IDC
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WHITE PAPER

Assessing the Mobile DTV Opportunity and Its Role in the United States' Communications Ecosystem

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IDC OPINION

Mobile DTV is a cultural and technical extension of digital over-the-air (OTA) broadcasting and is an efficient technology to deliver hugely popular live content. But more than this, Mobile DTV allows consumers to also receive localized channels, programming, and advertising, as well as highly relevant local and national news, emergency information, weather, and other alerts. More portable devices are coming to market that make use of broadband technologies and Mobile DTV is a complement to a mobile broadband solution for many types of consumer products.

IDC believes that ad-supported free over-the-air (OTA) Mobile DTV will be a popular business model and deliver a level of access to video services that will play an important role in educating the market and evangelizing Mobile DTV services. From this starting point, premium services will be added (via broadcasters' spectrum, and potentially Mobile DTV can be coupled with other subscription services) to drive further monetization. Examples of broadcaster' options to monetize mobile video include subscription services to premium channels, subscription or a la carte access to other media, information services, or catch-up TV services, localized and targeted advertising, and even more possibilities when a Mobile DTV device is paired with a two-way communications technology that provides a return channel, such as on-demand services and commerce.

Mobile DTV is a complement to other communications technologies. For consumers, it complements both time-shifted content and their home TV sets. We see inclusion of Mobile DTV receivers in devices ranging from netbooks and portable DVD players to in-car entertainment and navigation devices before broad inclusion in mobile phones. It's a technology that allows OEMs to add value to existing and new device categories. It allows carriers and service providers to offer popular, live, and/or local programming without burdening their networks and complements their network-delivered services and capabilities.

METHODOLOGY

IDC integrated research from across the consumer research team (including surveys, forecasts, other related insights), interviews done specifically for this white paper, and secondary sources, including information in the public domain and a separate but related study the Open Mobile Video Coalition (OMVC) conducted with Frank N. Magid Associates Inc. Much of the primary research cited in this study comes from several IDC online consumer surveys conducted over the past 24 months for

Sponsored by: Open Mobile Video Coalition

IDC's syndicated services (more detailed methodologies are available upon request). Numerous forecasts are also available through IDC's syndicated research services that include data on the personal computing (PC), consumer electronics (CE), and mobile devices that contributed to the study and assess the potential market size for Mobile DTV. Additionally, IDC also conducted a number of interviews with key stakeholders across the ecosystem, including silicon makers and other intellectual property owners, original equipment manufacturers (OEMs of PCs, CEs, mobile phones), broadcasters, broadcasting equipment companies, carriers, and other related service providers, specifically for this research.

IN THIS WHITE PAPER

This IDC white paper analyzes the market opportunity for Mobile DTV in the United States. This paper focuses on ATSC Mobile DTV, previously referred to as ATSC M/H (and not carrier-based premium solutions, such as FLO TV). This broadcast technology uses part of the existing 6MHz channel ATSC spectrum U.S. broadcasters have and is carried in the current 8-VSB signal emission creating a signal mobile devices can receive. This document assesses market demand for mobile video services and specifically mobile broadcast TV and examines the opportunities for the broader ecosystem that would participate in the rollout, adoption, and use of this service.

This white paper represents IDC's independent analysis and opinion about the market development of Mobile DTV and its position in the mobile entertainment and communications markets.

SITUATION OVERVIEW

Since the first commercial analog TV broadcast station went on-the-air and came into our homes in 1939, TV has transformed media, culture, business, and Americans' lives profoundly. This medium has been a critical force in developing news and information services, alerting citizens to critical and emergency information, driving a deeper love of sport, and entertaining nearly all of us. It's part of the fabric of our culture and a critical technology keeping us informed and connected to what's going on around us.

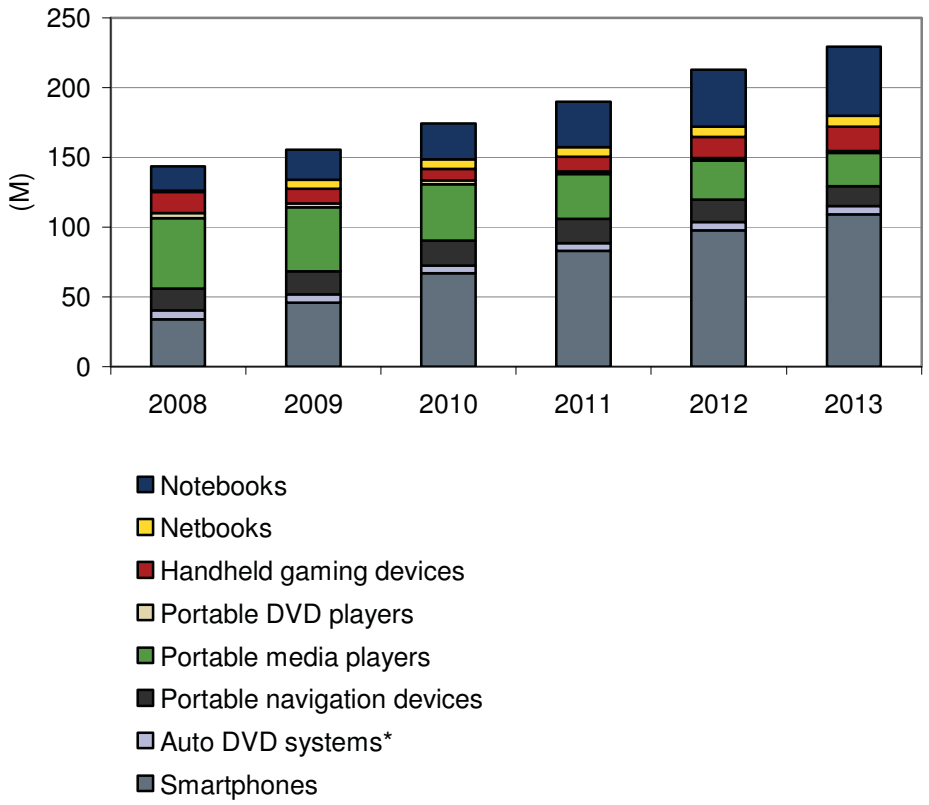
Broadcast television continues to deliver not just entertainment but also critical news and information to the American public. From national events like presidential debates to national and local crises such as natural disasters and hyper-local information about schools, politics, and events, broadcast TV has been critical to delivering massive amounts of live and continuous information to Americans. Furthermore, carriage of local stations by pay TV providers has added value to these services by empowering pay TV systems with national and local programming from many hundreds of broadcast stations.

