

# **A STRATEGIC ANALYSIS OF M-COMMERCE IN THE UNITED STATES**

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## **ABSTRACT**

The purpose of this paper is to provide some understanding on the key forces impacting on the successful evolution of m-commerce in the US market from Mobile Network Operators' (MNOs) standpoint through using Porter's Five Forces model. The key to success in m-commerce is dependant on the power relationships among five forces: rivalry, supplier, buyer (customers), new entrants and substitutes .

## **KEYWORDS**

M-commerce, mobile network operators, competitive strategies

## **1. INTRODUCTION**

The purpose of this paper is to provide some understanding on the key forces impacting on the successful evolution of m-commerce in the US market from nationwide MNO's standpoint through using Porter's Five Forces model (Porter, 1985). Porter argues that economic and competitive forces in an industry segment is the result of five basic forces: a) positioning of traditional intra-industry competitors; b) threat of new entrants into the industry segment; c) threat of substitute products or services; d) bargaining power of buyers; and, e) bargaining power of suppliers. To explore the competitiveness of the m-commerce market and the power of each participant, this model is used to assess the firm rivalry, the supplier power, and the buyer power, as well as the new entrants and the market substitutes.

## **2. A STRATEGIC ANALYSIS OF MNOS' SERVICE PROVISION**

### **2.1 Rivalry**

MNOs who have PCS licenses in the US believe that they have adequate spectrum to deploy 3G services throughout the country (Sprint PCS, 2002) However, they are not exceptions for tremendously expected costs of access to advanced services in terms of technology, service applications, and frequency license arrangement (Barnes, 2002). Furthermore, as network operators have sought to increase the volume of mobile telecommunications and to provide differentiated price packages to the customer, profit margins have been fallen. Average revenue per minute of mobile telephone use fell 31% between 2000 and 2001 according to CTIA report (FCC, 2002). In addition, a high rate of customer churn would likely to impair mobile network operators' financial performance. Also, different standards and related technologies among service providers and cutthroat competition intensify their future risks.

Maitland et al. (2002) mentions three factors which have an influence on competition levels . They are: the likelihood of consolidation between operators, network sharing and the openness of network access. Especially, global trends of consolidation have been prospected because of inevitable big expenditure and

risks for the enhanced services (Barnes, 2002). Even if many hurdles, such as the complicated ownership structures, management philosophies, network technology, market coverage and branding make the consolidation so difficult to achieve so far, the US MNOs have established this consolidation through mergers and acquisitions, joint ventures, strategic affiliation to enlarge their nationwide footprints and diversify their risks (FCC, 2002).

One of the challenges for MNOs will be a different billing system from prevailing flat-rate one. Except Verizon and Nextel having flat-rate plan for Web access, Cingular, AT&T Wireless<sup>1</sup> and VoiceStream are charging on a per volume basis. Volume-based pricing enables carriers to measure capacity and ensure that heavy users do not clog the network. But many analysts question consumer acceptance of volume-based pricing. It will be difficult to go from free to charging for specific content unless it provides tremendous value. One of the ways carriers will demonstrate value is by adding location and personalization of content. In addition, the problem is how they allocate the cost of offering data services on an infrastructure designed for voice with a packet overlay (Luna, 2002). It is necessary to add a new rating component that can deal with the new dimensions. The challenge will be for carriers to continue to use their legacy billing systems while consistently adding billing capabilities for wireless data.

## 2.2 New Entrants

Mobile operators view m-commerce as an opportunity to reinvent themselves as sophisticated high-margin transaction support providers, service providers, and content aggregators. The success of this transformation depends on their ability to build partnerships with a critical mass of content providers including the ability to leverage their existing customer relationship. As a result, the MNOs' attempts to play the role of value-added service provider face competition from ISPs, portals, service bureaus and Mobile Virtual Network Operators (MVNOs)<sup>2</sup> (Sadeh, 2002). Also, new m-commerce market offers the MNOs the opportunity in the mobile payment segment that is currently dominated by banks and credit card associations (M2 Presswire, 2002). Representatively, Cingular has provided *DirectBill* service, a type of micro-payments (under \$10) that allows customers to purchase low-cost digital goods such as ring tones or the Internet and then charges them on their monthly bills. In the response of this, the third party billing providers such as banks, credit card companies, and other billing providers are developing strategies to circumvent the mobile operator's billing relationship with its customers.<sup>3</sup>

