

An eMarketer **Analyst Brief**

What Every Marketer Needs to Know about iTV

Written by Ben Macklin



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One of the main reasons why interactive TV, particularly in the US, has not been adopted as quickly as some may have hoped is because there is a great deal of confusion about what exactly interactive TV is.

“Viewers in the US can’t even define interactive television, much less demand it”

– Arthur Orduna, VP of Marketing, Canal Plus Technologies

The following dialogue highlights some of the challenges those within the iTV industry will need to face in order to better educate the public about iTV.

The Mystery of iTV

Consumer	iTV Expert
Is it the internet on TV?	It can be, sort of.
You can change camera angles while watching the football, right?	Sometimes.
Is it video-on-demand?	Yes, and no.
You can do email and instant messaging on the TV?	Maybe.
Is it like having multi-screens on your TV and being able to ‘click-onto’ some parts of it to get information?	It can be.
Is it playing games and shopping on the TV?	If you like.
It is like a new program guide where you can set preferences and record shows and fast forward ads?	Yes, but...
What has a garden got to do with it, and who put the wall around it?	Ummm....

Source: eMarketer, 2002

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The term interactive TV clearly covers a broad range of applications, services, and technologies but it is possible to group the variety of interactive TV elements into seven major categories.

Enhanced TV: any type of content, whether it be text, graphics or video, which is overlaid on regularly displayed video content. In its simplest form, it may be the electronic program guide application which is displayed over the existing programming. Outside the US, enhanced TV may also be thought of as refined teletext. The enhanced content may be synchronized with the video, or it may be available on command, so a return path is not necessary. Some of the leading vendors in this space include Wink Communications, Gemstar-TV Guide and OpenTV.

Internet on TV: allows viewers to browse the web, to read and write email and instant messaging and to carry out many, if not all the activities one can carry out accessing the internet on a personal computer. Leading vendors include MSN-TV, AOL-TV, Worldgate, Liberate and others.

Individualized TV: allows a viewer to modify a program such as changing camera angles at will, or guiding the plot in dramas or comedies or calling up instant replays in sports and live news. The leading vendors in this space include ACTV and OpenTV.

Video-on-demand (VOD): enables TV viewers to access video content whenever they wish. This should not to be confused with near video-on-demand (or current pay-per view offerings) where video automatically runs at staggered and frequent times on multiple channels. The leading vendors include Concurrent, DIVA, Intertainer, nCUBE and SeaChange.

Personal Video Recorder (PVR) functions: also called Personal TV or Digital Video Recorder (DVR) functions. This lets users record programming by title, timeslot, rating, actors or theme. With full VCR functionality, the PVR can pause during a broadcast as content is cached on the disk, or skip over commercials. PVR functionality can come from a 'stand-alone' device or be contained within a digital set-top box. Leading vendors include TiVo, ReplayTV and EchoStar

Walled Garden: a portal-like suite of interactive TV applications that usually includes communications, gaming, commercial and customer-care applications. Only the applications provided by the operator are available to the user, hence the wall around the garden. A walled garden iTV experience often is like another channel on the TV that the user can access with the press of a button, but the user has to be within the walled garden to access the available interactive applications. Leading vendors include OpenTV, Worldgate and many others.

Game Console: while game consoles are not normally included in the suite of iTV categories, the latest game consoles closely resemble interactive TV digital set-top boxes and should be mentioned. Microsoft's X-Box and Sony's PlayStation 2 consoles in particular, have significant processing power and storage capacity and have the potential to offer users more than just stand-alone gaming experiences.

Current iTV service providers are offering one or a combination of these iTV elements.

eMarketer defines iTV as two-way interactive services designed for the TV. Interactive services can be offered by any type of TV operator (e.g., cable, satellite and terrestrial broadcast), but a return path is required, whether it is via cable, wireless, or dial-up.

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Strategy Analytics estimates the number of worldwide interactive TV households at the end of 2001 was 38 million.

Worldwide Household Access to iTV Services, 2000-2001 (in millions of households)



Source: Strategy Analytics, 2001

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A number of comparative estimates would indicate that by the year 2006 there will be in excess of 200 million iTV households worldwide from as few as 20 million in 2000.

