# Consumer Technology: Key Trends and Outlook for 2008

## A Parks Associates White Paper

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# 1.0 White Paper Synopsis

The manner by which consumers create and share personal and commercial content, enjoy a variety of programming and entertainment applications, communicate, and enhance productivity at home and on-the-go is evolving as digital technologies become more mainstream. As 2008 looms, there is very solid activity and very real potential among multiple players in services delivery, software development, and platform design to address the increasing consumer appetite for lifestyle enhancement solutions and productivity applications – from broadband to portable music and emerging television services – among many categories.

Certainly, growth across a wide array of digital lifestyle categories – broadband, television services, home networks, hard drive-based consumer electronics products, and communications services – has been strong. With the necessary access and in-home infrastructure in place, we see significant opportunity for companies that are building components and features that tie these services together. In addition to the revenue generated from the customer-facing products and services referenced in this paper, there will be development of technology solutions behind the scenes. We anticipate that this back-end development will drive intriguing new services and business models in the years ahead.

The Parks Associates analyst team has consolidated its insights on some of the next significant areas to watch within the digital lifestyles space. This paper examines some of the latest developments and activity across a wide array of products, services, and categories. Many of our research efforts in 2008 – both industry reports and primary consumer research – will be focused on these areas.

# 2.0 Key Trends and Outlook: By Category

## 2.1 Broadband and Related Services

### 2.1.1 IP Multimedia Subsystems (IMS)

***IP Multimedia Subsystems (IMS) architectures makes telco bundled services more horizontal and open:*** Development of IMS communications solutions and services will increase significantly in 2008. This trend is will allow telcos to experiment with innovative applications for which the cost to develop and deploy services is greatly reduced and allows for business model experimentation. At the same time, home network vendors will place greater emphasis on accommodating IMS and in-home networking standards (DLNA) in their customer premises equipment as well as their ability to translate between IMS services and in-home networking devices.

### 2.1.2 Online Video

***The experiments in online video continue:*** With total online video revenue (between user-paid and ad-supported) expected to grow to $9.7 billion (U.S.) by year-end 2011, expect to see more content deals, particularly between Hollywood and electronic distributors. 2008 will see the first in-store kiosks for download-to-burn and the start of a movie manufacturing-on-demand (MOD) business that will take advantage of recent licensing agreements and give retailers and content owners more flexible ways to sell catalogue movie content without the need for stocking DVDs on store shelves.

### 2.1.3 Mobile Internet

***Mobile Internet coming of age:*** Commercial mobile WiMAX deployments from Sprint and Clearwire and new Internet-friendly cell phones such as the iPhone and G-Phone will lower the entry barrier for mobile Internet services, improve mobile Internet experiences, and introduce new business models. Mobile Internet will begin to see mass market adoption, and the form factors will diversify to include embedded portable devices such as PMPs and portable game consoles. Traditional cellular technology companies such as Qualcomm and Nokia will continue to expand their portfolios to include non-cell phone devices, and cellular carriers will need to begin opening their walled gardens.

### 2.1.4 Customer Retention

***Increased competition for phone, video, and Internet services will emphasize the importance of customer retention for all service providers:*** Today, new service offerings by telcos, cable companies, and other new entrants into this space provide more choices to consumers than ever before. This increased competition makes it harder for both new and incumbent providers to retain customers over a long period of time. The key challenge for service providers will be to constantly monitor their product and service offerings to ensure they are delivering the best value to consumers.

### 2.1.5 Cable Investments

***Cable investments to remain competitive with deep-fiber offerings:*** With recent public statements reflecting the increase in competition between telcos and satellite players, expect to see more announcements from cable companies about strategies to increase their capacity and offerings. Efforts at switched digital video, digital simulcast, and DOCSIS 3.0 will be focused on allowing cable operators to offer more high-definition channels, on-demand content, and a more robust (at least downstream) broadband offering. Furthermore, it would not be surprising to see a cable and mobile telephony deal take shape in the next 18 months. There will be either a major investment or an outright purchase that will allow cable operators to bundle a mobile telephony service with their other triple-play services.