MVNOs have emerged as competitors for MNOs at the retail level while they can represent the client of MNOs simultaneously. MVNOs do not own spectrum, but instead buy bandwidth from traditional mobile operators for resale to their own customers. For the first time in the US market, Sprint PCS sold its voice and data network to Virgin Mobile on wholesale basis and got the company start to business for the targeted youth customers (German, 2002). Two scenarios relative to the relationship between MVNOs and MNOs are anticipated by Maitland et al. (2002). If a MVNO competes with a MNO who provides the network in the same market, the MNO possesses many opportunities to disadvantage the MVNO, which is dependent on network access, for example, through vertical price squeeze. Presently, this is one of MVNOs' most vulnerable. But if they use different brand name, MNOs will voluntarily share their networks with the MVNOs as seen in the Sprint PCS-Virgin Mobile case. More importantly, however, Virgin Mobile is an example of a company being watched closely by other companies like Walt Disney, Wal-Mart, Best Buy, AOL and ESPN that could jump in next. Potentially, an entire new industry could spring up to support the arrangements. The resellers may bring in a consumer segment the operators could not get. Operators might be better off letting someone else assume subscriber acquisition costs. But at the same time, this resale will eliminate future market potential by turning ownership of a customer to somebody else and make the MNOs lose their part of market. At the moment, it is uncertain if the MNOs fully embrace this provider as a partner or not.

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<sup>1</sup> Cingular and AT&T Wireless have no choice but to charge customers for the volume of wireless data they carry on their GPRS networks because the technology requires carriers to allocate voice channels for data.

<sup>2</sup> An example of MVNO is Virgin Mobile, which relies for its spectrum on mobile operators such as One2One in the UK or SingTel in Singapore.

<sup>3</sup> For instance, Visa has developed EMPS mobile payment solution to provide a future real POS solution using Bluetooth or infrared with Nokia and Nordea. Yahoo!'s *PayDirect!* service is also a collaboration with Canadian Imperial Bank of Commerce and HSBC (Sadeh, 2002).