Mobile DTV has the potential to extend viewers of broadcast TV by tens of millions of Americans with the advent of mobile ATSC transmission. Consumers that do not currently receive broadcast TV would have a new reason to tune into broadcast TV on their mobile device(s). Mobile consumer electronics are a diverse group of

products — portable computers, in-car infotainment/entertainment systems, media players, navigation devices, mobile phones — and most of these devices can deliver additional value to customers by integrating Mobile DTV. Shipments for all of these products reached 156 million units in 2009 and are forecast to grow to 230 million units in 2013 — and this doesn't include new device categories that have yet to ship, like Internet tablet–type devices See Figure 1. This represents annual revenue of $59 billion in 2009 on portable device expenditures, as shown in Figure 2 (note that Figure 2 excludes smartphone revenue; in 2009, this represented $23 billion on top of the $36 billion in portable electronics shown).

FIGURE 1

Mobile Consumer Device Shipments in the United States

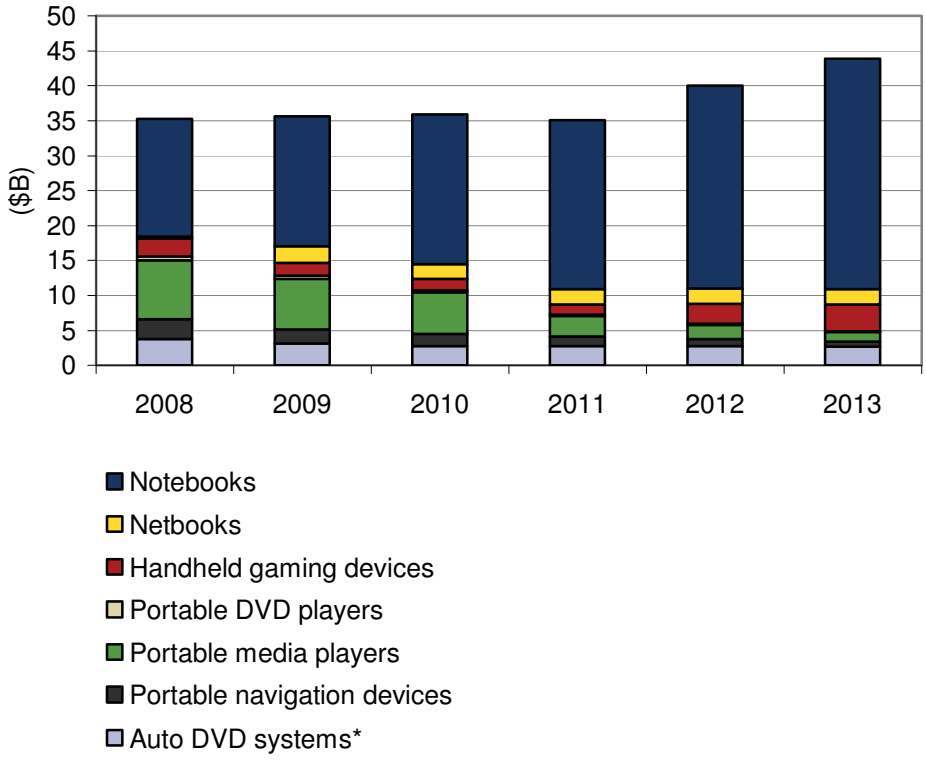


Note: *Includes factory and dealer installs and aftermarket solutions.

Source: IDC, 2010

FIGURE 2

U.S. Portable Consumer Device Forecast, Annual Consumer Spend



Notes:

*Includes factory and dealer installs and aftermarket solutions.

**Smartphone revenue is *excluded*. IDC publishes only actual revenue, not forecast revenue. 2009 U.S. smartphone revenue is estimated at $23 billion.

Source: IDC, 2010

According to Nielsen, 97% of the top 100 broadcasts of the 2008/2009 season originated from broadcast networks — not cable networks. Meanwhile, the majority of Americans get their news primarily from their local TV broadcaster(s). According to a Gallup poll in December 2008, local TV news was by far the most popular source of news — with more than 1 out of 2 Americans reporting that they tuned into local news broadcasts daily — beating out every other media by at least 11 points or more. A March 2010 study by the Pew Research Center's Project for Excellence in Journalism found that that on a typical day, 78% of Americans surveyed get their news from a local TV station, representing the most popular news source chosen by respondents.

Mobile Video Today

When looking across the mobile video/TV market, we see that consumers have shown a strong appetite for portable video. Portable DVD players are owned by approximately 30% of U.S. homes, and at least 36% of households own one or more portable media players (PMPs). In-car DVD players and navigation are in the high single digits of cars driven today and make up a larger and larger percentage of new cars sold over time. In IDC's *2009 Internet Video Survey*, 47% of respondents reported that they watched Internet video on their notebook PC within the prior three-month period. The one area where the use of commercial video services has been more modest is via the mobile phone, where mobile operator on-deck services typically cost $10–14 per month. Mobile phones represent an enormous market, with 180 million sold each year in the United States and more than 1 billion sold globally. These devices are increasingly capable and have larger and larger screens. This isn't to say that consumers do not want video on mobile devices such as phone, but the content selection, price points, availability, and awareness levels of these services have yet to be delivered. Additionally, the cost of providing video broadcasts over the cell networks — even 3G and 4G networks — is prohibitive because the unicast nature of these networks was not designed to serve broadcast-sized audiences simultaneously.

There are multiple ways in which consumers can view video/TV on their portable consumer electronics. In device categories such as portable media players, purchases of episodes acquired through services like iTunes dominate and the content is typically sideloaded from the PC. For PC users, the sources are broad and rich. Notebooks have long been a key DVD playback device (for movies and TV shows) and are proving to be a critical screen for viewing content via services like iTunes, Hulu.com, and Amazon and network sites like NBC.com, Fox.com, and CBS.com.

