Mobile TV phone: 
current usage, issues, 
and strategic implications

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Abstract

Purpose – The purpose of this paper is to examine the status of current mobile TV phone usage and 
discuss the issues for strategic implications for the communications and mobile TV industry.

Design/methodology/approach – Real tracking data, collected from server’s logs during 2006 and 
2007 from South Korean satellite DMB providers, were analyzed according to users’ age group, peak 
viewing time of programs, location usage and program duration. Further analysis with the previous 
literature led to inferences about strategic implications.

Findings – The analysis revealed the current mobile TV usage patterns: widespread user age group, 
peak viewing time, high indoor usage and longer viewing time. These results shaped strategic 
implications, furthering and enhancing a personalized media experience.

Research limitations/implications – The data set, collected from the subscription-based satellite 
DMB usage in South Korea, is well recognized as being a technological frontier. Further cultural 
comparison research work on mobile TV usage is required to validate the strategic implications for a 
widener cross cultural adoption.

Practical implications – This research benefits the strategic planning of the mobile 
communications and entertainment content industries in decision-making regarding the 
improvement of hands-on experience for mobile TV users.

Originality/value – The findings, based on the mobile TV real tracking data, collected in South 
Korea for over two years contrast to that of other countries, which only begin to experience the roll-out 
of a full commercial service. Consequently, the data presented here highlights an important role in 
understanding and shaping of the mobile TV phone market for other parts of the world.

Keywords Mobile communication systems, South Korea

Paper type Research paper

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1. Introduction

The convergence between broadcasting and telecommunication has led the mobile phones through a reconstructive process into digital TV receivers; the end-users, in turn, are able to access, acquire and store video streams and real-time delivery over mobile telephone networks, meeting his or her own spatial and temporal requirements. The mobile operators have been forging ahead with their respective wireless standards, having successfully completed the experimental period, with additional TV and video content offerings. The significant contribution of mobile TV has gained momentum, embodied by researchers in relevant areas, mostly from the fields of telecommunication, information systems, multimedia, and management (Rappaport et al., 2002).

The rapidly evolving technological developments have affected the nature of mobile phone and TV, as the TV is no longer a set of pushed schedule of programs; instead, viewers select channels at his or her own discretion. The mobile phone has transcended from a simple technological object into a functioning “Swiss army knife” of media devices, supplying different technological functions for specific phone-based capabilities, ranging from internet access, MP3 player, SMS, camera, video to email, all of which fuels the consumers’ demand for immediacy and connectivity. This has been further encouraged by Web 2.0 led mobile phone usage, i.e. accessing blogs and downloading UGC (ENTER and IDATE, 2008). This has led to the advancement of a ubiquitous social paradigm, which includes the developmental stages of wireless applications support, such as RFID, IPTV and WiBro. The diversification and ubiquity of mobile TV phone services are being adapted to cater to the consumer’s needs and their ever-changing media-consuming habits. Consequently, diversification fuels personalization as the market becomes more sophisticated, seeking greater interactivity. The emerging innovative services to consumers offer personalized and time-shifted content of high-value (European Commission, 2007a; Priporas and Mylona, 2008), creating new markets and business models to the broadcasting and telecommunication industries.

Despite such high expectations on the future market performance and growing uptake of the mobile TV phone, there is a lack of available data on user behavior (Bria et al., 2007) to enhance user experience and help design a market specific business model, with one approach being to integrate services, applications and devices while the other approach involves open networks and standard interfaces. These issues taken together with the political and economic debates on selecting mobile TV phone standard over the last few years confirm the importance of gathering and analyzing data based on the actual usage for market assessment and evaluation. The earlier research studies on mobile TV phone market would tend to agree on factors affecting mobile phone content, which included short clips of content, mobile content viewed outside of home whilst commuting; additionally, there was agreement regarding the younger generation as a specifically targeted user group. However, this previous conception of mobile TV phone usage is beginning to be challenged as the number of users grows with various emerging user patterns.