Comparative Estimates: iTV Households Worldwide, 2000 & 2006 (in millions)

Ovum, December 2000



Allied Business Intelligence, May 2001



Strategy Analytics, February 2001



Advanced TV, August 2000



■ 2000

■ 2006

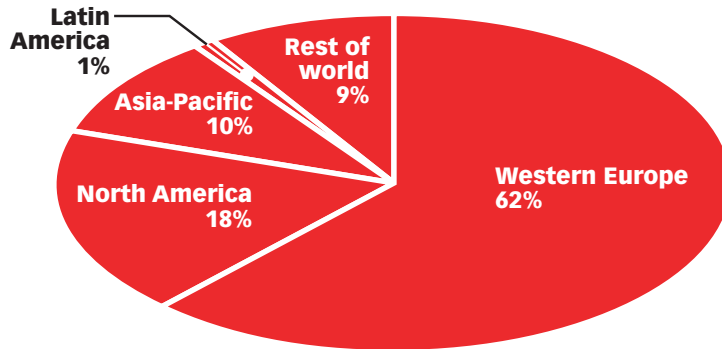
Source: eMarketer, 2002; various, as noted, 2000 & 2001

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In 2001, Western Europe had 62% of the world's iTV households, led in large part by the UK. At the end of 2001, eMarketer estimates the UK had 9.4 million iTV households or 38.5% of all households.

Distribution of Worldwide Interactive TV Audience, by Region, 2001



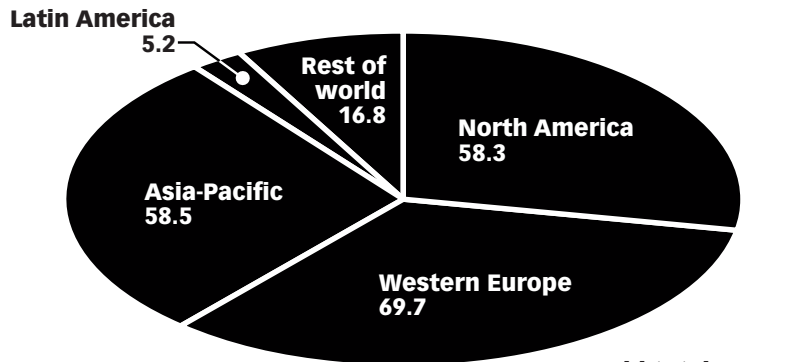
Source: Strategy Analytics, 2001

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By 2005, however, Strategy Analytics estimates that Western Europe, North America and Asia-Pacific will each have about 30% of the world's iTV audience.

iTV Households Worldwide, by Region, 2005 (in millions)



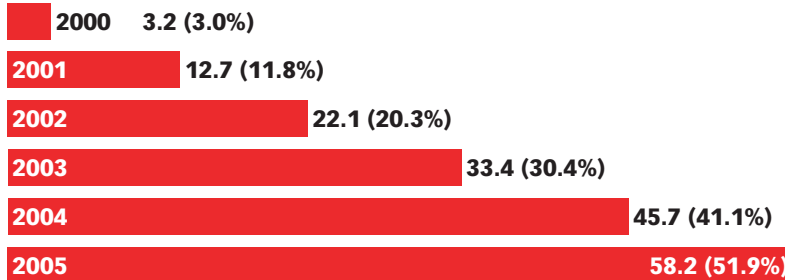
Source: Strategy Analytics, January 2001

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According to eMarketer, there were 12.7 million iTV households in the US at the end of 2001. This will rise to nearly 60 million households by 2005, which equates to over half of all households in the US.

US iTV Households, 2000-2004 (in millions and as a % of total households)



Source: eMarketer, 2002

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This forecast is based on three main assumptions:

- The growth of iTV households directly correlates with the growth of digital TV households, particularly digital cable services.
- The demand for premium digital content and a corresponding demand for interactive program guide and personal video recorder functionality will drive digital TV and iTV services
- The economic necessity for cable companies to offer additional interactive services in order to raise the average revenue per subscriber and prevent churn to satellite TV providers. Since basic cable penetration has almost reached saturation, growth in the future will only come from additional services such as high-speed data, telephony and interactive TV services.

