

Online Mobile Content Innovations and Industry Structure: Implications for Firms' Strategies

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ABSTRACT

Research literature indicates that successful market penetration and development using new technologies require technology entrepreneurs and managers to implement strategies that take advantage and overcome problems associated with important business environmental and product-specific factors. Using a conceptual framework drawn from important constructs in the Porter's competitive forces model and innovation literature, this study examines the Malaysian mobile content innovations and industry structure with the objective of understanding the variables that influence profitability of mobile content firms. To achieve the study's objective, extensive content analysis on *all* 43 Malaysian online mobile content firms' websites that were in operation in August 2008 was conducted and information on their innovations and industry structure from public domain were gathered. The study findings reveal important variables and linkages within, as well as those between, online mobile content firms' innovations and their industry contexts. These provide the basis for generating strategic propositions for the development of online mobile content firms as well as the overall mobile telecommunications industry. The study also concludes that deciding on the primary target market (PTM) is a critical consideration in mobile content business. Similarly important is for the mobile content firms, to evolve into transacting business entities, which activities will benefit all players in the mobile telecommunications service industry value chain.

Keywords: Mobile content, innovations, industry structure, business strategies, mobile telecommunications industry

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Any remaining errors or omissions rest solely with the author(s) of this paper.

INTRODUCTION

Mobile phones are becoming popular as telecommunication tools around the world. By late 2007, for example, the numbers of mobile phone subscribers worldwide grew to 3.3 billion (Morgan Stanley, March 2008). An increase usage of mobile phones leads to the increase demand for mobile content products, which are any content designed for delivery to, access on, and perhaps also use on mobile phones. These could include voice, animation, video, and design and graphics. Among the most popular of these contents include caller ringtones and mobile games (Sultan and Rohm, 2005). Not only these products could be ordered and delivered directly to the customers' mobile phones, they could also be digitally paid for over the mobile phone lines. These contribute to the rise of mobile-commerce phenomenon, in which customers and businesses conduct transactions over the mobile devices.

However, to be successful in market penetration and development of technology-enabled business, such as mobile content business, requires technology entrepreneurs and managers to have the capability to implement strategies that take advantage of and overcome problems associated with important forces in their business environment (Ghemawat and Rivkin, 2006; Magretta, 2002; Porter, 2001; Rangan and Adner, 2001). It is also critical that these strategies match with the cultural and infrastructural contexts of the targeted business environment (Guillén, 2002). In any case, in serving their customers' needs, mobile content firms need to consider how the new technologies have altered the businesses' nature of communication with the customers, the way the products and services are priced, the design of these products and services, as well as their method of delivery (Kotler, cited in Shama, 2001; Shama, 2001; Strauss and Frost, 1999, pp. 39–53, 125–180).

While the existing theories emphasize the importance of understanding both the specific characteristics of a particular product/service and the industrial competitive forces in which the product/service is marketed, these issues were not given much emphasis by researchers of mobile telecommunications industry. Only a few researchers took the view of mobile telecommunications industry and business strategies (Ngai and Gunasekaran, 2007). Rather, those who examine this industry mainly discussed about the developments of the technology infrastructure within it (e.g., Dekleva, Shim, Varshney, and Knoerzer, 2007), while others focused on the variables that influenced end-users/consumers' adoption of mobile commerce (e.g., Zhang, 2007; Constantiou, Damsgaard and Knutsen, 2007; Bouwman, Carlsson, Molina-Castillo and Walden, 2007).

This study extends these existing studies by examining both the industry contexts and the innovations adopted by its members. Drawing important constructs from Micheal Porter's competitive forces model and marketing mix (4P) concept as the study's framework, we examine the characteristics of online

mobile content industry structure and important elements in online mobile content innovations (Grönroos, 1989; Logman, 1997; Porter, 2007). We define online mobile content innovations from the perspective of marketing mix (4P), which comprises characteristics such as *products/services*, *price*, *promotion*, and *placing (distribution)*. This study's framework enables analysis of survivability and competitiveness of firms within the industry and identification of important variables in offering online mobile content products to customers. Such a comprehensive perspective allows the discovery of new important variables and linkages that influenced the profitability of businesses that operate in the mobile content industry.