It will benefit all the supporting participators, from the mobile operators to the mobile content producers, content aggregators and publishers, mobile digital video network operators, advertisers, handset manufacturers, and broadcasters, to take a stance in approaching the mobile TV service by meeting the technical challenges, and also view it as a new opportunity of a cutting-edge device rather than viewing it as merely a small screen on a device. It is important for end-users and particularly,
advertisers and service providers, to understand the mobile TV phone user patterns especially in an era with a decline in conventional TV viewing (OFCOM, 2006). The authors envisage the importance of using data and feedback regarding mobile user to derive knowledge about end-user behavior, but also to portray to the industry the importance of building its own unique comprehensive content format rather than just re-broadcasting TV services. Using collected real tracking data from server’s logs, provided by South Korean’s satellite DMB providers, during 2006 and 2007, this primary data set was collated and analyzed by: user age group, the peak viewing time of programs, location usage and program duration. The purpose of this paper is to review current status of mobile TV phones and explore four major end-user-related patterns to discuss their strategic implications.

2. Current status of mobile TV phone
There are uncertainties about the mass marketability of mobile TV phone and whether the business model is viable and prevalent. This has been confirmed by British Telecom’s (BT) recent decision, following the completion of a pilot study with 1,000 mobile phone users, to cease the mobile TV phone service launched in September 2006 using DAB-IP standard in the UK. The strategic change decision was based on the cumulative factors that included: poor handsets sales due to a lack of compatible devices found in the marketplace, governments’ support of various mobile technologies to help facilitate deployment, such as the European Commission’s decision to support the alternative DVB-H standard and the Chinese government’s sponsorship of China Mobile Multimedia Broadcasting. BT explains that the lack of compatibility has been caused by “the fragmented nature of the mobile TV market together with some hesitancy on the part of the main network operators as they seek to fill their own largely under-utilized 3G networks” (Cited by ZDNet, 2007). The case of BT’s mobile TV phone service offers a snapshot of the current mobile TV phone market and substantiates the need of a rigorous analysis for a successful future adoption. The next sections give a brief overview of the current status of mobile TV phone by looking at firstly, the three main mobile TV standards; secondly, their adoption status; and finally, the policies implemented in an attempt to place each of these main mobile TV standards as a market leader.

2.1 Three main mobile TV standards
There are three major mobile TV standards, including digital video broadcasting-handheld (DVB-H), digital multimedia broadcasting (DMB), and MediaFLO (Forward Link Only). DVB-H is an open, non-proprietary standard for the transmission of broadcast content to handheld devices, developed by the international digital video broadcasting (DVB) Project (www.dvb-h.org). It is based on the DVB-terrestrial (DVB-T) standard for digital terrestrial television yet tailored to meet specific requirements such as small, lightweight, portable and battery-powered devices. DVB-H offers a down-stream channel at a high data-rate of several mega bytes per seconds, facilitating audio and video streaming applications.

The history of DMB began with the USA and European countries’ development of the DAB services during the mid-1990s. DMB naturally evolved from digital audio broadcasting (DAB), which is based on the Eureka 147 DAB radio standard. The DMB mobile phone users receive content and programs through satellites, towers, or “gap-fillers” to ensure there are no reception problems, even in underground subways. Since T-DMB
uses a lower frequency, the cost of T-DMB has been one-tenth that of S-DMB. The number of service channels offered also differs. In South Korea, S-DMB has an advantage in offering more channels (11 videos, 25 audios, and 3 data service channels) than T-DMB which offers 7 videos, 13 audios, and 8 data service channels (Shim et al., 2007).

MediaFLO is Qualcomm’s technology to broadcast to portable devices. The FLO, an acronym for Forward Link Only, is named after a data transmission path, which is one-way from the tower to the device. The MediaFLO system transmits data on a frequency separate from the frequencies used by current cellular network. Its strength lies in the delivery of faster channel switching times and is the new promise for an improved cellular television device.

2.2 Current adoption status
There are at least seven countries offering full service using DVB-H: Albania, Finland, Italy, Spain, the UK, the USA, and Vietnam, even though some services are limited to only a number of cities within the countries. For example, Albania who launched its mobile TV service in December 2006, as of August 2007 covers 65 percent of the country using a Free to Air business model (www.dvb-h.org). The world’s first commercial launch of DVB-H was in Italy in June 2006. During the first six weeks of operation, it was reported that there were 111,000 customers who signed up for the service (Sylvers, 2007). Such a large uptake was an unexpected surprise for the “3 Italia”, the mobile network operator. However, there was such a slowdown of uptake in 2007 that the Italian mobile TV phone industry needed to undertake a shift in emphasis from the technical investment to content and formats (ENTER and IDATE, 2008). Despite the 1 percent of the population enrolled for mobile TV, Italy remains as the EU’s most advanced mobile TV market. This is in contrast to South Korea, where the market has captured 10 percent of population (European Commission, 2007b).