“US iTV home penetration will reach 17 % in 2002, which usually signals critical mass.”

– Lydia Loizides, Senior Analyst, Jupiter Research March 2001

There is a great deal of disparity among research firms in their US forecasts for iTV. In 2001 the estimates range from 400,000 to 14.5 million households. In 2004 the estimates range from 4.7 million to 45.7 million. The outlier among the bunch is Pricewaterhouse Coopers. This is due to the fact that their definition of iTV households only includes web-based services such as AOL TV rather than server-based services, which are normally also included within the definition.

Comparative Estimates: US iTV Households, 2000-2005 (in millions)

	2000	2001	2002	2003	2004	2005
International Data Corporation (IDC), 2001	6.5	14.5	23.6	33.5	43.6	-
Jupiter Research, 2001	2.2	7.9	18.4	30.3	39.1	45.5
Strategis Group*, 2001	1.0	5.2	11.6	19.9	29.8	41.1
eMarketer, 2002	3.2	12.7	22.1	33.4	45.7	58.2
Yankee Group*, 2001	1.4	5.0	11.0	18.0	24.0	-
PricewaterhouseCoopers (PwC)***	-	0.4	1.4	3.0	4.7	7.0
Strategy Analytics**, 2001	-	6.9	16.1	28.2	43.2	58.3
Gartner, 2001	-	-	-	20.0	-	-
Cable World, 2000	2.5	-	-	-	-	27.3

*Note: *excludes WebTV; **North America; ***PwC iTV estimate is for web-based services only (e.g., AOL TV)*

Source: eMarketer, 2002; various, as noted, 2000 & 2001

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Interactive TV services are certainly not going to be attractive to all sections of the population, but there are some who seem more interested than others.

According to Horowitz Associates, Black and Asian US cable customers are far more interested in premium TV content and internet on the TV than are Hispanics or Whites. Even more noteworthy is that Blacks and Asians would be likely to subscribe at \$15 per month for the service. The survey reveals that Blacks are particularly interested in internet on the TV. This may be due to the fact that PC and internet penetration among this racial group is well below Whites and Asian Americans, according to the Department of Commerce's recent demographic study, A Nation Online.

Percent of US Cable Customers that Want Advanced Television Services, by Race, February 2001

	Digital TV	Premium channels	Want internet on TV*
White	16%	64%	14%
Black	21%	86%	27%
Hispanic	17%	79%	18%
Asian	18%	80%	22%
Overall	36%	70%	18%

*Note: *Percent that have internet on television or who say that they would be likely to subscribe at \$15/month*
Source: Horowitz Associates, 2001