Using the Malaysian online mobile content industry as our case study, we conducted an extensive internet research on *all* online mobile content firms in Malaysia, obtaining information on their *products/services*, *customers*, *pricing*, *distribution* and *rivals*, the power of their *suppliers* and *buyers* (mobile phone subscribers), their industry entry *barriers* and products *substitutes*.

Malaysian online mobile content industry was chosen for study because of its high potential growth and importance to the overall development of mobile telecommunications industry in general. There had been a rapid growth of mobile phone subscriptions in the past few years, and this number was at 100.8% mark of total number of subscribers per total number of Malaysian population, by the second quarter of 2009 (Malaysian Communications and Multimedia Commission [MCMC], 2009). While it was reported that most Malaysians used mobile phones mainly for voices and messages communication, and the uptake of other types of mobile transactions was low (MCMC, 2007, pp. 11–12), this might change in the future as by mid-2008, the markets for mobile contents in Malaysia were already valued at about 100 million US dollars (The Star Online, June 18, 2008).

BACKGROUND: MOBILE PHONE AND MOBILE CONTENT INDUSTRY IN MALAYSIA

The Malaysian mobile telecommunications industry has experienced very high growth especially since 2004, as the country's three mobile telecommunications services providers, Celcom, Maxis and DIGI, have been competing fiercely for market shares. The high rivalry among these oligopolized players has resulted in price wars among them and their heavy marketing has helped to raise general public awareness and acceptance of mobile phones. The high growth of mobile phone subscription is also attributed to the rapid acceptance of prepaid services, which was first launched in Malaysia in the late 1990s. The convenience and cheap usage initiation of prepaid services increase market penetration of mobile phones among the less affluent and younger people (Khairul Akmaliah *et al.*, 2008). Another reason for the high growth is that the Malaysian public has

not fully embraced wired (PC-based) internet communications systems, such as email, as they are perceived to be costly and less efficient in comparison to communicating via wireless mobile phones. Given that Malaysians place high values on the ability to be socially connected, a device that enables efficient communications, such as the mobile phone, would naturally be rapidly accepted by them (Khairul Akmaliah *et al.*, 2009).

During their initial introduced stage in late 1990s, most of the ordering and selling of mobile contents were done through the mobile phone lines. Along with the increasing mobile phone usage, the early to mid-2000s had shown the mushrooming of companies that sold and delivered mobile contents, particularly ringtones, which were the tunes that the mobile phones play when receiving calls. Many of these companies advertised their ringtones, in the mass media, mainly in the newspapers, and customers ordered them using their own mobile phones and received them directly into their devices. The products were text-based and could be delivered to almost all types of mobile phones, including the less expensive ones.

By the late 2000s, the markets for these text-based contents in Malaysia had reached their saturation points. The content technologies have also evolved from non-convergent of mobile-web technology, in which contents developed for PC-interface needed to be programmed for mobile interface, and vice versa, to near convergent, in which a particular content is fully adaptable to both mobile and PC-based interfaces. This technology convergent would allow mobile and PC-based contents industries to merge into one in a very near future.

Concurrently, with the near full convergence of mobile and web technologies, a growing number of mobile contents (with texts, audio and simple images) have multimedia contents (with video, multi-colored images and animation) and become “richer” and these require their delivery to be done via advanced 3G phone lines or the Internet lines and the receiving device be equipped with access capability to 3G or the Internet. Firms have also utilized internet technologies, i.e., their websites, as the selling points for their mobile contents. Payments for the contents have been, from the beginning, through crediting of customers’ prepaid amount or billing of the customers’ postpaid accounts. This leads to the evolution of full-fledged online mobile content businesses, in which the ordering of products, delivery and payment are all done virtually.

