was too low that they stopped marketing Pivot.

C. Five Forces Model

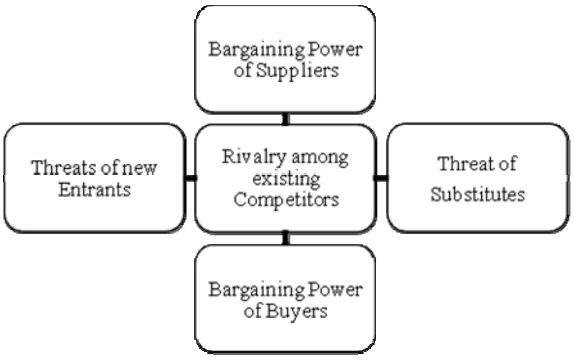


Fig 1. Porter's framework

This study is adopted from a framework of five forces model by M. Porter[7]. This analytical framework has been proposed to MVNO in Cable TV industry in the United States. Porter's model focuses on the five forces that shape competition within an industry. Next part will analyze the case of Pivot in details and thoroughly examine the cable operators' plan and the alternative along with intensity of rivalry among established companies within an industry, the bargaining power of suppliers, the bargaining power of buyers, the risk of entry by potential competitors, and the closeness of substitutes to industry's products[8].

III. Application of Five Forces Model

A. Competitive Rivalry within an Industry

Rivalry refers to the struggle between the companies in an industry to gain market share from each other[8]. According to ITU, MVNO provides mobile voice and data services but that does not own its own radio frequency[9]. Therefore, for the competitors of MVNO in the U.S., the cable television industry does not only provide MVNO, but it provides MNO in other industries as well.

The degree of rivalry among competing operators depend on the number of players in the market and the distribution of market share among these players[10]. In the United States, there are 241.8 million mobile telephone subscribers which are approximately 80% of the total population. They have four nationwide mobile telephone operators, which are AT&T, Sprint Nextel, T-Mobile, and Verizon Wireless[11]. All of them are result of major mergers or acquisitions during the previous decade[12]. AT&T serves 609 million subscribers, Verizon serves 590 million subscribers, Sprint serves 522 million subscribers, and T-mobile serves 250 million subscribers[11]. In addition, there are a number of large regional players as well, such as Alltel, Leap, and US Cellular. Moreover, many regional and smaller providers are able to offer pricing plans with nationwide coverage through roaming agreements with other providers[11]. Also, at the end of June 2006, the resale sector accounted for 7 percent of all mobile telephone subscribers, which brings the total of 15 million subscribers. One analyst estimated that there were more than 50 MVNOs operating in 2006. For example, TracFone Wireless Inc., which serves more than 8 million customers with prepaid offering, is the largest and the most independent reseller in the wireless service and Virgin Mobile USA. It targets its prepaid offering at the youth market, while serving almost 4.6 million subscribers. Among many MVNOs, they are targeting specific demographic groups – such as specific age groups and certain ethnicities[11].

Approximately 99.8 percent of the total U.S. population is using one or more different operators offering mobile telephone service in the census blocks near where they live. More than 95 percent of the U.S. population lives in areas with at least three mobile telephone operators that offer the service. Also more than half of the populations live in areas with at least five competing operators nearby [11].

Because the four nationwide mobile telephone operators, as well as the large regional and numerous other smaller operators, each of them have different geographic footprints. They do not all compete head-to head in each region and locality of the country[11].

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B. Bargaining Power of Supplies

The bargaining power of supplies refer to the ability of suppliers to raise input prices, or to raise the costs of the industry in different ways[8]. MVNO purchased airtime from facilities-based providers, which are MNOs. They resold the service to the public to make a profit. For this reason, MNO is a supplier for MVNO that provide infrastructure including the spectrum.

Telecommunication industry adopts economies of scale. Therefore, the biggest reason for MNOs entering into commercial agreement with MVNO is desirable. This allows selling extra capacity and sharing costs of network construction.

In addition, MVNO usually use third or fourth largest MNO's network that those MNO can take subscribers from the first and second mobile network operators[13]. Also, MNO uses their extra network capacity and makes network traffic from MVNO users, whom they pay for the infrastructures.