S-DMB was launched in May 2005, followed by T-DMB during December 2005 in South Korea. Despite the apparent differences regarding contents provided and a business model used they are in a cross-competitive market in South Korea (Korean Broadcasting Commission, 2007). Introduced onto the scene as the world’s first mobile phones with ability to receive satellite or terrestrial television signals, DMB cellular phones have encountered widespread user acceptance (Shim et al., 2006). While Japan currently provides S-DMB services designed for in-automobile devices, Korea is the only country to provide a full-blown satellite and terrestrial DMB services on cellular phones while in motion (including in-automobile terminals). In South Korea, the competition is between the only S-DMB operator (TU Media) versus the T-DMB industry association (six T-DMB operators) with its 1.3 and 9 million subscribers, respectively, as of February 2008 (RAPA, 2008). There are three main reasons for such difference in number of users between S-DMB and T-DMB. Firstly, S-DMB is based on a subscription fee while T-DMB is based on advertisement sponsorship. Secondly, T-DMB has the ability to broadcast the same popular programs from the terrestrial TVs and finally, unlike S-DMB, T-DMB can be viewed on TV screens (GPS) in cars (ENTER and IDATE, 2008). A DMB usage survey study (Korean Broadcasting Commission, 2007) indicated that in order to increase the market size of S-DMB, service providers would benefit best by increasing user awareness of full benefits with real-time terrestrial TV programs, reduced subscription fees and DMB-specific content, while for T-DMB, the need is to search for new revenue streams other than relying upon advertisements.
Verizon Wireless, the second-largest US wireless operator, launched the country’s first commercial mobile television service in 20 states using the FLO technology (Carew, 2007). It has invested over $44 billion since 2000 to enhance its network to provide services including VCAST Mobile TV (Verizon Wireless Press Release, 2008). In May 2008, AT&T selected MediaFLO as choice for Mobile Entertainment Services in the USA, with the expectation of services available to customers. Currently, MediaFLO service operates in over 50 markets across the USA. BSkyB, a NewsCorp entity, successfully completed a second trial of MediaFLO in the UK (Qualcomm Press Release, 2007). Japan’s KDDI Corporation supports MediaFLO technology and formed a joint-venture planning company with Qualcomm MediaFLO Japan (OCDE, 2007). The service also collaborates with content providers to deliver video and audio content to mobile devices.

2.3 Policies of mobile TV phone
With the aim to create a pan-European mobile TV market, the European Commission has decided to adopt a “light touch regulatory approach”, as a way to coordinate the member states’ use of spectrum and interoperability among different standards and consumer devices. In 2007, the EC announced its support for DVB-H as the common European standard and urged the 27 member states to adopt it (European Commission, 2007b). Due to such political pressure, some predict that DVB-H technology will lead the mobile TV phone market (Centonza et al., 2007). However, unlike other European countries, Germany is offering full services based on the DMB standard and Italy has been implementing DMB trials (TNO-ICT, 2007). Industry leaders, including Samsung, support both DVB-H and DMB technology whereas Sony Ericsson and Nokia announced a co-operation agreement to promote DVB-H at the 3GSM Congress in Barcelona (Sandham, 2006).

The South Korean Government, in collaboration with the leading broadcasting and telecommunication industries, has effectively implemented policies and strategies that have played a key role in driving and achieving the current DMB standard for the mobile TV market in South Korea. T-DMB was developed by Electronics and Telecommunications Research Institute (ETRI), a Korean Government Research Agency, with the cooperation of Samsung and LG, two major cellular handset manufacturers. It has received substantial political and financial support from the Korean government, whose plan is to have T-DMB thrive in the domestic market and from thereon, expand the service worldwide. MKE (The Ministry of Knowledge Economy formerly known as The Ministry of Information and Communication) has been chosen to regulate the price of T-DMB service to increase its service subscriptions with hopes of raising its profile and making it more attractive for export.