CONCEPTUAL FRAMEWORK FOR EXAMINING ONLINE MOBILE CONTENT PRODUCTS AND INDUSTRY CONTEXTS

One useful model in describing an industry’s profitability is the Porter’s competitive forces model (Porter, 2007; 2008). This model allows the

interpretation of industry structure variables that could influence profitability of firms within the industry. However, the Porter's model, which is classified under the industrial/organization (I/O) perspective, addresses only the external factors of organization (Jacobson, 1992). Such an analysis generally ignores the characteristics of the innovations of the firms within the industry. Thus, to complement the Porter's model, we selected the marketing mix (4P) variables as measures to describe the characteristics of mobile content firms' innovations. This combined conceptualization (competitive forces model and marketing mix (4P)), which serves as the study's conceptual framework, contains the following nine constructs: *intra-industry rivalry*, *customers*, *suppliers*, *substitutes*, *barriers to industry entry*, *products/services*, *price*, *promotion*, and *placing* (Kotler, cited in Shama, 2001; Grönroos, 1989; Logman, 1997; Porter, 2007; 2008; Shama, 2001; Strauss and Frost, 1999, pp. 39–53, 125–180).

Product/Service This is the output of a firm that is offered to potential customers to fulfill their needs. The notion is to ensure the product or service would be bought by customers. Taking into consideration the technology involved in the online mobile content business, a firm must decide on the suitability of a product or service to be sold or offered via this method.

Pricing Price is the amount of money a customer is willing to pay in return for an obtained product or a rendered service. A firm must decide the appropriate price when trying to sell a product or offer a service through the mobile-web connections, with some variables need to be taken into consideration, such as, competition, cost of production, and perceived value of the product/service.

Promotion The objective of this activity is to make the potential customers aware of and be interested with the product/service offered by a firm. In marketing its product or service, a firm can utilize several methods, including offline (via newspapers, magazines, and billboards) and online (via the Internet and mobile phones) means.

Placing (Distribution) This process is related to the sending of a product or the providing of a service to the customers. Delivering a product may also involve passing it to other organizations before it finally reaches the customers or end-users. This process is also known as passing the product through a 'distribution channel'. Various alternative channels exist including selling directly (and for the mobile content firms, this could be done online), or via agents, distributors, and/or retailers.

Intra-industry Rivalry This indicates the level of competitiveness that a firm faces from others within its own industry. One important factor that influences the

intra-industry rivalry is the number of firms that sell the same type of product, or offer the same kind of service to a similar group of customers.

Customers Customers are those who buy products or pay for services offered by a firm. Porter (2007; 2008) described the survivability of a firm within an industry is also influenced by its customers' ability to control down the price of the firm's products or services, demand higher quality or more services from the firm, and play it off against its competitors. Within the online mobile content business context, potential customers are those who own mobile phones with Internet connection capability, are willing to make online purchases via these devices, and are able to pay for the purchases.

Suppliers Vendors provide support to a firm to allow it to run its operations, which can be in the forms of raw materials, human resource, monies, technology, and information. Mobile content firms may need assistance from suppliers in designing and operating a website and developing programs to accept payments and deliver its products/services to customers. They also depend on the mobile telecommunications services providers to provide them with networks services that enable them to transact with their customers.

Substitutes Substitutes are alternatives to a firm's products and services in satisfying the need of customers. Substitutes can be in form of another products, services, process or technologies, to mobile contents.

Market Entry Barrier This describes the level of difficulty for other firms to enter and set up business within an industry. This degree of difficulty is affected by barriers such as the needs to have required financial capacities, expertise, technologies and equipments to start the business. It is also influenced by the existing industry members' abilities to retaliate toward and fight off the 'intruders', as these reactions will also increase the barriers for the newcomers as they need extra financial muscles to fend off the attacks.

RESEARCH METHODOLOGY

Having defined these important constructs, we proceeded to gather the data, which involved three stages. The first one, which required content analysis of websites, allowed us to gather data that are useful in describing the following constructs: *product/service*, *pricing*, *promotion*, *placement/distribution*, *customers*, *competitors* and *market entry barriers*. The procedure involved, first, locating URLs of online mobile content firms, second, determining their URLs' operability, and third, analyzing the websites' contents for the required information. This procedure was an extension of those from previous studies,

which utilized content analysis as a means of gathering important research data (Hart, Doherty, and Ellis-Chadwick, 2000; Liu, Arnett, Capella and Beatty, 1997; Soh, Yong Mah, Jek Gan, Chew and Reid, 1997; Khairul Akmaliah and Maisarah, 2005).