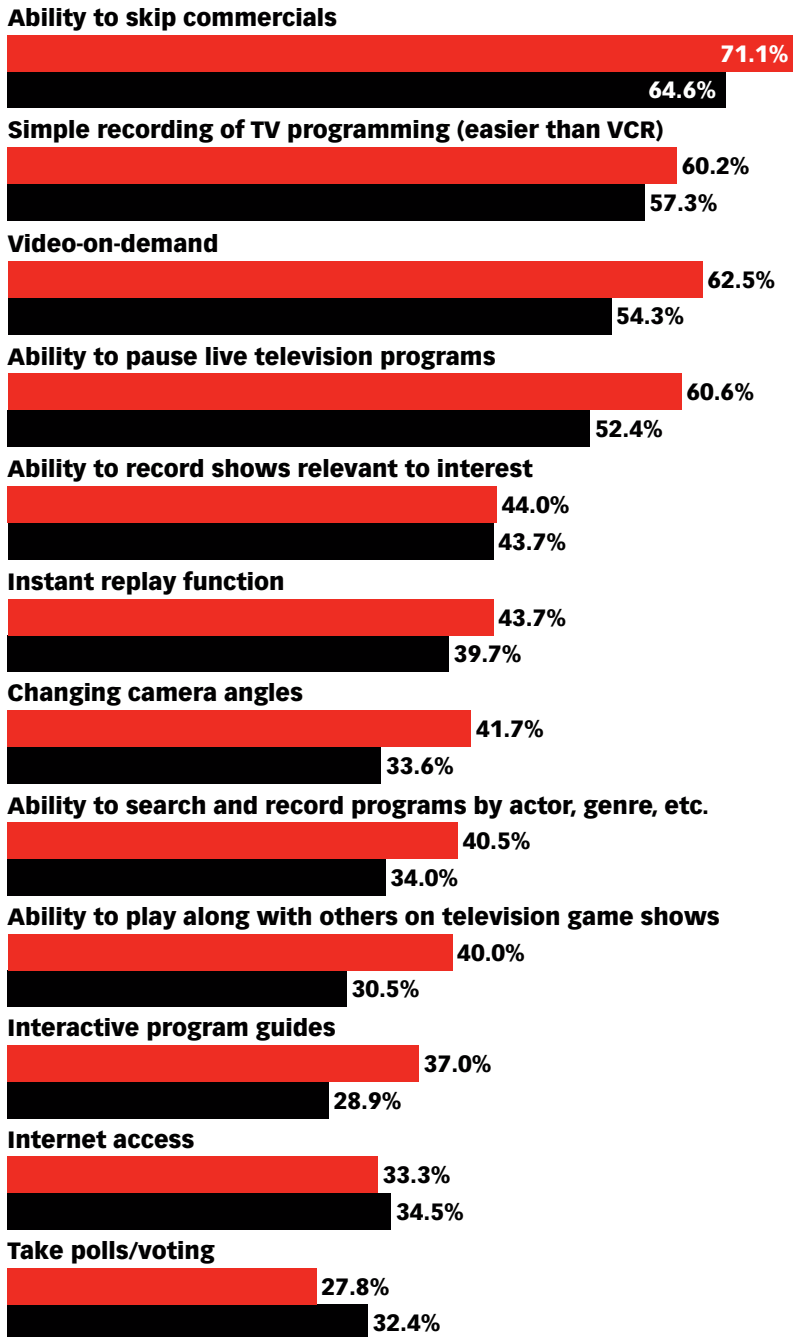
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A survey conducted in the UK by Market & Opinion Research International (MORI) indicates interactive television is being adopted faster by lower socioeconomic classes than PC-internet, and it may be an important channel for working class individuals who are less likely to buy a computer. The MORI survey finds that for social groups AB and C1 (representing well educated managers & professionals), internet access outweighs digital television ownership, but for social groups C2 and DE (less educated, unskilled workers), twice as many households have digital TV as have internet access.

E-Poll's December 2001 survey shows that 18-34 year olds are more interested in iTV services than those aged 35-54. Interestingly, the only interactive TV features that those between 35 and 54 are more interested in than the younger age group is internet, e-mail access and taking polls/voting on the TV.

US Consumers "Very Interested" in Selected iTV Services, by Age Group, December 2001 (as a % of respondents*)

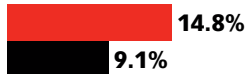


continued on page 18

E-mail



Message board or chat rooms to interact with other viewers



■ 18-34 ■ 35-54

Note: *n=558 adults 18+
Source: E-Poll, December 2001

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Accenture's survey of almost 700 satellite and cable households in 2001 identifies five main socio-demographic segments. They suggest that the first three segments are the most vulnerable to switching to iTV services – particularly video-on-demand, PVRs and gaming services. The three segments they identified as most likely to embrace iTV are:

Early adopters – Typically male, these consumers thrive on new technology and look for features over price. They are comfortable with self-installing new products. They value functionality and are image conscious. Their retention depends on continual new product development.

Utilitarian skeptics – These consumers are knowledgeable about technology and are willing to pay for specific features that meet their needs. They value utility, time and relative simplicity. And while they are the group most reluctant to spend on entertainment in general, they are willing to pay for the iTV services they believe will be particularly useful to them. They require highly targeted marketing to emphasize product functionality.

Only if it's easy consumers – These consumers appreciate technology and are most concerned with convenience and ease of use. They want to keep up with technology but aren't prepared to invest a lot of time and effort to do so. As a result, they are willing to pay for customer service levels that make using the products and services simple. Marketing messages need to emphasize value and eliminate perceived complexity.