IDC's past two annual mobile entertainment surveys found that 2.5–5% of mobile phone owners view TV/video on their phone regularly or viewed TV/video at least once in the three prior months. And in IDC's most recent *ConsumerScape 360°* survey, fielded in November and December 2009, only 2% of 7,002 U.S. respondents reported watching premium content/TV on their phones within the prior month. Even if we assume the data to be underreported, it clearly is in its early stages. (All three surveys cited above were done online; in the two mobile consumer surveys, all respondents owned at least one mobile phone and the samples sizes were 1,100 and 4,025 respondents. In the *ConsumerScape 360°* survey, respondents only needed to own a PC, TV, or mobile phone to participate).

In IDC's surveys on mobile video/TV use, the split between gender is relatively close, but there is a clear correlation between age and mobile video/TV usage. In our surveys, we consistently see the under 45 segment using these features by a factor of 2:1 compared with the next oldest group, and the older group's usage appears to fall by 50% with each older age group. In looking at our various surveys, we found that content viewed on mobile phones is relatively consistent, with TV shows, sports, and news being the most popular.

In looking across the globe to mobile broadcast TV in other geographies, we have seen the cell phone and in some cases in-car/in-transit demonstrate the highest levels of integration and use. In markets like Japan, mobile TV has been integrated into the majority of mobile phones, which has benefited consumers, mobile TV receiver suppliers, and handset OEMs. Revenue generation beyond an initial boost to phone differentiation is unclear. We caution against using markets like Japan, Korea, China (analog), or Western Europe as parallels to the U.S. market, given Americans' clear appetite for consuming hours of TV, high multi-TV penetration rates, a strong in-car entertainment market, and $70 per month pay TV expenditures, all of which are higher than those of most any other geography. All of these things should mean that American consumers will use this feature in a range of portable devices and that, when coupled with two-way communications, it can drive new revenue for players across the ecosystem.

Consumer Behavior, Interest

There is no denying the growing importance and use of video — both user-generated content (UGC) and premium/commercial content — in consumers' lives. Video and television are no longer just about the TV set. Over the past decade, we have seen the rise of video-enabled media players, pervasive support for video on mobile phones, and the increasing role of the PC in video playback and streaming. The notion of three screens — or multi-screen — is apparent and very real today.

IDC has been conducting surveys for a number of years, querying consumers about their use of video across various devices. In our 2009 U.S. Video Survey, 90% of Internet users reported using Web-based video services within the prior three-month period and one 1 out of 2 respondents reported that they have watched TV content online, with a nearly identical percentage stating they have watched news online. It's also important to note that 1 out of 5 people have watched sports programming and educational videos online. These types of content are more often than not delivered via broadcast networks.

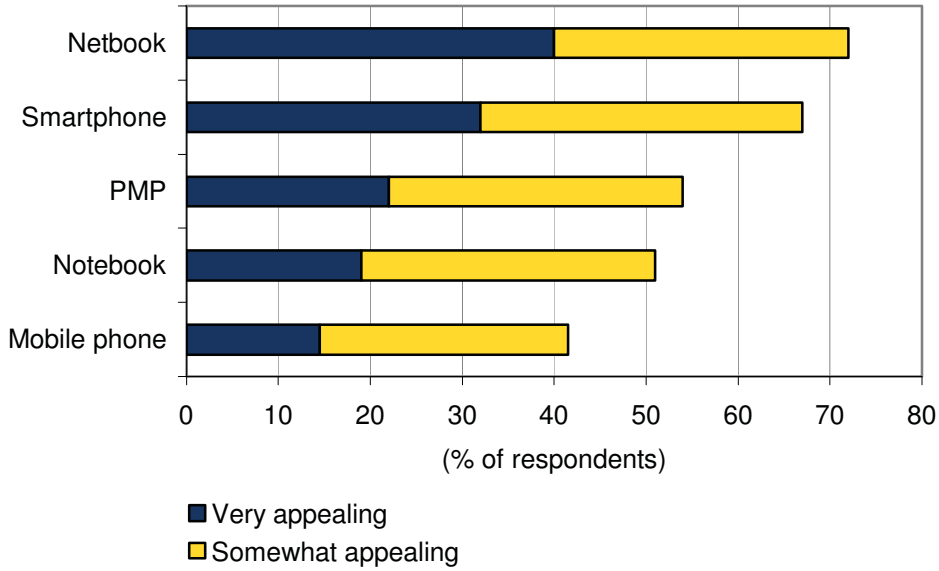
In late 2009, Frank N. Magid Associates conducted an online survey of mobile device owners on behalf of the OMVC. One of the key findings in the study is that nearly half of the respondents reported strong or moderate interest in viewing live programming on their portable electronics device.

Interest among men and women is about the same, which is not unexpected. The differences across the age groups do stand out, however. Given the fact that younger consumers tend to watch more time-shifted content — especially Internet video via the PC (IDC data supports this as well) — one may assume that younger audiences are watching less live programming than older audiences. However, younger consumers are more likely to use multiple devices and are more likely to watch to consumer media and specifically video of various formats on smaller screens. Please see Figure 3 for more details.

FIGURE 3

Consumer Interest in Mobile Video/TV

Q. Within the next year, your local TV stations may begin broadcasting their local news, sports, traffic, weather, and emergency alerts as well as your other favorite TV programs "live" to mobile devices (cell phone, smartphone, portable computers, etc.). How appealing would this be to you?



Source: IDC, 2010

Live Versus Time-Shifting

It is important to examine where live programming complements time-shifted — it is not either/or. IDC estimates that digital video recorders (DVRs) are in approximately 33% of U.S. households. According to Nielsen, 70% of prime-time viewing is seen live. Today's mobile video services to the phone are well suited for video clips, such as news, sports, show highlights, as well as user-generated content (UGC). Streaming of live programming is more commonly done via the PC, and of course, live broadcasts to the TV dominate all of these delivery mechanisms (via over-the-air and pay TV systems).