Adopting Laudon and Traver (2003, p. 10)'s definition of e-commerce, we define online mobile content business as a mobile commerce (m-commerce) business, which includes Internet-based exchange of value. This means that the business must use Internet-based technology in the form of website, to provide information and to allow interactions with and have the capability of accepting payment online from customers.

This study analyzed *all* Malaysian online mobile content firms that meet the above definition. The list of these firms' websites were gathered using Google and Yahoo! search engines with keywords 'Internet mobile Malaysia', 'm-commerce Malaysia', and 'mobile content Malaysia'. The result of this Internet search provided a list of 48 firms (websites) which conducted full-fledged m-commerce, as per our definition of the term. Our definition specifies that these websites must support customer transactions via mobile devices, in which they sell mobile products (contents), deliver these products and accept payments for them via mobile means.

However, only 43 of these firms (websites) offered mobile contents, such as ringtones, designs/graphics and games; the remaining five were involved in other types of data services, including prepaid reload value distribution (three firms) and virtual money (two firms). As these types of services were beyond the scope of our study, these five firms were excluded from our research.

The second stage of the study's data gathering involved assessing the ordering, paying and delivering of mobile contents at the firms' websites and also at the researchers' mobile phone interfaces. This allowed us to construct details about the nature of online mobile content products and their delivery methods that have to be dealt with by the mobile content firms. This data collection stage required the purchase of at least one test item from each of the 43 websites.

To complement the data gathered during the website content analysis and online mobile content product and delivery assessment, we also performed the third stage of the data collection process, in which we sought information from published sources, including those from MCMC as well as other sources in the public domain. These processes allowed us to gather data about the *substitutes* and *suppliers*. All stages of data gathering were conducted from July to August 2008, with the finalizing date was on the 10th of August 2008.

The seven constructs of stage one were analyzed based on the following measurements: *product/service* (based on categories of online mobile content products), *pricing* (based on price of products), *promotion and placement/distribution* (based on type of delivery method and availability), *customers*

(based on type and price of offered products), *competitors* (based on number and type of company/businesses/products), and *market entry barriers* (based on type of companies/businesses/products/value-chains). The other two constructs were operationalized based on information gather from public sources (third stage data gathering method). *Substitutes* and *suppliers* constructs were measured based on information on type of process involved in the online mobile content industry value chain.

FINDINGS

Of the 43 companies, 27 are large firms (73%), while the remaining 16 are small/independent businesses (We classify small firms as those that are not listed in the main or the second boards of the Bursa Malaysia, or are not affiliated with any listed companies or with any online multinational companies (MNCs); while for large businesses, their characteristics should be the opposite of the small firms). This showed that the markets are dominated by large firms, most of which are operating mobile contents business as periphery rather than as core businesses. Only six of the 27 large firms are exclusively selling mobile contents, the rest are mobile telecommunications services providers themselves (3 firms), a subsidiary of one of the mobile telecommunications services providers (1 firm), and those that core business are, mobile phone hardware (3 firms); portal site (1 firm), broadcasting and entertainment (10 firms), music (2 firms) and gambling (1 firm).

From the 43 companies, 19 are exclusively selling mobile contents. Of these firms, 13 are small businesses and the remaining six are large ones. These six companies include five that appear to be selling to overseas customers, and one is a subsidiary of a large telecommunication firm. Eleven of the small companies are purely online companies, the remaining five small companies plus 20 larger ones have both physical and online operations (Their physical locations are stated in their websites). The pure online companies serve their customers exclusively via the Internet through PCs and mobile phones, and do not operate physical building sites. These numbers are shown in Table 1.

These 43 mobile content companies accept payments directly from customers' mobile phones either through the customers' prepaid or postpaid accounts. For a prepaid customer, the payment amount is deducted directly from his airtime balance in his mobile phone, while for a postpaid customer, the amount is charged to his account and to be paid at the month end.