## 2.2 Television and Video Services

### 2.2.1 Converged Communications and Home Networking

***Digital television competition will spur differentiated service, including converged communications and home networking:*** As competition increases among telephone, cable, and satellite operators (and terrestrial and broadband video services loom as stronger competitors in certain geographic regions), we expect to see incumbent service providers push bundles, competitive pricing, and new features. As cable operators in particular seek to fend off the strong threat that Telco and IPTV services present, they will seek to add their own differentiation and value to their services. We expect greater emphasis on interactive features, revamped user interfaces and program guides, programming, home networking, and communications features. And as mentioned in *Section 1.2.5*, a major cable and mobile telephony deal would obviously have a significant impact on competition.

### 2.2.2 "Place-shifting" Gets Embedded

***Place-shifting moves beyond after-market products:*** Given service providers' strong interest in acquiring and retaining their customers, we expect to see greater emphasis on inside-out access provided to their subscribers for things like time-shifted television and other digital content. Just as TiVo managed to set the pace in the DVR category, and was caught by the service providers with their own DVR offerings, expect similar things here.

### 2.2.3 Blending of Web Content

***Blending of Web content with traditional communications and entertainment services:*** More service providers will open their traditional "walled garden" services to Web applications centered on entertainment and social networking, in particular. They will offer more blended applications that incorporate premium broadband content and user-generated content, primarily photos.

### 2.2.4 Standards Body Work

***Coalescence among standards bodies:*** We are very interested in how groups such as the DLNA, DSL Forum, Open IPTV Forum, Home Gateway Initiative (HGi), and IMS Forum will work together to provide for true end-to-end content and services delivery through a network and into end-user products.

### 2.2.5 TV on the Web

***Television continues its charge to the Web:*** Clearly, one of the key successes in online video to date has been the distribution of primetime television programming by the major television networks. The networks are reporting all the right metrics to date – solid demographics, no signs of primetime cannibalization, and good ad revenues (not to mention high ad retention by viewers). In 2008 and beyond, expect to see a focus on higher-quality TV offerings (both primetime and syndicated episodes) that are well organized and tied to more targeted advertising.

### 2.2.6 "Network DVR" Controversy Subsides

***"Network DVR" controversy subsides with growing on-demand relationships between content producers and TV providers:*** We are already seeing deals between Hollywood and the television service providers to place more movie and primetime TV programming earlier in the on-demand window. As service providers grow more adept at positioning advertising with this content or charging a premium for earlier views (in the case of movies) – and share at least portions of these proceeds with the content owners –more of these efforts will take shape. Efforts like this – particularly when advertising cannot be skipped – will take dead aim at the growing use of DVRs and frequent ad skipping already occurring during the viewing of time-shifted programming.

## 2.3 Gaming

### 2.3.1 Audience Diversification and Platform Convergence

***Continued gaming audience diversification and platform convergence:*** New business models such as free-to-play and ad-supported gaming and the "Wii effect" will help further expand the appeal of electronic gaming. A larger percentage of gaming industry revenue will come from non-power gamers, and the "dollar per gaming hour" figure is likely to grow among middle-market gamers. Consoles will remain important gaming platforms, and their importance in the living room will continue to grow as console makers introduce new digital entertainment services and form new partnerships. In the meantime, PC, mobile phone, portable gaming devices, and even set-top boxes will help increase the size of the gaming industry. Cross-platform play will become more mainstream as gaming platforms converge.

### 2.3.2 Virtual Worlds Ride the Hype Cycle

***Virtual worlds ride the hype cycle:*** The success of Club Penguin, Second Life, and Habbo Hotel will attract more investment from major media companies and consumer brands. Kids growing up with virtual worlds will require their social networks to feature 3D avatars and design. Established social networks will begin to introduce and integrate certain virtual world features and business models. Promises of virtual worlds will begin to materialize, and business models will stabilize. Industry consolidation is likely to happen, along with new market entries from companies with deep pocket and media expertise.