In one of the previously mentioned IDC mobile entertainment surveys, IDC asked mobile consumers about their level of interest in content that could be stored for later viewing (DVR functionality). The mean level of interest was a 2.5 of total respondents on a scale of 1–5 (where 1 was not at all interested and 5 was very interested). However, 1 out of 6 respondents rated this feature as a 5 and 31% rated it a 4 or a 5, indicating that DVR/time-shifting is viewed as a way to complement rather than exclude live viewing on mobile devices.

Benefits of Over-the-Air Broadcasts

The U.S. broadcasting industry efficiently provides essential emergency warnings to nearly 100% of the public, through direct news and weather broadcasts and through the Emergency Alert System (EAS). The EAS is a simple cascade system that allows for nearly immediate relays of emergency messages across the country. As participants in EAS, broadcast stations monitor emergency message signals from Primary Entry Point (PEP) broadcast stations and then automatically generate the EAS messages for broadcast. The broadcast industry is now prepared to enhance this role and increase the effectiveness of its emergency messaging capabilities by delivering these messages in its Mobile DTV broadcasts. This is a unique role and capability, given that emergencies can drive an overload on other network types, and one that is greatly enhanced by its integration into Mobile DTV broadcasts.

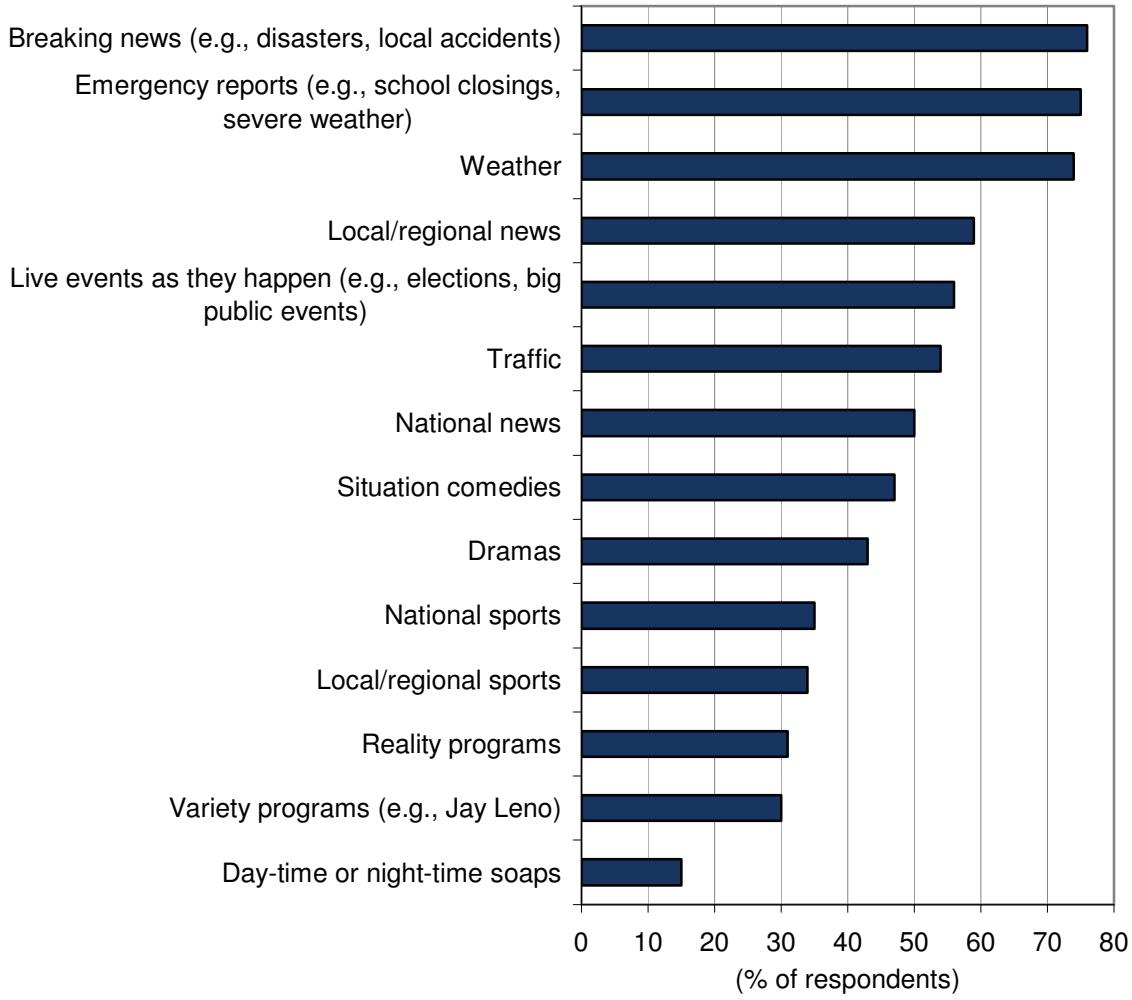
As mentioned, 97 of the top 100 TV programs originated from broadcast networks last year. So while these stations represent a relatively small number of channels on pay systems, they represent a dominant position in terms of popularity and viewership. Broadcast has been well documented for its efficiency in delivering popular content (typically radio or television) in a multicast fashion (single stream to many users from one broadcast signal). Clearly, certain types of content lend themselves particularly well to live programming via broadcasting.

The top six types of content that people have reported the highest interest in viewing live via their mobile device are those that are typically delivered via local broadcasters and broadcast networks (see Figure 4). Furthermore, the level of interest was very high for each of those six content types, as 54–76% of respondents reported wanting to view those program types live on their mobile device.

FIGURE 4

Most Desired Live Video Programming

Q. If you had the ability to watch TV programs LIVE on your mobile device, which types of programs would you be interested in watching?