All 43 companies mainly market their products to local customers. This may be because of the limitation within the companies' online product delivery mechanism as they are only able to deliver to locally prefixed mobile phone numbers. This demonstrates that Malaysian mobile content services are still local-centric. Those that appear to be selling to overseas customers (5 firms)

Table 1 Size and Types of Company/Business

Size/Types of Company/ Business	Types of Company		Types of Business	
	Full-fledged online companies	Have physical outlet and online presence	Mobile Content is Core Business	Mobile Content is Periphery Business
Small	11	5	13	3
Large	7	20	6	21
Total no. of firms	18	25	19	24
Total	43		43	

operate dedicated sites for each of the separate location, as in the case of justmobile.

As shown in Table 2, all companies that are involved in mobile content businesses may be selling more than one type of content and operating synergistic businesses. For example, many that sell ringtones also offer wallpapers (which are the most offered products within the industry), and games for mobile phones. With very few exceptions, their mobile content products are mostly produced for high-end mobile phone owners because their online delivery to the customers required the minimum use of phones with GPRS technology. This limitation

Table 2 Types of Mobile Content Products and Number of Firms

No.	Mobile Content Products	No. of Firms	
1.	Ringtones	Monotones	16
		Polytones	33
		Truetones	30
		Caller Ringtones	5
2.	Video/MP4		17
3.	Graphics	Wallpapers	34
		Screensavers	7
		Picture Messages	17
		Screen Themes	21
		Animation	21
		Operator Logo	12
		Cute Text	6
		MMS	6
		4.	Mobile Games
5.	Information	Entertainment	20
		News	12
6.	Mobile Dating		1
7.	People Location Finder		2
8.	Mobile Book		1
9.	Mobile Gaming		2

indicates that the mobile content companies' main targeted customers to be mostly high-end phones owners and those who use their mobile phones to play games, who are younger buyers with higher pre-disposable income. They could be those with own income or who are still depended on their parents. For the second user group and especially among the schooling teenagers, these higher spending on phones are perhaps the results of larger pocket monies provided by their parents. When prices of the mobile contents products are verified, many are quite expensive, further indicating that the companies are targeting those with higher budget for mobile phone spending.

In addition, our customer test results show that in selling their products to the customers, mobile content companies have to customize their processes. For example, to purchase a ringtone, a customer has to provide information about his phone to a mobile Internet company so that the content can be delivered to his mobile phone, because prior to delivering the content to the customer, a company has to customize the mobile content to match to each customer's mobile phone type. On the part of the customer, the act of purchasing certain contents, ringtones and video products is not seamless as it seemed. To purchase MP4 video products, for example, the customer needs to download add-ins.

Moreover, when selling mobile products, all companies require the customers to register their phone numbers. This allows customers to obtain a password before any order could be placed. Registration is free for all sites except two, which deduct a customer's prepaid or postpaid account immediately upon registration. Even with the required password keyed-in, ordering is difficult for 20 websites. Moreover, all websites do not provide any confirmation for a customer's order and payment acknowledgement receipt after a customer mobile phone account deduction. Also, for 21 websites, notifications of product delivery toward orders are either slow or gave no responses at all, causing needless anxiety for the customers.

Additionally, for a customer to provide his mobile phone number to a company via the Internet invite other risks, and provide opportunities for criminals to commit fraud. First, the customer might not receive the paid product from the selling company at all. Second, with his phone number known, he might also receive mobile spams from the company in future. Third, not only this invades his privacy, it also allows a bogus provider to force the cost of unwanted ads into his account. For a prepaid phone customer, this is unfortunate as he is unable to verify any deduction of amount unless this is confirmed with his telecommunication service provider. Additionally, a customer who requests a company to stop sending advertisements has to go through many 'disengaging' procedures before the sending is stopped while he is continuously being charged for each communication. Thus, privacy invasion and fraudulent issues are prevalent in this business. Table 3 shows the results of the assessment on mobile content firms' products and delivery.