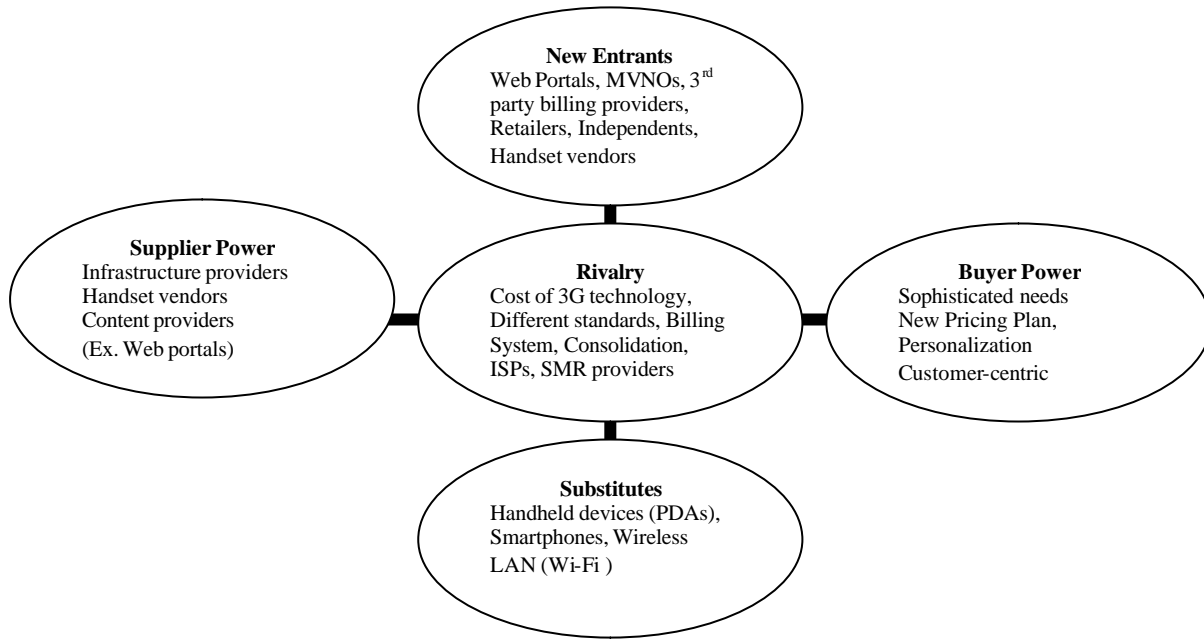


Figure 1. Strategic Analysis of MNOs: Modified from the WAP model of Barnes (2002)

### 2.3 Substitutes

The rapid change in technology may lead to the development of wireless telecommunications services or alternative services that consumers prefer over existing cell phone service. The demands for wireless data services provided by MNOs may be affected by the proliferation of handheld devices such as PDAs or wireless local area networks (wireless LAN) using new technologies. Unlike cell phones including a walled garden menu, many PDAs have the ability to access almost the entire content of the Web. The walled-garden approach of the exiting MNOs has been criticized as inefficiency due to technical, regulatory, and economical factors (McKinsey Quarterly, 2001).<sup>4</sup>

On the other hand, while the cellular service carriers struggle to bring 3G high-speed data to their national networks, an alternative, national, high-speed wireless data network based on Wireless LAN technology (802.11b wireless networking standard) is appearing fast.<sup>5</sup> The underlying technology is immensely popular because it offers tremendous bandwidth basically for free. In the alternative way to avoid direct competition with Wireless LAN, some MNOs have tried to invent cell phone technology that can coexist with 802.11.<sup>6</sup> VoiceStream purchased MobileStar, which had been the leading provider of high-speed wireless broadband Internet access. Additionally, T-Mobile operates the world’s largest Wi-Fi (802.11b) wireless broadband network under the name *T-Mobile HotSpot*, providing high-speed Internet access in Starbucks coffeehouses, as well as airports and airline clubs (Piszczalski, 2002).

In the future, a 3G wireless technology roll out may displace Wi-Fi, 3G licensing costs, technology delays, and spectrum drought has swung the current tide in favor of Wi-Fi’s. (Sabat, 2002) If subscribers get used to the high speeds offered by Wi-Fi’s, the key to the 2.5G and 3G uptake is that they meet at least the data

<sup>4</sup> In a technical perspective, the convergence of broadband platforms will make consumers to be able to access identical Internet service regardless of the devices they use. Once platforms converge and consumers can switch portals within and between platforms, a closed portal strategy will be unworkable. Also regulators are unlikely to let dominant access providers use closed, proprietary standards and interfaces. Furthermore, to open portals to all broadband users induce a much larger market and so will attract the best services and content providers. If the leading portals will set de facto standards, device manufacturers and service providers will no longer want to provide proprietary solutions to vertically integrated portal and access providers with closed business systems, disregarding the economies of scale.

<sup>5</sup> The standard known as Wi-Fi allows people to connect their computers and laptops within about 100 meters so they can share the same network connection.

<sup>6</sup> For operators the Wi-Fi market may be a comparatively cheap route to offering high-speed Internet access to business users. Certainly, W-LANs could successfully sell on their bandwidth advantage over GSM, GPRS or even UMTS. However, there are currently many technical problems such as data security and compatibility of systems (Huber, 2002).

transmission levels offered by current wireless LANs, if not wire line networks. While these next-generation networks offer companies a choice to expand coverage and capacity, people are not going to be particularly impressed with these networks because they have been used to higher speeds of Wi-Fi.

## 2.4 Customers

The key success factors for mcommerce exist in the customer ownership, personalization, localization, ubiquity, timeliness, and convenience (Durlacher, 1999). Among them, personalized and customer-empowered service provision is the important driver to increase the value proposition of m-commerce and so boost the customer's willingness to pay. Traditionally, customers are more accustomed to be locked in a compulsory contract of 1 or 2 years required by mobile service carriers so far. This means that even if customers were not fully satisfied with the service, they cannot move to another service provider immediately and so this makes customers' buying power decrease. Therefore, differentiated and flexible pricing plans, and customer services will be one of the key incentives for customers to stay on the service. More recently, the *roll-over* plan Cingular offers, which enables customers to keep their unused monthly minutes (Cingular, 2002), represents a good trial to bring a new value proposition to wireless customers and avoid churn.