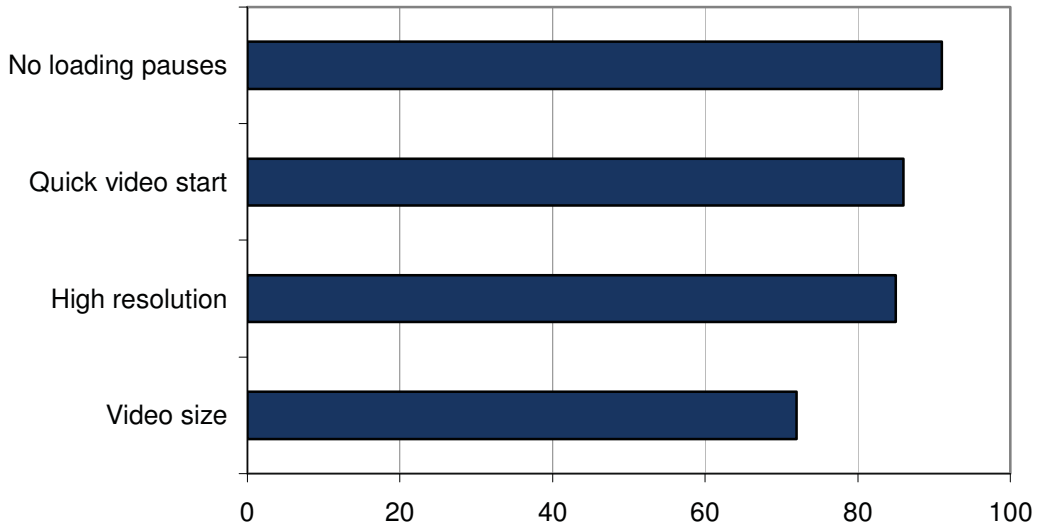


Source: OMVC and Magid, 2009

When participants in a recent IDC survey about video consumption in the United States were asked about the most important aspects of streamed video, the two top responses are aspects that are particularly well suited to broadcast: no loading pauses/buffering and quick start viewing. Figure 5 highlights the four most important video issues when viewing video.

FIGURE 5

The Most Important Aspects of Streamed Video Quality for U.S. Video Viewers



(% of U.S. online video viewers who reported that the respective quality aspect is "very important" or "important" to them [= top two box results])

n = 3,051

Source: IDC's U.S. Online Consumer Survey, 2009/2010

The Role of OMVC and Mobile DTV Rollouts

The OMVC represents public and commercial television stations that own and operate nearly 900 television stations across the United States. The organization's scope includes promoting development of industry technical standards, technical requirements, conditions, protocols, reference implementations, test suites, and best practices related to enabling mobile digital television. The group's advocacy efforts focus on accelerating the development of mobile digital broadcast TV technology, solutions, and service applications; driving regulatory support; and promoting consumer mobile DTV adoption.

Mobile DTV broadcasts use a portion of the 6MHz spectrum U.S. broadcasters currently have. The cost of adding the transmission technology (Mobile DTV exciter and signal encoding) to existing infrastructure and towers that are already broadcasting at full power is approximately $100,000 per station today. As of March 9, 2010, IDC estimates that 35 stations are already up and running with Mobile DTV broadcasts, and many more rollouts are scheduled throughout 2010 and beyond. We estimate that upwards of 150 stations will be on air by the end of this year.

Testing done by some broadcasters that are already on the air has proven that the signal is robust, in terms of both coverage and reception for the given broadcaster's coverage area. This includes the ability to receive the signal in vehicles that are moving throughout cities (an example being WRAL's integration of Mobile DTV into Raleigh's buses) and in vehicles moving at fast highways speeds (the technology was designed to support vehicles moving well over 100 mph).

Outside of the OMVC, discussions are under way for the formation of at least two broadcaster groups that are working to determine how best to develop Mobile DTV and bring multiple broadcasters or networks together to engage more effectively and efficiently with partners, like cable networks, carriers, advertisers, and pay TV providers. Such initiatives would help facilitate development of the market and mitigate the challenges associated with the fact that there are nearly 1,800 broadcasters.

FUTURE OUTLOOK

In discussions with U.S. TV broadcasters, IDC has found that they believe that the additional viewing opportunities on more devices to reach more people and to reach many of the same people more frequently more than offsets the $100,000 investment to broadcast Mobile DTV. Broadcasters acknowledge that consumer awareness and acceptance of Mobile DTV will depend, in part, on the wide availability of Mobile DTV broadcasts and receiving devices. Mobile DTV receivers are being built into various CE devices (LG being a strong proponent) as well as PC dongles and transceivers like Valups WiFi Mobile DTV Receiver product that can be used with many devices such as notebooks, netbooks, and smartphones that have WiFi. (The product is essentially a Mobile DTV hotspot that receives the Mobile DTV signal over-the-air and delivers it to a nearby device it is paired with via WiFi.)

Fixed broadband networks continue to evolve to support more rich media delivery, especially with technologies like fiber and DOCSIS 3.0. Mobile broadband networks are more challenged due to spectrum constraints. While there is a lot of buzz around 4G technologies like WiMAX and LTE, 3G is still being built out and will be the dominant mobile broadband technology for years to come. And while there are key programming types that consumers want to see live, on-demand services will develop nicely as next-generation mobile broadband is rolled out over the next decade. For popular broadcast programming such as the top shows on network TV, major live news events, live sporting events, etc., mobile broadcasts are more efficient in delivering that content live and to hundreds of thousands or millions at a time.