Table 3 Online Mobile Content Product and Delivery Assessment Results

Test No.	Testing Activities	Details	No. of Firms	Total Firms	Percentage
1	Subscription	Fees Charged	2	43	5%
		Fees Not Changed	41		95%
2	Response to ordering initiation	Yes	23	43	53%
		Half-yes, half-no	5		12%
		No	15		35%
3	Products/Services Delivery to Mobile Phones	Good	22	43	51%
		Slow Response	8		19%
		No Response	13		30%
4	Unwanted Ads	Yes	8	43	19%
		No	35		81%
5	Termination of Subscription	Fees Changed	11	43	26%
		Fees Not Changed	32		74%
6	Procedures of Termination	More (≥ 2)	12	43	28%
		Less (< 2)	31		72%

DISCUSSION

Intra-Industry Rivalry Out of 43 mobile content firms, about 75% of them provide similar services, having the same business portfolios of ringtones, graphics and games. Thus, intra-industry rivalry is high among these firms. For some products, such as ringtones, the firms also compete against independent offline operators who offer similar products and services. These offline operating rivals advertise their products via the mass media, such as, the newspapers and televisions, and, have a higher visibility among the general public. Moreover, the mobile content firms also have to compete with some providers who offer certain types of mobile contents for free. This highly competitive nature of the business makes it difficult for these mobile content firms to attract and retain customers.

Substitute The mobile content firms are also in competition for consumers' money against other service providers whose offerings are tied to customer mobile phones' prepaid credits or postpaid accounts. Good examples of these are the television reality shows. Because many of these reality shows are shown on national television channels, they are generally more visible than the products offered by the mobile content companies, who advertise mainly through the Internet. Thus, the substitutes have a higher possibility of replacing the 'entertainment value' offered by mobile content companies' products, e.g., mobile games.

Placing (Distribution) Even though their product delivery and charges are fully-digitized and could be performed online, the mobile content firms appear

to have problems in marketing their products internationally. This is because of regulatory and technological impediments. For example, their products could only be delivered to locally prefixed phone numbers and some products could only be delivered to mobile phones with GPRS technology.

Market Entry Barrier While their markets are fragmented and highly competitive, the mobile content firms do not seem to have any positioning strategies within their markets, resulting in easy access to new entrants. No differentiation exists amongst the firms' offerings, with many selling the same products. For the larger firms, their success in the mobile content business is perhaps not as critical as compared to the smaller ones. These large companies have installed some forms of cushioning mechanism against the effects of highly competitive Malaysian mobile content markets, by not making mobile contents as their core businesses (21 firms) or they have operations that cover international markets, with dedicated sites servicing each of the specific geographical areas (5 firms). However, for the 16 smaller firms, low market entry barrier is a serious issue as 80% (13 firms) of them focus exclusively on mobile contents.

Additionally, mobile phone contents and applications are easily imitable, thus contributing to the problems of rampant copycats among the mobile data services and content providers. This makes it even more difficult for small companies, which typically have lack of resources, to sustain in the market. Having these limitations may hinder their business development, as their ideas once known by competitors could easily be developed further by competitors who possess more resources (Khairul Akmaliah *et al.*, 2009).

Suppliers In processing mobile payments, mobile content firms have two options: either to operate their own payment gateway systems or to outsource the service. A gateway system is an enabling technology that allows companies and enterprising individuals to accept payment by deducting customers' prepaid credits to charge customers' postpaid phone bills. The system, which is tied to the mobile telecommunications services providers' billing system, is expensive for small mobile content companies, with one system costs about USD50,000, thus operating it on their own may not be a viable option.

Small firms have to outsource payment processing to third party payment gateway providers and face profit margin issues, as for every transaction done between them and their customers, they have to pay certain portions of their profit to the providers. Thus, for companies with more resources and could operate their own payment gateway systems, their profitability structure would be better than those without. Moreover, the revenues of all mobile businesses that utilized the gateway system are to be shared with the mobile operators, who usually demanded up to 50% of the amount (Khairul Akmaliah *et al.*, 2009). This indirect control on their revenues by the oligopolistic mobile telecommunications

services providers, indicate that the mobile content businesses are operating under thin profit margins. This might be the reason behind these companies selling their products more expensively, as some of costs have to be transferred to the mobile phone users.

In any case, the oligopolized mobile telecommunications services providers have benefited the most by being infrastructure suppliers to the mobile content industry. They not only control the “air”, but also have a “cut” in every transaction that take place between their subscribers and the mobile content providers. There are already signs that these mobile telecommunications services providers are moving aggressively into the content markets and internally developing these contents or have satellite companies designing the contents for them (Chng, October 2005), indicative of the mobile telecommunications services providers becoming even more powerful players in the mobile phone markets.