C. Bargaining Power of Buyers

The bargaining power of buyers refer to the ability of buyers to bargain down prices that are charged by the companies from the industries or to raise the costs of companies in the industry by demanding better product quality and service[8]. Especially, this study covers a MVNO in a cable television industry; we have limits for the users to use Pivot service.

Buyer's switching costs, which is changing to another mobile operator, does not cost much for the customer. Number portability policy has been implemented in almost all countries; that gives an opportunity for the subscriber to keep their mobile number when changing operators. The only fee for the customer has to pay is the cost of opening a new contract, which is usually not very high.

Moreover, it is also easy to compare price plans among different mobile operators. The situation is almost the same for MVNOs and for traditional operators, as the end-users usually don't make any distinction between those two.

D. Threat of New Entrants

Potential competitors are companies that are not currently competing in an industry but have the capability to do so if they choose[8]. New entrants for MVNO by Cable TV industry can be MVNO in other industries such as MVNO by fixed telecom operators, retailers, banks, or entertainment industry.

Economies of scale exist in the provisioning of telecommunication services. It is the same reasons they exist in other industries. In MVNO models, the price depends on the volume, and in a price reduction offered by the host mobile operator for bulk-minutes. Traditional operators gain more benefits from the economies of scale.

Initial capital for MNO has to construct the whole network infrastructure first and pay for the license. It requires a large commitment to a highly technical and sophisticated equipment and software. However, initial cost for MVNO depends on its type. Therefore, basic service provider MVNO needs minimum infrastructure investment.

Relationship with MVNO industry and government can be defined in four different types. They are enforced, supported, not supported, or not allowed.

There is almost no threat of backward integration. Theoretically, it is possible that a potential MVNO (with non-telecom background) is a customer using the traditional operator. But this kind of situation will probably lead to "win-win" commercial agreement, where the main decision is made by MNO.

E. Threat of Substitute Products

The final force in Porter's model is the threat of substitute products: different businesses or industries that bring 655 industries.

First one is mobile network operator. A company that has frequency allocation and infrastructure is simply known as a mobile network operator. The initial costs of MNO are too high that there are barriers and difficult to enter the market.

Second one is MVNO from other industry such as Tracfone, Virgin Mobile, or any other MVNO can be possible to substitute CATV's MVNO. They offer voice and data mobile service. However, MVNO in Cable TV industry was failed, even though they have a lot of options to connect to the Cable TV.

Third one is *WiMax(Worldwide interoperability for Microwave Access),*which is the next 802.16e version, one that promises mobility and can be considered as an extended Wi-Fi. It will enable fixed technologies to ensure mobile broadband access and mobile voice is added with VoIP[14]. After Pivot was failed, Sprint and Clearwire have agreed to form a joint venture that will bring wired broadband in faster speed for mobile users starting as early as late 2008[15].

IV. Implication

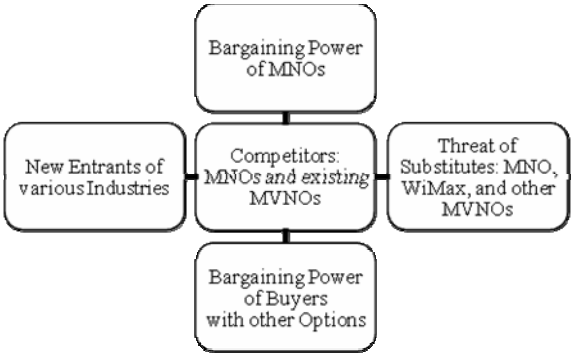


Fig. 2. Application of Porter's framework

A. Competitors: MNOs and existing MVNOs

There are three types of mobile operators in the U.S., which are nationwide mobile operators, regional mobile operators, and mobile virtual network operators. Market leader will be one of the four nationwide operators, but each of them does not cover every region. Total number of providers in one county consists from three to four different mobile operators that are highly competitive in the mobile industry. Moreover, majority of competitors have the same market and strategy with MVNO. Therefore, for the success of MVNO in mobile market, they need some special offers that are clearly different from other mobile operators. Among this, Pivot did not have any special

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strategies than the other mobile services. Pivot's killer application made it able for us to view mobile television, check e-mail and voice-mail, and so on, but other operators were already offering these services that it was not attractive to users. Therefore, the reason for failing Pivot was absence of the killer applications.