Accenture indicates that of the consumer segments, Early Adopters, unsurprisingly, are the most interested in iTV services. Importantly, the survey reveals that 48% to 58% of these consumers are willing to pay a \$1.50-\$3.00 premium over video store rentals for video-on-demand. Between 46% and 63% of this segment said they were interested in PVR functions and would be prepared to pay sufficiently high prices for the service to be profitable in less than 15 to 20 months according to Accenture.

Interest in Future iTV Services in the US, 2001 (as a % of respondents within segment)

Video-on-demand



Personal video recorders



Enhanced TV



High speed internet



Interactive games



TV based e-mail



TV based commerce



■ Early adapters ■ Only if it is easy ■ Utilitarian skeptics

Source: Accenture, 2001

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Yankee Group reports in February 2002 that 59% of US boys age 16 to 17 express an interest in purchasing video-on-demand (VOD). Yankee finds that only 15% of girls in the same age range express the same interest in VOD. In terms of those people between the ages of 18 and 34, 39% of men and 29% of women say they are interested in VOD. Finally 29% of women between the ages of 35 and 49 and 30% of men in the same bracket report being “very” or “somewhat” likely to buy a VOD movie. Yankee also found that 31% of cable and satellite subscribers say they are “very” or “somewhat” likely to order a VOD movie for \$3.95.

The data indicates that young males are particularly interested in video-on-demand and personal-video-recorder functions, and that older individuals and minorities are more interested in internet on the TV than other sections of the population.

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The important thing for marketers to understand about iTV technology is that there are few universal technology standards, so to a large extent the global iTV marketplace can be broken down by a particular company's proprietary technology. The market is analogous to the North American wireless market where different wireless technologies such as GSM, CDMA, TDMA, iDEN are inexorably linked to particular companies that are deploying these technologies. So, to a certain extent the geographical distribution of iTV households is less relevant for marketers and application service providers, than the 'compatible technology' distribution of iTV households.

A. Digital TV

Television pictures, the world over, are transmitted into homes by means of three main technologies: terrestrial, cable and satellite. The television signal can either be an analog or digital TV signal. The major difference between the two is that digitizing the TV signal increases the capacity of the transmission technology, thereby allowing TV providers to offer a greater number of channels within their set frequencies. A digital TV signal can be transmitted through the air (terrestrial), through cable, from a satellite and even through the phone line using digital subscriber line (DSL) technology.

Each technology has its particular characteristics as the following chart indicates.

Digital TV Platform Characteristics, 2002

	Digital Cable	Digital Satellite	Digital Terrestrial	Digital Subscriber Line
Bandwidth per user	High	Low	Low	Medium/high
Return path	Real time/high speed	Slow/none	Slow/none	Medium/high
Services	Voice/video/data	Video/some data	Video/some data	Voice/video/data
Time to build out	Long	Short	Medium	Long
Footprint	Local/regional	National	Local/regional/national	Local/regional/national

Source: eMarketer, 2002

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Interactive television is not exclusively coupled to digital TV, as interactive TV services have been available for many years over an analog TV signal. The UK's Teletext service has been around for over 20 years. Digital TV however, considerably widens the opportunity for interactive services on the television and makes it a more viable and cost-effective opportunity for TV providers. With the growing demand for digital television around the world, and the fact that many national governments have mandated digital television in the next five years, a growing number of TV providers are offering interactive TV services.

B. The Set-top Box

The piece of hardware that transforms the TV into an interactive device is a set-top box (STB). There a number of categories of set-top boxes and different TV providers are employing different set-top boxes to reflect their different strategies. The importance of the set-top box is that it directly relates to the possible interactive services and applications an iTV user will have available.