While DVB-H standard is supported by Europe and industry leaders mentioned, MediaFLO is favored by the USA in particular and supported by companies such as Kyocera, LG and Sanyo. Meanwhile, the mobile TV carriers in China are considering the options of forging ahead and implementing their own mobile TV standard, Satellite Terrestrial Interactive Multi-service Infrastructure (STIMI) alongside DMB. The Japanese ISDB-T standard based service was launched in April 2006 to provide digital terrestrial television broadcasting to mobile handsets (OCDE, 2007). The current standardization issue is expected to continue while it has been suggested that the standardization issue could be eased with the development of multimode handsets (Sandham, 2006). The industry is expected to face fiercer competition over the next few years, having political
organizations and national and global industry leaders start announcing their support for certain technology.

3. Mobile TV phone usage patterns

The current nascent nature of mobile TV phone market is reflected in the fragmented technological capabilities, the adoption status and policies differences. Consequently, it is crucial for the market players, especially the advertisers, content providers and service providers to have an up-to-date consumer behavior data as well as a market assessment and evaluation in order to allow strategists to make decisions that will increase in number of subscribers, maximum user experience, and consequently a profit.

The real tracking data analysis was conducted during 2006 (about 1.02 million subscribers) by TU Media with basis of analyzing subscribers’ real viewing and usage patterns. The analysis was carried out again during 2007 (about 1.27 million subscribers) to assess any significant difference in subscribers’ real viewing and usage pattern. As shown in Table I, the number of subscribers has increased significantly since the launch of first satellite-based DMB services. It also shows consistent trend in the demographic information on gender, age group, and daily usage of DMB subscribers throughout 2006 and 2007. Figure 1 shows the subscriber’s average usage time (63.9 min), usage situation, and channel usage, based on user age group, the peak viewing time of program, location usage, and program duration.

3.1 User age group

Past research (Shim, 2005) revealed that young consumers (those in teens and twenties) were frequent users, given the reputation as trendsetters in adopting the newest release

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscribers</td>
<td>370</td>
<td>1,020</td>
<td>1,270</td>
<td>1,320</td>
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</table>

2006

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage</th>
<th>Gender</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>65</td>
<td>Male</td>
<td>63</td>
</tr>
<tr>
<td>Female</td>
<td>35</td>
<td>Female</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Percentage</th>
<th>Age</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 19</td>
<td>10</td>
<td>Under 19</td>
<td>12</td>
</tr>
<tr>
<td>20 ~ 29</td>
<td>34</td>
<td>20 ~ 29</td>
<td>32</td>
</tr>
<tr>
<td>30 ~ 39</td>
<td>28</td>
<td>30 ~ 39</td>
<td>27</td>
</tr>
<tr>
<td>Over 40</td>
<td>28</td>
<td>Over 40</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Daily usage</th>
<th>Percentage</th>
<th>Age</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 30 min</td>
<td>41.4</td>
<td>Under 30 min</td>
<td>42.9</td>
</tr>
<tr>
<td>30 ~ 60 min</td>
<td>28.4</td>
<td>30 ~ 60 min</td>
<td>25.0</td>
</tr>
<tr>
<td>Over 60 min</td>
<td>30.2</td>
<td>Over 60 min</td>
<td>32.1</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Table I.

Demographic information on gender, age, and daily usage

Note: *as of March 2008

Source: TU Media (2008)
Figure 1.
Breakdown analysis based on the real tracking data

Average Usage
63.9 minutes

Usage Situation
- Rest time during daily routine: 31.3%
- In movement (except commute): 19.2%
- On the way back home: 17.7%
- On the way to office/school: 15.9%
- Free time after daily routine: 14.7%

Channel Usage
- Video channels: 71%
- Audio channels: 29%

User Age
- 13: 5%
- 13-18: 9%
- 19-24: 25%
- 25-30: 20%
- 31-35: 15%
- 36-40: 10%
- 41-45: 5%
- 46-50: 0%
- Over 50: 15.9%

Program Duration
<table>
<thead>
<tr>
<th>Time</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>10s</td>
<td>Video channels</td>
<td>Music</td>
</tr>
<tr>
<td>20s</td>
<td>Audio channels</td>
<td>Movies</td>
</tr>
<tr>
<td>30s</td>
<td></td>
<td>Blue (MLB)</td>
</tr>
<tr>
<td>40s</td>
<td></td>
<td>Economic Info</td>
</tr>
<tr>
<td>Over 50</td>
<td></td>
<td>Soap Opera</td>
</tr>
</tbody>
</table>