B. Bargaining Power of MNOs

MVNO market is the same as supplier's market, which is MNO. Therefore, business strategy has to have difference between MNO and MVNO. The relationship between MNO and MVNO is also important. In the case of Pivot, Sprint and Cable co. have the same interests at the beginning of the service. However, during the process, the Cable co. gets the spectrum and Sprint had joint venture with Clearwire for WiMax service.

C. Bargaining Power of Buyers with other options

Conducted analysis indicates that the bargaining power of buyers is high. The interest of consumer is only low costs and the quality of service in mobile service. Because of the additional discounts of bundling, the possibility of churn rate is increasing. In addition, customers will only choose whatever they want.

D. New Entrants of various industries

Considering economies of scale and initial capital requirements, if some industry wants to enter the mobile service, MVNO is the easy way to start mobile service. For example, under the MVNO model, mobile operators can capture a guaranteed revenue stream by wholesaling extra network capacity to branded companies. In addition to improving cash flow, this virtually eliminates customer acquisition costs for the mobile operator, as the MVNO partner covers the marketing and acquisition spending. Many consumers are expected to change operators based on promotion, price, and the quality of service, or the better coverage. Mobile operators that supplement their subscriber base through MVNO partnerships are likely to reduce customer turnover that wireless number portability inevitably bring through[16]. Also, media & entertainment and electronics & high tech companies will benefit by implementing an MVNO strategy in number of ways. The companies can supplement existing distribution channels with a wireless channel and easily distribute the content directly to a core customer base, as well as to new segments. This allows brand companies to further monetize existing assets by creating new revenue streams from subscription fees. In addition, an MVNO can differentiate itself from competitors and create a "buzz" around new applications that can only be accessed via a brand phone. Customer acquisition and retention are easier with branded services, especially if customers cannot find any similarity. And the MVNO can sell the content at a premium price, which already has some brand-loyal customers who are more likely to pay[16]. The other kind can be local and long distance companies. Currently it is estimated that wire-line service providers in the United States are losing 8 to 12 percent of their revenue to mobile operators as more and more people "cut the cord." This is occurring at an even greater rate outside the United States. In an effort to regain customers, wire-line telecommunication companies can use the MVNO model to bundle local, long distance and wireless into one comprehensive offer. These carriers will need to develop innovative marketing concepts, such as all-in-one product through wire-line and wireless devices, to differentiate themselves in the market. However, their expertise in back office capabilities will be a significant asset in this arena[16].

Because MVNO's initial capital requires less, there is a lot of possibility that other industry wants to get into wireless service as well. Most existing MVNO's killer application has lower pricing and prepaid in advance. However, Pivot service is not only wireless service but also combined with other services which could not use this plan.

E. Threat of Substitute Products: MNO, WiMax, and other MVNOs

The threat of substitute products is representative three different products, mobile network operator, MVNO from other industry, and WiMax. Among these three, MNO has higher installation cost, but it is user friendly and easy to subscribe. MVNO was failed because of they did not have a killer application. Therefore, if other MVNO wants to join mobile industry, they have to have a clear business model and strategy. Also recently, WiMax have been working with Sprint and two other cable companies which are Comcast and Time Warner Cable.

V. Conclusion

Today's emerging world of digital convergence gets rid of any borders between telecommunication industries and broadcasting industries. Therefore, even though Pivot was failed, Cable TV operators in the U. S. continue to try to get into wireless service such as MVNO, MNO, WiMax, or Wi-Fi. Nevertheless, after considering many factors about Pivot, MVNO is the easiest way to enter into the mobile market for cable companies. This is applied not only in the U.S. but also in other countries as well. For example, in South Korea, Korea Cable Telecom(KCT), joint ventured with cable TV system operators, is to provide Voice over Internet Protocol service and provide DPS, TPS service with Cable TV operators. In addition, now KCT focus on MVNO service for QPS.

However, MVNO in Cable TV industry have to have a clear killer application with their sufficient contents. Pivot's killer applications were not attracted at all because their killer applications were already offered from the other operators. Cable TV operators have to intensify their killer applications in order to draw customers.

This paper provides insight about pivot service and its alternative business strategies and examines the reason of its failure in depth. Then further explore what Cable TV operators need for future success in mobile industry. However, this paper carries limitations due to its scope. Each country has different power of telecommunications operators and cable operators. Therefore, it is varied to power of each operator, sourcing of contents, relationship with mobile network operators, and so on.

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