Customers The majority of the targeted customers for these companies are high-end and young buyers. One reason for this is that the young customers are more likely to use their phone to play games, which are one of the popular mobile products. Another reason is because they are more attached to their phones and thus have the tendency to customize their phones, and would be more willing to spend money on their phones. They are also ‘early’ users, and thus are more likely to adopt new mobile phone applications offer by the companies.

However, given the undifferentiated mobile content products, and the availability of many competing products for their mobile phone dollars, customers have very high bargaining powers. Malaysian customers also were reported to have low depth of mobile phones usages, with usage mostly on voices and SMS communications, due partly to the expensiveness of access (advanced mobile sets are generally considered expensive for the mainstream public). Additionally, the unethical behavior of some mobile content providers in sending unsolicited ads messages while charging the customers for the messages, imposing on the customers difficult procedures during subscription termination, and charging customers for undelivered products, and the overall expensive prices of mobile contents could become major barriers to the rapid acceptance of mobile contents.

CONCLUSIONS AND IMPLICATIONS FOR MOBILE CONTENTS BUSINESS STRATEGIES

In summary, the rivalry among the mobile content businesses is high. However, the industry entry barrier is low, with nothing to stop others from entering the market, except for the need to operate the payment gateway systems, which require some capital investment; but with an outsourcing option for the companies. The

number of providers is more than what we reported here, as the study covered only online mobile content providers and excluded the offline providers.

The bargaining power of the suppliers, which are the mobile telecommunications service providers and other relevant technology providers within the industry, such as payment gateway technology firms, is also high. The mobile telecommunications services providers control the line access prices and charge the content providers a certain fee for each transaction done. Mobile phone subscribers (i.e., buyers) also have a substantial bargaining power as they are provided with many substitutes and choices. Moreover, mobile contents are not easily differentiated and their pricing is tied to the suppliers (especially the mobile telecommunications service providers), who make a 'cut' on each transaction performed between mobile content providers and their subscribers. While the other relevant technology providers, which include the payment gateway firms, have also exercise power on the mobile content firms, these providers are in turn being indirectly controlled by the mobile telecommunications service providers.

However, the business growth potential in terms of depth of contents usage is very high as the price of high-end mobile phones (the precondition for downloading rich contents), and their accesses continue to decrease because of the continuing price wars amongst the three oligopolized mobile telecommunications services providers and with the entry of one newcomer (U-Mobile). While the potential for growth in mobile contents is high, there are many indications that the mobile content and applications technology would, in future, converge with that of the internet and web technology. As the mobile devices become more sophisticated, the mobile phone subscribers would be able to automatically access and adapt to any contents of Internet websites.

With the increasing capacity of the lines bandwidth from the existing 3.5G, and the continuous reduction in the prices of internet access, mobile phone subscribers would be more enticed to use richer contents via their mobile phones. Moreover, once a full convergence of mobile and web technologies is achieved, the contents could be displayed by both media/devices, thus, reducing the need for businesses to reformat their contents or sites for PC-based and mobile-based devices. This interchangeability of mobile-web contents would also further reduce the costs of downloading files to the mobile devices. These trends lessen the need for mobile-only applications, and, eventually, would render them obsolete.

Integrating the Porter's competitive forces model to describe the industry context of mobile content firms, with the marketing mix (4P) concept to describe the characteristics of their product innovations, reveal important variables and linkages within, as well as between firms' innovations and industry contexts. The resulting framework of variables and linkages, which provide the basis for generating strategic propositions for the development of online mobile content firms as well as the overall industry, constitutes the main theoretical contribution of this study. The findings augment the current I/O perspectives of strategy and

further refine the conceptualization of mobile content innovations. The following are the specific theoretical implications:

A close relationship exists between the industry forces and the products/services innovations of the mobile content firms. Within this industry, the competitive forces, especially the bargaining power of the telecommunication infrastructure suppliers, shape the pricing of mobile contents products. This is because of the high prices charged by these suppliers to the online mobile content firms. These infrastructure suppliers control, not only the mobile telecommunication infrastructures that support, but also the business processes that are performed by, the mobile content firms. This in turn influences the type of targeted customers of the mobile content firms. Thus, the suppliers, as a group, have a significant effect on the online mobile content firms' profitability.