Categories of Set-Top Boxes (STBs) Worldwide, 2002

Analog set-top boxes	Perform the functions of receiving, tuning and de-scrambling incoming television signals
Dial-up set-top boxes	Allow subscribers to access the internet through their TV
Entry-level digital set-top boxes	Are capable of receiving broadcast digital television and complemented with a pay-per-view system and a very basic navigation tool. Usually low cost, limited memory and processing power
Mid-range set-top boxes	Include a return path for communication with the server at the head-end. Usually double the processing and storage capabilities of an entry-level STB
Advanced digital set-top boxes	Bear a close resemblance to a multimedia PC. Usually contain 10 times the processing power of low-level STBs and significantly more storage capabilities in conjunction with high-speed return path which allows advanced services such as video conferencing, IP telephony, video-on-demand and high definition television
Advanced digital set-top box with PVR functionality	These STBs include a hard disk drive which allows users full VCR functionality allowing recording of shows and skipping of ads, etc. as well as all the functionality associated with an advanced digital STB

Source: Chorus, 2001; eMarketer, 2002

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C. The Middleware

The ‘intelligence’ within the STB is the middleware. This layer ensures the variety of different applications are all compatible and function across different hardware and operating system platforms. The middleware layer can be likened to Microsoft’s Windows software, which can function on a variety of hardware platforms, and a variety of applications can be developed that can sit on top of it.

“The net effect of the different platforms is that applications must be written for each individual platform, a timely and inconvenient step for developers.” – Morgan Stanley Dean Witter, March 2001

The leading middleware provider is OpenTV, which was recently acquired by Liberty Media. At the end of 2001, they recorded 23 million deployments of set-top boxes containing their middleware.

iTV Middleware Providers Worldwide, Year-end 2001

Middleware Provider	Memory Requirements	Deployed set-top boxes (all models)
OpenTV	<2 Megabytes	23.5 million
Liberate	2-8 Megabytes	2 million
MicrosoftTV	32 Megabytes	0.5 million
Sony	32 Megabytes	Data unavailable
Power TV	<2 Megabytes	6 million
Canal+ Technologies	2-8 Megabytes	11.5 million
Worldgate	<2 Megabytes	0.4 million

Source: eMarketer (from company data), 2002

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Interactive TV epitomizes the converging technological environment. Internet companies, broadcast networks, advertisers, retailers, telecommunications providers, content producers, device manufacturers and software providers all have a stake in the emerging iTV sector.

The interactive applications an iTV user accesses are provided by a multitude of service providers from firms such as: Gemstar-TV Guide, which may provide the interactive program guide; ACTV, which can allow the user to play games; and TiVo, which may provide personal video recorder functionality. Leading UK iTV operator BskyB claims it has over 200 separate applications available on its Sky Active service.

The Major iTV Market Segments, 2002

Applications

messaging, web browsing, personal video recorder, program guides, games, commerce, advertising, interactive content, telephony, digital music, video-on-demand, directory, billing, security monitoring, etc. Companies such as - TiVo, Gemstar-TV Guide, Intertainer, SeaChange International, Wink Communications, nCUBE, ACTV, RespondTV, etc.

Middleware

Microsoft, OpenTV, Liberate, WorldGate, PowerTV, Canal+, Loudfire, Sun Microsystems

Operating system

Microsoft (Microsoft TV, CE), Scientific Atlanta (PowerTV), WindRiver (VXWorks, PSOSystem), Microware (OS-9)

Conditional Access

NDS, Kudelski, Irdeto, Canal+, France Telecom

Hardware/Set-Top-Boxes

e.g., Scientific Atlanta (Explorer), Motorola (DCT 5000), Phillips (DVB MTC8030), Sony (SAT -A55), and Pace (Customer Specific), Siemens, Panasonic

Network Operators

(Cable, Satellite, Terrestrial, Digital Subscriber Line) e.g., AT&T Broadband/Comcast, DirecTV, EchoStar, Sky, Time Warner Cable

Source: eMarketer, 2002; Banc of America Securities, 2001

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Despite the increasingly fragmented audience across a multitude of interactive platforms, there are opportunities for providers of consumer applications for iTV. International consulting firm McKinsey Consulting examined the value potential for selected interactive TV services versus broadband PC services in the US in 2005. Their conclusion was that of the forecast \$32 billion in interactive services revenue across both platforms, iTV has the greater revenue potential.