Source: TU Media (2008)
of cellular phones as status symbols. Thus, the authors assumed that the younger generation (from teens to twenties) would be the core target group in comprising the fastest growing adopters of mobile TV phone. However, by tracking the data on users’ real viewing time, the numbers demonstrated that all age groups were potential users for mobile TV phone services. All age groups, especially the young consumers, have been increasingly demanding more interactive and personal experiences, dictating the TV viewing experience away from the traditional form. Its attraction in encompassing wider spectrum of age groups can be supported by a wider price range of mobile TV handsets, from the lower price-based handsets (US $100 or less) to higher-priced handsets (US $500 or higher) catered to different user groups. The widespread usage of mobile TV phone across age groups can be explained by immediacy capability in that it provides time-sensitive information. With that said, those in their 20 and 30s, the age groups have become more frequent users than expected. This is supported by Orgad (2006) who found that this age group was much more familiar with the usage of mobile applications.

3.2 The peak viewing time of programs
Compared with a regular TV’s primetime viewing time, the tracking data on users’ real viewing time show no discrepancy in prime/peak viewing times for mobile TV phone viewers. Originally, the challenge for the mobile TV phone companies was to gain market acceptance, as it was thought that the miniaturized size of cell phone screens might lead to an unsatisfactory user experience. The perception was that these diminutive screens were unappealing to users whose preference leaned towards the traditional media experience of home cinema, equipped with a big screen and surround sound system. Consequently, it was assumed that people would see the mobile TV phone as a trade-off, despite the small screen, for the content to fill-in the “dead times” (i.e. commuting time), filling the idle time with news and entertainment. Based on the results from the mobile TV phone trials in the UK, Spain and France, Orgad (2006) analyzed that the heaviest usage was between 6.00 p.m. and 8.00 p.m. in the evening and the second largest slot was between 6.00 a.m. and 9.00 a.m. in the morning. Consequently, it was expected that mobile TV phone usage to produce clear prime/peak viewing times, heavily concentrated during the commuting time. Even though the data confirmed the heaviest usage slot, identified by Orgad, the usage level was consistent throughout the day and only reached a slight peak at between 6.00 p.m. and 8.00 p.m. The usage was not restricted to just the traveling times. This helps to explain firstly, that there is a wider user age base and secondly, the size of the screen is not necessarily a primary deciding factor for the adoption of mobile TV phone as users are basing their decision on functionality and content.

3.3 Location usage
Outdoor areas (e.g. areas outside of home base) were originally assumed to be the sole locations where users would watch mobile TV phone. Therefore, as an attempt to attract more mobile TV phone viewers in the USA, some TV programs were rescheduled to be shown during the heaviest mobile TV phone viewing times (Carew, 2007). However, the real tracking data on users’ real viewing time showed that viewers watch not only outdoors but also indoors (e.g. inside home, office, shopping malls). Thirty-five percent of users watch the mobile TV during the commute or on the road,
and the remaining 65 percent of users watch at home, or at working area (company or school), and indoor space. This finding has a significant connection with one of the findings from a O2’s (a mobile service provider) mobile TV trial in the UK. The trial with 375 volunteers in the Oxford area showed that a surprising number of people used the mobile TV service at home (36 percent), at work or university (23 percent) and while on the move (28 percent) (BBC, 2006). The pilot study by BT and Virgin Mobile in 2005 in the UK found that 50 percent of the users regularly watched mobile TV in their home (Vnunet.com, 2006). This can be partly explained by BT Movio managing direct (Vnunet.com, 2006) and confirmed by Orgad (2006) that the main television may be occupied by other members of the household; moreover, users look for channels that are not offered by the traditional television; and finally, people use it to relax before going to sleep.