The bargaining power of the customers, on the other hand, are conditioned by the substitutes, as increasing choices of products that the customers have lead to an increase in their bargaining powers. The intra-industry rivalry, in contrast, is influenced by the barriers to entry, which is low for this industry. The rivalry is also affected by the types of the online mobile content firms' innovations, especially with the lack of differentiation among their offered products. With no differentiation, everyone sell the same thing and this leads to increase competition.

Of the four main elements of their product innovations, *price* is not a differentiating factor, as the targeted customers have high disposable incomes, are high-end mobile phone users and are emotionally attached to their mobile devices. *Promotion*, on the other hand, requires serious evaluation by the mobile content firms because they need to compete with substitutes (such as TV reality shows), which are able to advertise more effectively. Moreover, *placement (distribution)* of their products is a critical issue as quick response is important for this type of business. These firms also face technological distribution barriers in terms of incompatible infrastructure standards and their products' incompatibility with some of the mobile phones utilized by the customers. However, a future convergent between mobile and web media would make the current mobile technology utilized by the customers a less serious issue. Another distribution barrier is regulatory, which generally restricts cross border mobile content transmissions. Furthermore, *payment* is also a vital consideration as the selected payment system and charges must fit with the expectations of the customers. Managing customers' anxiety and demonstrating ethical conduct are important too. Also, the types and characteristics of *products* to be offered to the customers are important as most products sold within this industry could not be differentiated. This is a main issue as copycat behaviors are prevalent among the mobile content firms. Lastly, a mobile content product is a package, which includes payment and distribution system, which in turn are closely tied to the customer services provided. These services are rendered at all points of customer interactions with

the mobile content firms, including at the firms' website interface, and at the customers' mobile phone interface. Thus, the value of a mobile content product as a package is closely tied to the entire service experience of the customers.

Given such a business situation, the precondition to operating in the mobile content industry is to decide on the primary target markets (PTM). Once the decision is made, the types of products, payment systems, distribution systems, and customer services to be provided can be customized to meet the specific needs of the PTM (Feijóo, Maghiros, Abadie and Gómez-Barroso, 2009). The decision on the PTM must be made within the realm of a possible full mobile-web convergent. The PTM and its future developments, as well as the future technological trends must be used as references for the management decisions on strategies to build brands, select payment mechanisms, design customer interfaces, and devise overall customer services blueprint (Venkatesh, Ramesh and Massey, 2003).

Staying clear from unethical and illegal conduct altogether is required. While transforming their existing win-lose relationship with the mobile telecommunication services providers into a win-win relationship are needed to promote the business growth of mobile content firms. As the Malaysian mobile phone subscription market is reaching saturation, rapid development of mobile contents industry becomes a precondition for the mobile phone industry to develop further. This makes mobile contents ever more important as a new source of revenue growth for the mobile telecommunications services providers. With the impending mobile-web convergent and the lack of control of mobile telecommunications services providers on competing Internet "lines" (which has experienced rapid technological and acceptance growth), implementing a system which enable transactions that benefitted all (the users, the mobile telecommunications services providers and the mobile content firms) in the value chain, should be a top priority among business leaders and policy makers alike (Ratliff, 2002).

Such a transaction system requires the mobile telecommunications services providers to evolve into platforms. While they could continue selling their own contents, they could also function as platforms that host more efficient exchanges between the mobile content providers or any other services providers with their mobile phone subscribers (Eisenmann and Hagiú, 2007; Eisenmann, Parker and Van Alstyne, 2006). This platform implementation requires the mobile telecommunications service providers to closely collaborate with and gaining the trust of mobile contents firms, mobile hardware manufacturers, as well as other relevant service providers. These will help all of them to sell their products and make profits together (Gawer and Cusumano, 2008; Hagiú and Eisenmann, 2007). Failing to take actions now could result in the failure of not only the mobile content business, but also could hinder the overall development of the mobile telecommunications industry in Malaysia.

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