### 2.3.3 The Impact of Micro-transaction Models

***The micro-transaction model (aka the virtual item trading model) opens up a new revenue stream for casual game portals and publishers:*** The virtual item trading business model, which has already been successful in Asia, has entered the North American gaming industry in the past 18 months. Companies such as EA Pogo and PlayFirst are already engaged and showing positive results. It will be interesting to see how larger game portals and game console platform owners will follow suit in 2008.

## 2.4 Communications Services

### 2.4.1 Femtocell Push

***Femtocell adoption increases:*** Sprint's Femtocell deployment will increase the level of interest among other U.S. carriers. Femtocell serves as an alternative to Unlicensed Mobile Access (UMA). However, unlike UMA solutions, it does not require a new dual-mode handset. Femtocell helps mobile carriers to extend their reach in consumer homes, reduce network CAPEX and OPEX, and offer fixed-mobile convergence (FMC) services. More importantly, it can serve as a retention tool and will potentially become a vital link in mobile carriers' mobile broadband and fixed-mobile substitution strategies. Traditional residential gateway and home networking companies are likely to invest heavily in this area once the industry shows growth momentum.

### 2.4.2 Wi-Fi in the Mobile Handset and UMA

***Wider adoption of Wi-Fi technologies for mobile telephony handsets and infrastructure:*** As mobile operators look to add greater functionality to their handsets and lower their infrastructure costs, Wi-Fi on the handset will become a much more important trend, which may lead to lower valuations on traditional mobile network vendors. The use of unlicensed mobile access (UMA) that bridges between Wi-Fi and traditional mobile networks also stands to benefit fixed-line operators that own mobile assets. As they seek to keep the traditional landline phone and Internet service in the home, we are seeing more of an emphasis on home network equipment that enables fixed-to-mobile handoffs.

### 2.4.3 New Mobile Entrants

***Impact of the 700 MHz auction on the mobile telephony space:*** Interested bidders such as Google and Microsoft may provide more openness to mobile phone applications development. Already, Apple is saying that it will open the iPhone to outside developers. We wonder if this move will spur more innovation on the mobile phone handset but also reduce the influence of the mobile carriers.

### 2.4.4 Unified Messaging

***Has unified messaging's time arrived?*** Given the strong push by many telco vendors to sell IMS-based equipment and solutions, we will hear more talk about bringing communications services to a plethora of devices – from fixed-line phones to mobile handsets, and the television. The early indications from service providers are that such converged communications-based applications are beginning to show results of higher customer satisfaction, retention, and willingness to pay a premium. We will await more announcements and real-world deployments in 2008.

## 2.5 Consumer Electronics

### 2.5.1 Networked CE

***Networked connected consumer electronics devices:*** Expect to see large numbers of network/wireless flat-panel televisions and other CE devices, including DVD players. Consumer electronics companies - and particularly those with a larger breadth of products (and content) – will be looking to replicate the success of Microsoft's Xbox 360 with a network-connected device married with broadband services, including those for video and music.

### 2.5.2 Digital Photo Frames Cut the Cord

***The wireless digital photo frame market will pick up steam in 2008:*** Manufacturers will be seeking to differentiate their brands from competitors. In addition, the software enabling Wi-Fi connectivity to the open Internet or a home network will be more user-friendly, which will improve the photo frame's ability to sync content, and it will spur the incorporation of many new features onto the photo frame platform. We expect that 52% of the frames sold in 2011 will be wireless frames, up from 9% in 2008 on a global basis.

## 2.6 Consumer Storage

### 2.6.1 Network Storage's New Push

***Network storage moving beyond back-up and safekeeping:*** Expect to see network-attached storage (NAS) devices that provide for more capabilities, including unique portals and remote log-in capabilities to help consumers manage, organize, and share their content with friends and loved ones. Instead of uploading photos and video to a Web site, consumers can designate a trusted circle of relations and simply send them access to their storage device.