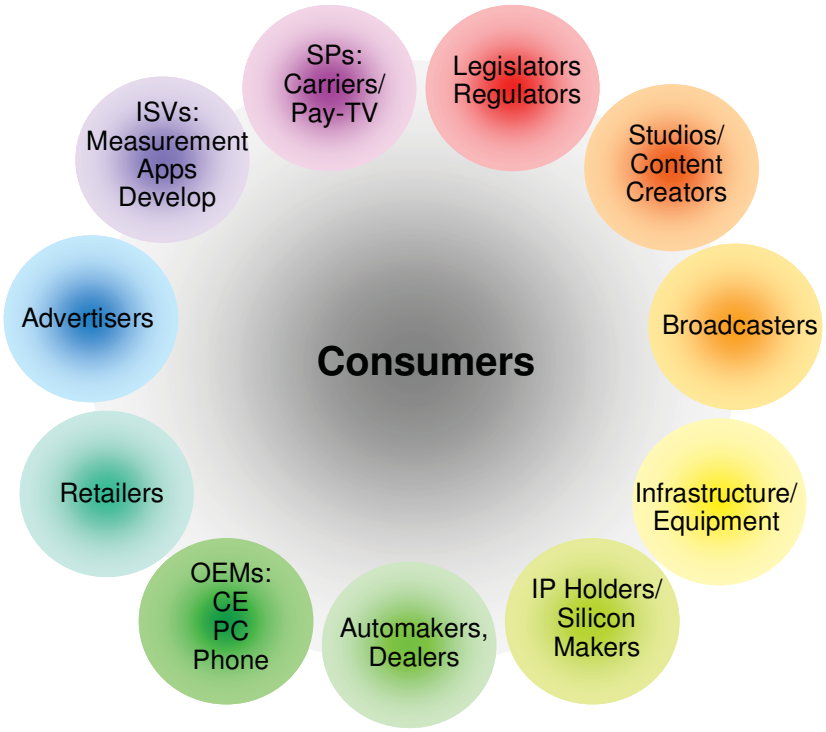
Furthermore, the current options for consumers that are interested in viewing mobile TV programming on various portable electronics are to stream what is available via IP on a device like a PC or subscribe to a mobile video service like V CAST or FLO TV, which require monthly subscription fees. Neither of these distribution channels generally transmits live programming or live local events due to a combination of network capacity challenges for carrier networks and distribution rights to programming via services like FLO TV.

The Mobile DTV Ecosystem

The mobile DTV ecosystem is diverse, which means that there are many opportunities for symbiotic and mutually beneficial business developments. Figure 6 outlines the key stakeholders in Mobile DTV.

FIGURE 6

Mobile DTV Ecosystem Players



Source: IDC, 2010

For the nation's television broadcasters, mobile DTV is a way to extend their reach and relevance to additional screens by delivering value to more people and places across their community and to drive incremental revenue to station owners and/or stockholders.

IDC believes free OTA broadcasts will be popular in the initial launch years. Meanwhile, Mobile DTV broadcasts, when coupled with broad adoption of Mobile DTV receiver devices, mean expanded audiences (which mean more eyeballs) and more time with a broadcaster's core audience, both of which translate to stronger ad revenue. Mobile DTV represents broadcasters' opportunity to participate in the development of multiple screen experiences and opens the door to more people and screens having access to highly popular content.

IDC expects the majority of Mobile DTV rollouts to be mobile simulcasts of the programming being broadcast via ATSC to TVs, especially within the next few years.

Broadcasters across the nation carry the most popular local and national programming from local evening newscasts to American Idol to live sporting events. This translates seamlessly to consumers that already know which stations are broadcasting their favorite programs and at what time, which is not typically an option today via carrier-based solutions, for example.

Advertisers

For advertisers, mobile DTV means more viewers of their ads and the ability to layer in localization, which should translate into greater relevance for the advertisers and improved CPMs (cost per thousand impressions) for broadcasters. It is important for advertisers to note that in the OMVC/Magid study from late 2009, 18- to 29-year-olds were the *most interested* in Mobile DTV, with 65% saying that it's very or somewhat appealing, followed by 50% of 30- to 39-year-olds. While this may be surprising to some, given that Millennials (those born between 1978 and 1997) are known for their use of technology and are more likely to watch TV time-shifted and on a PC, they are also the group most likely to use various mobile consumer electronics for multimedia services, followed by the next age group.

With some modest storage, devices with Mobile DTV receivers can potentially store different promotions that are triggered when the device is in a specific geo-location. This can be done on the device by triangulating the broadcast TV signals. Also, if the device is a portable or in-car navigation device, the GPS radio can be a source of information for increased localization. Furthermore, if the device has WiFi or cellular, then the interaction can be more customized and additional services and calls to action can be delivered via the two-way connection via WiFi or cellular. This is particularly valuable for both local businesses (advertisers) and transit systems that are delivering digital ads to commuters.

Service Providers and Cable Networks

The technology becomes the most useful and compelling when coupled with a persistent two-way connection or, at a minimum, a return channel to transmit data about viewership, location, programming preferences, ad impressions, etc. Audience measurement can be done intermittently when the viewing device is synched with a network (i.e., if the device includes WiFi or 3G or by connecting it to another device that has a broadband connection, like the PC); but, ideally, a cellular or other two-way connection would provide the opportunity not only to measure real-time data of the user but also to deliver complementary services, whether video on demand (VOD), user-generated content, facilitating commerce, enhancing the level of interactivity into programming, and so forth.

While the rollout of 4G technologies has begun, starting with WiMAX from CLEAR and then LTE from Verizon in 2010, these technologies will take years to cover the country. It should be noted that while we, as an industry, talk about 4G broadband services today, the fact of the matter is that 3G will continue to be the dominant technology in terms of mobile infrastructure spend for years to come. 4G promises much more mobile broadband capability with data rates that can range from many hundreds of Mbps over short ranges to tens of Mbps over longer distances and much more cost effectively. Yet these much improved data rates still lend themselves best to advanced data (including mobile video communications offerings) and multimedia services (including on-demand programming) that are more appropriate for point-to-point versus broadcast. With the continued buildout of operator networks, IDC expects two key expansion areas for operators' data services. The first is to sell more data services to existing customers because consumers have more devices that need mobile data services. The second is to use operators' networks for machine-to-machine (M2M) applications (e.g., an electric power company's real-time data and video monitoring of its external power distribution network; M2M may turn wholesale wireless broadband into an important ingredient in the profitability of future mobile data service offerings).

It needs to be noted that Sprint is participating in the Washington, D.C., showcase by offering the Samsung Moment phone. And we portend that if the carrier sees strong use of Mobile DTV on the Samsung Moment, increased customer satisfaction, and/or reduced churn, it will continue to support Mobile DTV products and even become a proponent of the technology.