Value Potential for iTV Applications vs Broadband PC Application Revenues in the US, 2005 (in billions)

iTV applications	Revenues	Broadband PC applications (1)	Revenues
Electronic program guide	\$1.7	Unified messaging	\$1.1
Internet on TV	\$2.3	PC Gaming	\$2.8
Movies on demand	\$3.5	Rich-media advertising	\$3.5
Walled garden	\$3.9	Streaming (2)	\$7.5
Enhanced broadcast	\$6.1	-	-
Total	\$17.5	Total	\$14.9

Note: (1) Includes \$1.3 billion from commissions allocated to the individual applications. (2) Includes \$740 million from e-commerce commissions that result directly from related transactions

Source: McKinsey Quarterly, No. 3, 2001

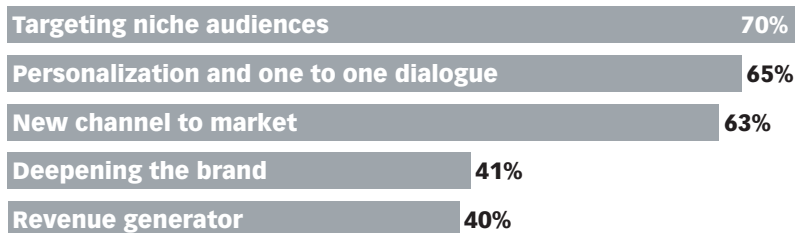
A. iTV Advertising

As has been well documented, the advertising sector across all media sectors took a nosedive in 2001. The 11 September attacks combined with the economic recession and falling consumer confidence were all important factors in this. eMarketer estimates the online advertising sector fell 11% in 2001 but will bounce-back in 2002, with a return to the spending levels of 2000 at \$8.1 billion.

Interactive TV advertising has significant potential primarily because it can allow advertisers to target messages to particular users based on their broad customer profiles. Addressable advertising, as it is called, can personalize advertising by each individual set-top box, and provide advertisers with a new way of tracking and accounting for the success of their advertising – thereby giving them greater returns on their investment. Unlike a normal 30 second advertisement on the TV, where it is difficult to measure the impact, interactive advertising has the potential to allow advertisers to view, in real-time, whether ads are being viewed, clicked and accessed, as well as allowing them to dynamically change ads depending on the success or otherwise of the existing ads.

In a recent study of UK marketing professionals conducted by BMPtvi, 70% of respondents saw the benefits of iTV advertising as being able to target niche audiences, and 65% cited personalization and one-to-one dialogue as also beneficial.

UK Marketing Professionals' Perceived Benefits of iTV Advertising, 2001 (as a % of respondents)



Note: n=304

Source: BMPtvi, March 2001

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eMarketer has developed forecasts for iTV advertising in the US which are based on the assumption that 1.4% of total television advertising revenue per household in 2001 was interactive advertising. In 2002, this will rise to 1.8% and in 2005 it will account for 6.7% of household advertising revenue.

US iTV Advertising Revenue, 2001-2005

	2001	2002	2003	2004	2005
iTV households (in millions)	12.7	22.1	33.4	45.7	58.2
Total TV advertising (in billions) ABN AMRO estimates	\$54.9	\$58.2	\$61.9	\$66.1	\$72.8
TV households (in millions)	105	106	107	108	109
TV Advertising per TV household per year	\$522	\$549	\$579	\$612	\$669
% of advertising per year that is iTV advertising	1.44%	1.82%	3.10%	4.90%	6.72%
iTV advertising per household per year	\$7.50	\$10.00	\$18.00	\$30.00	\$45.00
Total iTV advertising revenue (in millions)	\$95.3	\$221.0	\$601.0	\$1,356.0	\$2,619

Source: eMarketer, 2002

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Comparative estimates from other researchers would indicate that this is a relatively conservative estimate. Jupiter Research, for example, estimates iTV advertising revenue in 2005 to be \$4.5 billion and ABN AMRO \$8.3 billion. Myers Mediaenomics however, does not foresee any real iTV advertising sector in the next three years, with total revenues of \$215 million in 2005.