3.4 Program duration
Several carriers in the USA now offer short program contents in partnership, albeit limited services (e.g. Verizon Wireless’s VCast Services, Sprint PCS Services, Cingular/AT&T Video, NBC and MobiTV Partnership). It was commonly understood and agreed that the content and format of television required change to become “snackable” (Orgad, 2006) based on the belief that users preferred their mobile TV phone viewing time to be short with options to view “short snappy video clips” (BBC, 2007). However, MediaFLO has identified four major contents in which users had a predilection for longer viewing times: sports games, entertainment, news, and children’s programming (Qualcomm, 2007). All networks have been working to provide exclusive viewings, including exclusive concerts, sporting events, and even full-length movies. This pattern of programming provision concurs with recent tracking data statistics on S-DMB usage. A recent DMB usage survey study (Korean Broadcasting Commission, 2007) reported that both S-DMB and T-DMB users spent about 62 min per day on average watching mobile TV with a slight drop-off during weekends. S-DMB users preferred programs in order of: live programs the most, followed by DMB-specific programs, and favoring least, the condensed terrestrial programs. It is the combination of content as well as the content engagement time that determines the viewing duration, which can explain the high indoor usage of mobile TV, especially as mobile TV is used at home even while traveling or commuting.

4. The strategic implications
Analyzing and building a set of generalization of the user patterns and relationships from the real tracking data presented here could help the mobile TV phone industry for its strategy development. The launch of the mobile TV phones has survived barriers to initial launch, including consumer resistance, perceived high cost, concerns about limited wireless connection, uncertainty about real benefits, concerns of programming options, and no scalable distribution channel. However, as the challenges have reshaped the temporal and spatial dimension catered to the individual users, offering timely information and entertainment, the inherent issues such as low picture quality, miniature screen size and low battery life have been overcome by its mobility, flexibility and connectivity.

The authors found that the mobile TV phone was used across the age groups and watched throughout the day. It is clearly emerging as a key driver as well as a tool for personalization, which is considered to be one of the key marketing aspects to
“further develop customer relationships and heighten brand management” (Agarwal and Sambamurthy, 2002). Personalization affects the business concerns of consumer trends in media usage (Fan and Poole, 2006). In the report by ENTER and IDATE (2008), it argues that while it is important to take advantage of the business opportunity, for example, in the international sports games such as Euro 2008 and the Olympics, “designing an appropriate bouquet of TV content, including ad hoc created formats and personalized service” is vital for a long-term consolidation. This is supported by a research by Motorola (Saleh, 2008). Through which its full benefits can be recognized by users and the advertising industry.

Encouraged by a high level of business attention given to an understanding of the customer (Ridgman, 1996), diminishing trade-off between meeting the needs of a mass market and individual customer and a noticeable importance of mobile marketing which focuses upon creating a personal, contextual and location-based communications and interactions between brand and consumer (Sultan and Rohn, 2005), mobile TV phone has been recognized to have a potential to become a mass-market proposition in the future (Morrish, 2007). The authors extend this position arguing that mobile TV phone is such a technology that provides distinctive strategic positioning to businesses due to its multifaceted business aspects and given the rapid adoption of online video content, the opportunities for this medium is enormous.

It is our contention that it is critical to understand the user patterns and their implications in order to develop effective business strategies as the mobile TV phone business becomes intertwined into a web of business relationships beyond their core activities. Thus, the consumer’s perspectives should be assessed to achieve competitive advantage (Porter, 2001) prior to adopting a business model (Morrish, 2007). The successful mobile TV business requires an effective strategy based on the understanding of the consumer to assist in the choice, modification and enhancement of a business model as well as the successful adoption of the chosen model, overseen by the managers who understand fast technological changes driven business environment (Bahouth, 1994). As several researchers pointed out, “niche”, “generic differentiation” and “blue ocean” strategies should be considered for creating “new” and “uncontested” contents to meet users’ expectations and needs, in addition to business model to lower the cost (Wiseman, 1988; Porter, 2001; Kim and Mauborgne, 2004).

There are three core business perspectives: the wholesale driven model, the wireless operator driven model, and the broadcaster driven model. For the business, each model has a unique perspective towards the interrelationships between different players in mobile TV industry. The “wholesale driven model” is where the broadcast network operator buys the content from the broadcaster and has a revenue sharing agreement with the wireless operator who manages the sales to consumer. The partnership of technology company Qualcomm, developer the MediaFLO technology, and wireless operator Crown Castle International is an example of this model using DVB-H technology. This business plan is investing millions of dollars in the building new mobile networks and partner with existing carriers (Reardon, 2006). In these cases, the technology developer and the wireless operator are becoming the mobile network operators to adopt the wholesale driven model. The wholesale business model was also adopted by Mobiles Fernsehen Deutschland (MFD) in Germany and BT Movio in the UK (TNO-ICT, 2007). The second model is the “wireless operator driven model” where wireless operator acquires broadcast network capacity and the content to sell the
service to the consumers, e.g. network operator 3 Italia (TNO-ICT, 2007). The third model being the “broadcaster driven model” is where the broadcaster acquires broadcast network capacity and sells the service to the consumer. In this model, the wireless operator can be subcontracted to manage customers. For example, BSkyB made a deal with Qualcomm to conduct a trial in the UK rather than only supplying its content to mobile distribution.