IDC believes that in the long term, it is in the operators' self-interest to use this technology to *complement* their current and core business model — fee-based subscription services. We do not expect large carriers to support Mobile DTV in the short term due to the additional cost of integrating a Mobile DTV receiver, which the carrier typically subsidizes a large portion of; analysis that needs to be done to determine how Mobile DTV complements or challenges other on-deck revenue-generating TV/video services; and because, depending on how Mobile DTV is integrated into a carrier offering, mobile operators may need to set up deals with many broadcasters/broadcasting companies. But given the fact that network capacity is precious and arguably better suited to more unicast, on-demand, and data/Internet services, we foresee some carriers will come to see Mobile DTV as doing something complementary for their business.

Original Equipment Manufacturers

The market needs multiple OEMs and retailers to offer Mobile DTV solutions. LG and Samsung have arguably been the strongest OEM proponents of Mobile DTV in the United States. LG has interest on multiple levels, from having intellectual property in the standard to its ability to sell chips to other OEMs and Mobile DTV devices to consumers. Samsung is also a silicon provider for Mobile DTV and a leading OEM of mobile devices in the United States. Dell has also been a strong proponent of Mobile TV, from launching netbooks with TV receivers in Western Europe last year to bringing netbooks with Mobile DTV to the U.S. market, starting with the Washington, D.C., Mobile DTV showcase this spring. For Dell, this is about differentiation, higher average selling prices, and its desire to be perceived as innovative. For most other OEMs, the decision to bring mobile DTV products to market is more narrowly focused. The question for them is, can Mobile DTV differentiate the company's product(s) to help it gain share and/or deliver better margins? Additionally, OEMs generally do want to be viewed as innovative, and Mobile DTV is an example of this.

As broadcasters begin their Mobile DTV transmissions across the nation's key markets, we expect more OEMs to begin to deliver Mobile DTV receiver solutions. But even before that, IDC believes this market can begin to develop with just a few key device categories integrating this technology, namely in-car entertainment solutions.

Automotive

While the automotive market has been hammered during this recession, this is precisely the segment that would benefit greatly from such a feature where the BOM cost is immaterial to the cost of the car and also offers the auto customer a valuable service with no monthly or recurring fee, unlike satellite radio or telematics offerings. Additionally, automotive Mobile DTV solutions can be delivered to the aftermarket first (via receivers that plug into existing in-car entertainment systems, for example), followed by integration at the factory and/or by the dealer.

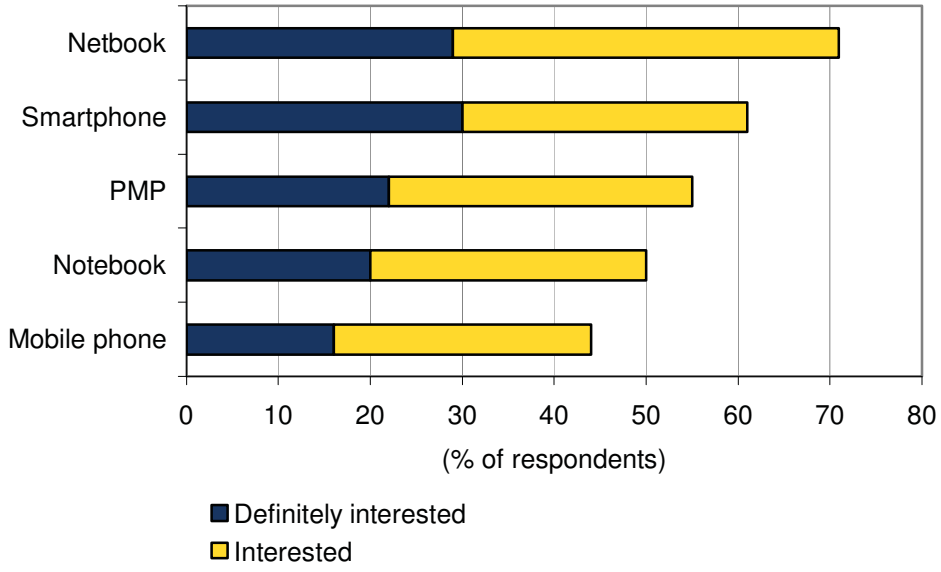
Notebooks and Netbooks

Notebooks and netbooks, even more so, lend themselves well to this feature set. (IDC uses the terms netbook and mininotebook interchangeably.) As U.S. PC adoption has become saturated, we know that Americans are increasingly owning not just multiple PCs per household but also multiple PCs *per person*. Netbooks are the quintessential example of this trend, with 60% of respondents from IDC's 2009 Mininotebook Survey stating that the netbook is their secondary PC. As this market topped more than 30 million units globally in 2009 — just two years after its introduction — PC OEMs are looking for ways to differentiate these solutions. For some, it's a netbook optimized for education; for others, it's a device optimized for cloud services that do not use Windows as an OS; and for still others, it's an entertainment-centric offering. For those focused on the latter, Mobile DTV is a feature to further enhance such a value proposition and complement streamed video services via broadband.

In the OMVC/Magid study conducted late last year, respondents were also asked about their willingness to get access to premium programming, movies, or live events for fee (subscription or pay per view). Of the 1,007 online respondents, 36% were interested, with 16% stating that they were very interested. What is perhaps even more compelling is the number of people who would seek out hardware that supported mobile DTV service. Figure 7 demonstrates the percentage of respondents that are interested in their next device having Mobile DTV as a feature, segmented by the device(s) they currently own.

FIGURE 7

Consumer Interest in Mobile DTV on Next Mobile Device Purchase by Mobile Device Currently Owned



Source: OMVC and Magid, 2009

Business Models and Partner Ecosystem

First, Mobile DTV provides consumers with an ad-based free OTA baseline service. For partners like carriers to offer this, it allows them the ability to deliver a valuable service with no fee that is expected to attract or retain some subscribers while putting no load on their networks. To build on this, carrier networks can serve as the back channel or two-way network to allow advertisers to do more effective targeted advertisements and enable commerce (for which there can be a share for any of these). The Mobile DTV standard has interactivity designed into it, and by coupling the technology's features with persistent two-way data services, carriers have the ability to add value to Mobile DTV in a way some other CE categories cannot. Also, a carrier would have the opportunity to create a programming guide that integrates Mobile DTV broadcast information alongside the carrier's premium video services, which would deliver a better customer experience.