## 2.7 High-end Home Systems

### 2.7.1 Migration of Media Servers

***Media servers migrate from high-end, installed entertainment systems to the Home-Theater-in-a-Box market:*** Perhaps thought of as NAS by some, but specifically designed to distribute music and video around the home using "no-new-wires" networking, the next generation media server will be an affordable, must-have component for mid-range entertainment systems.

### 2.7.2 Home Theater Systems as the New Appliance?

***Home theater systems become the next appliance offered by new home builders:*** Flat-panel TVs with architectural (a.k.a. hidden) surround sound systems installed in new homes and rolled into the mortgage are becoming more common as young adults move from renting to owning their own home. The convenience, attractiveness, and affordability are irresistible to a growing percentage of home buyers.

## 2.8 Home Systems

### 2.8.1 Is Security Trendy Again?

***Are home security and home systems "hot" again?*** Given a convergence of variables – a much more highly competitive housing market, falling component prices, and greater willingness by builders and developers to consider technology amenities as value-adds, will 2008 be a milestone year in the growth of home security and other home systems? What services will be added to the products being installed?

### 2.8.2 Web Monitoring

***Web monitoring worth a watch:*** Driven by competitive pressure in the service provider space, expect to see these lower-cost solutions emerge as value-adds for peace of mind.

### 2.8.3 Energy Management

***Energy savings …is it on the utilities' minds at this time?*** Beyond providing rebates for programmable thermostats, will we see energy utilities deploy "smart grid" solutions for energy control purposes?

## 2.9 Home Networks

### 2.9.1 Connectivity Beyond Data

***Europe will be the decisive market for powerline networking:*** Given the strong emphasis on solutions such as bridges for IPTV and multi-service residential gateways, Europe will be the leading market for powerline solutions. We are waiting to see which service providers and CPE vendors are willing to go public with their support for either the HomePlug or the DS2 solution. One suspects that many are waiting for a standards resolution in the IEEE before making a public affirmation of either technology.

***"No-new-wires" networking solutions mature and grow to incorporate multimedia and entertainment networking:*** Wireless, coax, and powerline have all reached the point of widespread deployment, particularly as service providers seek the solutions for making IPTV and related home networking installations less painful. Expect to see more home networking solutions go embedded in 2008.

### 2.9.2 Ultra-wideband

***Significant growth for ultra-wideband products:*** Do not forget about personal area networks (PAN). After a bruising standards battle, it looks as though 2008 will be the year for widespread deployment of UWB solutions that focus on desktop cable replacement and for mobile device connectivity to the PC.

### 2.9.3 Wireless for HDTV

***Wireless HDTV solutions emerge to solve flat panel installation headaches:*** Expect to see several wireless HD solutions capable of transmitting HDTV content from receivers to wall mount screens, STBs, game consoles, and other peripherals within a room. Expansion to multiple rooms is likely to take place beyond 2008.

## 2.10 Digital Media and Advertising

### 2.10.1 Opportunities across the Advertising Value Chain

***Ad creation and insertion are two key areas of opportunity:*** Although targeted and multi-platform advertising solutions are seen as key opportunities for service providers to better monetize their services, they will require key partnerships. Increasing the inventory of higher-quality video advertising will be critical to the needs of both traditional television service providers and Web video purveyors. Additionally, ingesting and grooming advertising – particularly for multi-platform and MPEG-4 environments will be a critical need for the service provider community.

### 2.10.2 Best Practices of the Web

***Advertising continues to seek "Internet-like" efficiency:*** Dynamic ad insertion, targeting, and measurement will continue to be strategies that service providers (particularly in the television space) employ to make advertising more relevant and provide bigger returns on investment.

### 2.10.3 The Need for Multi-platform Ad Strategies

***Time/place-shifted viewing behaviors spur the pursuit of a multi-platform advertising strategy:*** As time-shifted and place-shifted TV viewing becomes more popular, advertisers must reach beyond traditional broadcast and cable television providers and create a multi-platform advertising strategy that targets audiences across multiple new platforms such as VOD, DVR, portable device, and home PC. Above all, advertisers need to get on board with technology vendors who can enable more addressable, targeted advertising to the right audience at the right time.