As the mobile TV phone market becomes much more competitive and lucrative, the market can expect to see much dynamic, competitive or revenue sharing collaborative business models to emerge where the distinctions between the wholesale, the wireless operator and the broadcaster will be no longer clear. For example, in late 2006, mobile content distributor Aspiro acquired mobile TV, video and radio solutions supplier Rubberduck (Aspiro Press Release, 2006) and in early 2007, the media company IMG acquired Nunet AG, a mobile media solutions provider (IMG Press Release, 2007).

However, these three business perspectives provide the base to discuss the strategic implications of the findings in this paper. The findings of this paper offer three strategic implications. Firstly, content of mobile could be varied to attract broad age groups as the analysis showed that mobile TV has a wider user age basis. Using mobile TV indoors, especially usage at home, suggests that the users are capable of viewing for a long periods, possibly as a substitute for the home television. The offer of access to diverse programs and contents including niche market contents is needed to facilitate individualistic personalized television viewing patterns. Survey study on DMB usage (Korean Broadcasting Commission, 2007) showed that non-terrestrial channels such as “1to1” and “U1” were popular especially among the 20s, showing a strong appetite for new and creative content.

Secondly, it needs to promote the mobile TV phone to the wider general public and demonstrate effectively how and why it is cost effective for being either entertained or being in touch with timely programs, highlighting the temporal and spatial flexibility and access to the rich content since the analysis showed that it is its technological merits and contents that attract the users. Thirdly, consumers require diversified and integrated applications in their mobile TV device. The business concern should not only be on finding a “right” mobile content but also technical advancement that a wide range of applications can seamlessly operate.

It has been widely acknowledged that mobile TV market has been led by the business rather than the consumer. This suggests that there is a great deal of a need of understanding users for the mobile TV phone. The categorizing of user pattern helps to have an insight into the consumer’s perspectives, especially when the mobile TV phone market is expected to have 140 million global subscribers generating revenue of £3.1 billion by 2011, ahead of gaming and music industries (Screendigest Press Release, 2007).

5. Conclusion
It is difficult to predict the future of the mobile TV industry, given the accelerating pace and rate of the political and technological change. However, the continued technological development and expansion of mobile TV phone market over the next few years will further mirror consumers’ desires in wanting both communications and entertainment – all in one device. The analyzed usage trends and their strategic implications here will benefit managers and decision makers as they seek ways of benefiting users with improved mobile TV phone user experience and new revenue generating service opportunities. Successful solutions will emerge from facilitating the
consumers’ desires and demands to watch the same real-time programming on their handset as on the physical TV set, for example, major sports events, merging the combination of comfort and familiarity of TV with the interactivity, mobility and immediacy of mobile phones.

Globally, as the telecommunication and multi-media service industries focus on the marketing opportunities, the mobile TV phone will become increasing important as value-added service. Providing the packaged network services with the broadcasters on the mobile TV phone, the incremental revenue streams will be generated from offering premium content to targeted advertising in addition to increased SMS and data services. Its market success is largely dependent on the content and the content delivery hence, service providers should continue to develop targeted content to the different generations to meet with users’ preferences and expectations.

The authors hope this research will benefit the future of mobile TV phone industry, as greater understanding is needed for both incoming users and industries to meet the increased demand for mobile services and applications and competition for mobile accessibility. The authors believe that this research should be continued to solidify findings from the real tracking data (which will be collected) from terrestrial DMB, DVB-H, and MediaFLO providers. This will further help to understand usage patterns and in conducting a comparison studies between countries. Especially, the current stage of adopting and enabling mobile TV phone services in Korea, Japan, Italy, and the USA is a great barometer for other countries to follow.

References


**Further reading**


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