Second, for key popular programs like news, sporting events, prime-time TV, and the desire to deliver local news and information live, IDC believes that Mobile DTV is the only way to do this in the foreseeable future. If carriers offered devices with Mobile DTV receivers, they could offer a service that supported popular, live, and/or local programming via Mobile DTV, therefore minimizing the challenges they currently face.

Third, as leading broadcasters start to see success with Mobile DTV viewing, IDC expects to see all sorts of experimentation of programming and monetization. This will open the door to things like selling retransmission rights so that a network or cable channel can transmit via Mobile DTV on a nationwide, regional, or local level, and this would bring in both additional ad revenue and premium subscriptions where fees can be shared with the network and the broadcaster, for example. Also, services ranging from information delivery (such as live traffic, weather, local news) to catch-up TV (where a Mobile DTV device with some storage and conditional access can record a re-transmitted program after the first run) will come to market, allowing additional revenue streams above the ad-based free OTA service.

CHALLENGES/OPPORTUNITIES

In the research IDC has done, including the many interviews with stakeholders throughout the ecosystem, we believe there are a few key challenges to Mobile DTV's rollout and long-term success.

First, the greatest challenge for Mobile DTV is for broadcasters to roll out Mobile DTV broadcasts in a reasonable time frame to attract broad participation from OEMs and retailers. This is important for their own (business) interests, and it is also critical to driving a broad array of OEMs to bring Mobile DTV products to market. The vast majority of OEMs cannot justify a product launch that is not nationwide. This is also why we expect Mobile DTV receivers to start in in-car solutions (aftermarket first, then factory and dealer installs later); dongles and transceivers like Valups WiFi Mobile DTV Recevier; and just a handful of CE devices like Samsung's Moment phone, LG's portable DVD player, and Dell's Inspiron Mini 10. Once rollouts like the Washington, D.C., Mobile DTV showcase are complete, and as more broadcasters come on air to cover the top 25 or so markets, more Mobile DTV products will begin showing up from other OEMs and in other product categories. This in turn should help attract more retailers to carry these products — all of which is needed for a successful launch — but the process has to start with reasonable Mobile DTV broadcast coverage.

The second critical element that needs to be effectively executed on is audience measurement. It needs to be noted that the Mobile DTV standard and broadcast equipment are designed to capture viewership and ad impressions. The data captured on the device can be relayed intermittently (i.e., via a WiFi connection or through another Internet-connected device like the PC) or in real time (when designed into a device with a two-way/3G radio). But for devices that do not have connectivity baked in, like the portable DVD player from LG, without reliable audience measurement, advertisers have less data on who or how many people saw their ads. This is also important for OEMs because they can integrate technologies like Mobile DTV and WiFi (and even 3G) into their products and provide the valuable back

channel for audience measurement (most likely for a fee, expanding OEM's revenue opportunities as well).

The third challenge is the role of carriers (or other service providers) and the fact that mobile phones are the single largest number of portable CE shipments each year and represent an enormous market with healthy annual device replacement rates. As noted in this paper, device costs will decline steadily over the next few years, and companies like Samsung and LG that make chips and phones can help mitigate these costs. Also note that IDC estimates that only 60,000 mobile phones shipped with WiFi in the United States in 2005 and that nearly 30 million mobile phones in the United States shipped with WiFi by the end of 2009. WiFi was initially shunned by operators, yet within five years, nearly two-thirds of smartphone volumes in the United States have integrated WiFi.

The fourth challenge is unique in that it is not about the ecosystem players; rather, it is about those they serve — consumers. Consumer behavior and media consumption continue to evolve and slowly shift away from live TV – on the TV. While the majority of TV we watch as a nation is live and on the primary screen, we are increasingly time-shifting our viewing either via DVRs, VOD, or online streaming or purchases. That said, the increasing importance of mobile video across the many portable CE devices we own opens the door to Mobile DTV as a feature that complements streamed or on-demand services for some program types, at certain times of the day, and/or based on location and network access availability. We estimate that the additional bill of materials for including these receivers will initially add between $8 and $15, with costs falling quickly as integration allows for a single semiconductor chip solution and as volumes rise.

The last key challenge we call out is consumer education. Clearly, there is an enormous need for consistent messaging and promotion. Consumers will need to know the state of available broadcasts in their local market (or other markets they regularly travel to), the device types they can use to view Mobile DTV, and if there are fees for various types of Mobile DTV services. Consumers will be dependent upon well-publicized information made available, and the point of sale, typically retail, will be critical for this piece. Of course, local broadcasters can and will promote these services, but that may or may not be adequate for informing the public of which stations in their DMA are available. Once the device is purchased, the receiver will be able to scan for available stations and update the user as more channels are added.

CONCLUSION

The era of mobile video services is arriving, and live mobile TV is a core component of a compelling video service offering for consumers. Mobile DTV broadcasts have begun for an estimated 35 stations today, and approximately 150 stations are expected to be on air by the end of 2010. Within three years, it is feasible that several hundred stations will broadcast Mobile DTV, reaching upwards of 100 markets.

In these early days, it is incumbent upon broadcasters to deliver ad-supported free OTA access to drive OEM and retailer support and educate consumers about the feature. Longer term, IDC believes that the initial availability of free OTA opens the

door to increased mobile video offerings across various portable device categories, driving device evolution and new monetization for broadcasters, advertisers, and even OEMs and carriers.

It should not be a question of broadcast or broadband. Both are critical communications technologies that serve a distinct purpose and work better when they are coupled together. Mobile DTV is truly a complementary service to streamed and on-demand services because it can efficiently deliver services and live content that are hugely popular and/or highly localized to consumers, while two-way networks can be integrated onto the same device to offer more personalized experiences and content. Broadcast TV has been a critical source of continuous news and information not just as emergencies happen, but through their duration.

Broadcast TV started with news and sports, and since that time, programmers and creators learned how to leverage the medium and its evolving technology. Now, 70 years later, much of the same content will drive Mobile DTV and encourage the development of new formats and services while leveraging broadcast for the value and public benefit it has historically been great at — delivering live local and popular media.