### 2.10.4 The Mobile Phone's Role

***The mobile phone to become the most diversified ad platform:*** Even at this nascent stage, mobile advertising has generated tremendous interest from a plethora of advertisers, publishers, and technology vendors. What is amazing is that such a tiny screen has so many ways to present marketing messages. The mobile phone is likely to trump the Internet as the most versatile media platform. Among the ad formats that have garnered substantial attention are mobile banner ads, mobile search ads, SMS/MMS-embedded ads, mobile Web directory service, location-based service, as well as mobile coupon programs, mobile rich media ads, and mobile TV ads. Which format is likely to dominate remains to be seen, but the potential of mobile advertising to become an explosively new ad platform is real and colossal. Do not forget the fact that the mobile phone gives advertisers an "up close and personal" opportunity.

### 2.10.5 Making the Ad Buying Process more Efficient

***Engagement metrics and more efficient ad buying process of keen interest to advertisers:*** As ad platforms mature and advertisers get savvy, the performance of ads, instead of the delivery of ads on the old and new media platforms, is becoming the major focus of advertisers. Similarly, as ad inventory gets standardized, advertisers need quick and efficient ways to buy ad inventory to meet short-term marketing needs. This fact has spurred substantial interest in ad exchange—a trading floor where demand meets directly with supply. On a broader scale, such exchange in the future will be able to aggregate cross-platform ad inventory, a goal that Google is actively pursuing, followed by AOL, Yahoo!, and a long trail of small technology providers.

### 2.10.6 Search and Navigation

***A growing emphasis on search and navigation*:** With the rise of Web-delivered video and the convergence of many features and applications on a standard television service, helping consumers to find and interact with meaningful content will be a notable opportunity for developers of GUIs and handheld remotes. The video-search space is still wide open, and none of the major text-search companies can claim dominance.

### 2.10.7 Alternative Payment Systems

***Tracking new payment methods for online consumers will be an interesting model to watch:*** These methods may include micropayments, cell phone payments, and payment methods for consumers without credit cards (may be accessing Internet through work or café). There is interest in new payment systems because of the lack of efficient and secure methods for online micro-payment and mobile purchases.

### 2.10.8 Widgets

***Widgets as a key differentiator of digital media services and applications:*** As both traditional (television services) and upstart media (social networks) seek to add openness and flexibility in how they are accessed and used, widgets that allow for a level of customization to the media experience are becoming hotter applications. They have good utility in reaching a massive number of people quickly, and as advertising vehicles.

### 2.10.9 "Day-and-Date" Movie Distribution

***The first major cracks will appear in the movie distribution widows:*** Piracy, TiVos, iPods, video-on-demand, and the Internet are increasingly pressuring studios to change the way movies are distributed and shorten (or even eliminate) the existing system of release windows. In 2007, there were notable experiments with "day-and-date" release, but only with lower-budget films. In 2008, it is likely that these experiments will include films from more recognized names, offering the first glimpse at the post-windows world.

### 2.10.10 Social Media

***Social networking will become increasingly "open" and open source:*** The 'social media' phenomenon has proven the value of leveraging mass-market consumers for content creation. Going further, Facebook has gotten strong traction in the market by opening itself up to developers. Expect these trends to continue with the growing number of social media sites increasingly amorphous and dependent upon the code and content of their user base.

## 2.11 In-car Entertainment

### 2.11.1 The Living Room at 65 MPH/104 KPH

***The in-car entertainment experience begins to reflect the living room:*** Similar to the "place-shifting" trend within the home, CE and automotive manufacturers and service providers will require a greater understanding of consumer perception and demand for how audio and video content is consumed in vehicles to expand the reach of this market.

## 2.12 The Product Purchase Lifecycle and Customer Support

### 2.12.1 Who is looking out for consumers?

***Growing need for trusted "Digital Home Advisors":*** As digital lifestyle technologies increase in complexity, solutions that allow for remote diagnostics and troubleshooting, not only for broadband- and home network-related IT products but also in consumer electronics, will increase. As service providers and vendors seek to offer more proactive customer support, vendors will build end-to-end monitoring, configuration, and customer service representative (CSR) solutions. We expect services to grow beyond basic troubleshooting to include trusted digital advisors that can help consumers with product and service recommendations.