As mobile Web services accelerate and consumers begin demanding services independent of the wireless carrier, a model similar to that of ISPs is likely to emerge. Under this business model, wireless service subscribers will have access to any mobile site, and the open-access system will spur companies' development of their mcommerce presence (Barnes, 2002). Meanwhile, according to the study by A.T. Kearney, using cell phones in lieu of cash and to send text messages is growing. Consumers' demand for so called "m-cash" or using a mobile phone to buy small items electronically, such as sodas from vending machines or transit tickets, has been growing (Kary, 2002).

On the other hand, security and privacy concerns will have an important influence on the willingness to pay of customers to adopt m-commerce in their life. Clearly, mobile payments actually offer a higher degree of security than credit cards since both the phone and a PIN are required as authentication. Also, even though the issue of privacy, particularly relating to location tracking, has been implicated in some of the FCC's wireless proceedings, including its E911 mandate, the question of privacy concern still remained unsolved.

## 2.5 Suppliers

In the value chain of m-commerce, MNOs play an important part as one of the infrastructure providers to transport the service. Especially, due to the carriers' consolidation, the power of buyers for network facility and access devices continues to increase. Nevertheless, they need to count on a host of other suppliers such as facility and technical solution providers, handset vendors, financial transactions providers, software application developers, content packagers and content providers. The simple value chain that was represented by the network operator and handset vendors is being changed into a multipart value network where alliances play a key role (Sabat, 2002; Barnes, 2002).

Traditionally in mobile telephony, customers chose handsets based on the models available from their operator. For instance, in the smartphone market, the brand and model are the most important part of the purchase decision relative to service provider or network provider's brand. Because the cost of branding, production capacity and R&D makes barriers to entry to this hand-held device to be substantial, the suppliers have had strong market power in the mobile market (Barnes, 2002). However, competition among the differing wireless communications technologies in the US could limit suppliers' market power by segmenting the user markets, which could reduce demand for the technology of each standards group. At the same time, this may reduce the resources devoted by third-party suppliers to developing or improving the technology for each system. Interoperable services across markets, terminals and operators will be necessarily needed to achieve economies of scale in the face of expensive end-to-end solutions (Laughlin, 2002). Eventually, the success of m-commerce services is substantially dependent on the ability of others to develop content-related services and applications for wireless devices and to develop and manufacture access devices that support wireless applications.

### 3. CONCLUSION

Through Porter's Five forces, this paper examined some benefits and threats the US MNOs have faced in providing new m-commerce services, more specifically, mobile data service. MNOs are facing long-term decline in revenue from voice traffic as well as tightening competition triggered by operators with 3G licenses and virtual network operators. At the same time, they have new choices to enlarge their business area including a new segment in the market that could have not been considered before.

It is evident that mobile network operators (MNOs) have a competitive advantage over other players in their billing infrastructure, a large end user base, an established mobile brand, the users' location information, established dealer channels and the network infrastructure itself (Sadeh, 2002; Siau, et al., 2001; Maitland, et al., 2002). However, to MNOs, m-commerce can be both a major source of opportunity and a threat of being left behind as low-margin data pipes. In the US, while each nationwide MNO has competitively started to launch 2.5G mobile data services, and accelerated their deployment of 3G networks, high rate of fixed Internet penetration, geographic vastness, lack of spectrum, heavy competition and different technologies have interfered with a favorable m-commerce environment. Unlike other telecommunications services or high-tech industries, any MNO in the US seems not to have certain comparable advantage or superior position than other intra-industry competitors. All nationwide MNOs share the common in that they just started a race for 3G-network deployment and mobile data service. All of these MNOs perform similar duties, but in different ways. Since there are complexities and range of factors that drive the profitability and evolution of the mobile industry, it is difficult to determine who will be the ultimate winners in the future. However, it is evident that the possible dominant power will be affected by various factors such as existing assets and competencies as well as the strategies, dynamics and power relations among the players.

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