### 2.12.2 Post-purchase Support Key to Retailer Strategies

***Installation and configuration services help boost retailers' bottom lines:*** As flat-panel televisions and other consumer electronics products constantly fall in price, look to retailers to continually add to their installation and support services to boost revenue. These services will include not only the initial set-up and break/fix features, but also accessory up-sells, either at the time of purchase or as after-market.

### 2.12.3 Re-thinking Lifecycle Customer Support

***Add comparison shopping services to the growing areas of lifecycle customer support:*** As we have covered the shifting relationship between a retailer and a buyer (or a service provider and their customer), we have come to believe strongly in the role of pre-purchase research, recommendations, and advice. As much as Geek Squad has been affiliated with customer support at the time of purchase, we anticipate that companies that set themselves up as "trusted digital home advisors" will benefit from initiating a customer relationship prior to the purchase. It is a new concept, moving the customer support lifecycle ahead of the actual purchase itself and adding greater value to the relationship by establishing it sooner.

Purchasing digital convergence products has become a complex task with many confusing options and emerging technologies. Gone are the days when a customer could research and buy a product based on basic parameters such as screen size, form factor, and color. Convergence (digital camera to home computer; audio receiver to high-definition set-top box, etc.) now requires the customer to feel comfortable with such topics as connections, digital interfaces, and interoperability. Therefore, it is not enough for consumers to simply know that a product exists; they also will be required to have a good degree of comfort in understanding how the product works. Reaching this level of understanding will require additional research on their part and speaks to the enormous impact that "influencers" will bring to the purchase process. Moving beyond the "friends-and-family" knowledge connections that we all have, consumers are likely to be drawn to reliable resources for product reviews, comparisons, and buyer's guides that help walk them through the initial phases of the buying process. Pre-purchase assistance is an opportunity at not only the time of the initial purchase, but it is also an opportunity for service providers, retailers, and consumer electronics manufacturers after that first purchase.

## 2.13 Green Technology

### 2.13.1 Real or a Simply a Marketing Slogan?

***Is "green" hot or simply a marketing message?*** Although environmental concerns are now top-of-mind for many consumers and manufacturers, will this concern lead to a greater emphasis on green products and a renewed emphasis on conservation? We can certainly expect to see an emphasis on the following efforts: 1) More pronounced efforts at PC and IT recycling services; 2) Retailers use their in-store/in-home tech support services to provide for safe PC hard drive erasing and IT product recycling; and 3) The growing use of more recycled components in CE equipment.

# 2.14 Consumer Health

## 2.14.1 Networked Medical Devices Emerging

***Personal health goes wireless:*** Going to the gym will be hi-tech. Devices measuring pace, heart beat, calorie burn, as well as blood pressure, weight, and respiratory symptoms will increasingly become wirelessly connected to aggregate information onto a common information platform, be it a PC, a mobile phone, or a dedicated receiver. People benefiting from these devices will not be perfectly healthy macho-builders, but more likely people at risk of potential chronic illness and who have been advised to take on a healthy lifestyle. Big corporations will be strong sponsors as the corporate fitness market is gathering strength.

**Parks Associates** is an internationally recognized market research and consulting company specializing in emerging consumer technology products and services. Founded in 1986, Parks Associates creates research capital for companies ranging from Fortune 500 to small start-ups through market reports, primary studies, consumer research, custom research, workshops, executive conferences, and annual service subscriptions.

The company's expertise includes new media, digital entertainment and gaming, home networks, Internet and television services, digital health, mobile applications and services, consumer electronics, and home control systems and security.

Each year, Parks Associates co-hosts executive thought leadership conferences: **CONNECTIONS™** and **CONNECTIONS™ Europe** in partnership with the Consumer Electronics Association (CEA®). In addition, Parks Associates produces the online publication *Industry Insights* in conjunction with the CONNECTIONS™ Conference series.

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