Comparative Estimates: US iTV Advertising Revenue, 2001-2005 (in millions)

	2001	2002	2003	2004	2005
Myers Mediaenomics, May 2001	\$20	\$30	\$58	\$120	\$215
eMarketer, 2002	\$95.3	\$221	\$601	\$1,356	\$2,619
Forrester Research, 2001	\$127	\$290	\$739	\$1,487	\$2,622
Jupiter Media Metrix, June 2001	-	-	-	-	\$4,500
ABN AMRO, 2002	\$106	\$348	\$1,888	\$3,934	\$8,270

Source: eMarketer, 2002; various, as noted, 2001 & 2002

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Interactive Program Guide

The interactive program guide (IPG), which is also interchangeably called the electronic program guide (EPG), was one of the first interactive TV services available to viewers. eMarketer believes that the vast majority of iTV advertising revenue will come from the IPG. With digital satellite and cable services providing hundreds of additional channels, navigating through all these channels or reading the print copy of the TV Guide magazine, is cumbersome to say the least. An onscreen program guide which allows viewers to find programs by genre, time and other criteria was developed in the 1990s to solve this problem. The potential for IPG is that it has the opportunity to become something of a web portal on TV, where advertising and commerce can be conducted. Data from leading IPG provider, Gemstar, indicates that 30,000 IPGs are being installed in homes each day.

The IPG has the potential to deliver almost 92,000 advertisements per year per household.

– Deutsche Banc Alex Brown

Deutsche Banc Alex Brown compared advertising on the internet with advertising on an interactive program guide (IPG). Their model shows that revenue per household per year is 50% greater on the iTV platform than that of advertising on the internet.

iTV vs. Internet Advertising Potential in the US, 2001

Interactive Program Guide (IPG)		Internet	
TV (hours/day/household)	7	Internet sessions/month	19
Guide visits/hour	4	Page views/session	35
Pages (views/visit)	3	Users/household	2
Days/month	30		
Page views/month	2,555	Page views/month	1,330
Ads/page	3	Ads/page	1.5
Months/year	12	Months/year	12
Total ads/year/household	91,980	Total ads/year/households	23,940
Utilization	27%	Utilization	27%
Ads sold	24,835	Ads sold	6,464
CPM	\$6.00	CPM	\$15.00
\$/households/year	\$149	\$/households/year	\$97

Source: Deutsche Banc Alex. Brown, July 2001

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As a cross check, Deutsche Banc also did a calculation on the advertising potential of AOL, the biggest brand on the Web. AOL is expected to generate \$14 per subscriber per month in advertising/commerce revenue by 2002, up from \$9.50 in 2000. Assuming 80% is derived from advertising, Deutsche Banc estimates that the average subscriber would generate \$134 in ad revenue per year, which is not dissimilar to their interactive program guide ad forecasts

B. T-Commerce

Television commerce or t-commerce includes sales of books, CDs, clothing, travel, food and other e-commerce goods and services one typically finds on the internet. eMarketer forecasts t-commerce revenue will near \$4 billion in 2005 from \$12.5 million in 2001. Our 2001 forecast is based on the assumption that only 1% of iTV households, or 125,000 households actually engaged in t-commerce in that year. eMarketer estimates that of these t-commerce households, they spent on average \$100 for that year.

One of the reasons why most research firms predict t-commerce will gain in popularity and prove lucrative in the long run is because shopping over the TV through cable TV shopping channels is already very popular and lucrative. Two of the biggest, QVC and Home Shopping Network (HSN) in 1999 had combined revenues of \$3.6 billion. More recent revenue figures from QVC (across all its businesses) show their total revenues in 2000 were \$3.5 billion, and in 2001 were \$3.9 billion.

eMarketer expects the level of interest in t-commerce to rise as more commerce providers embrace the platform and consumers become more familiar and better educated about the platform. However, eMarketer estimates only 15% of US iTV households will engage in t-commerce in 2005, with the vast majority preferring to use the PC to conduct home shopping.

US T-Commerce Revenue, 2001-2005 (in millions)

	2001	2002	2003	2004	2005
iTV households	12.7	22.1	33.4	45.7	58.2
% of iTV households engaging in t-commerce	1.0%	2.5%	5.0%	7.5%	15.0%
T-commerce households	0.125	0.553	1.67	3.43	8.73
Average annual revenue per t-commerce household	\$100	\$125	\$175	\$300	\$450
Gross t-commerce revenue	\$12.5	\$69.1	\$292.3	\$1,029.0	\$3,928.5

Source: eMarketer, 2002

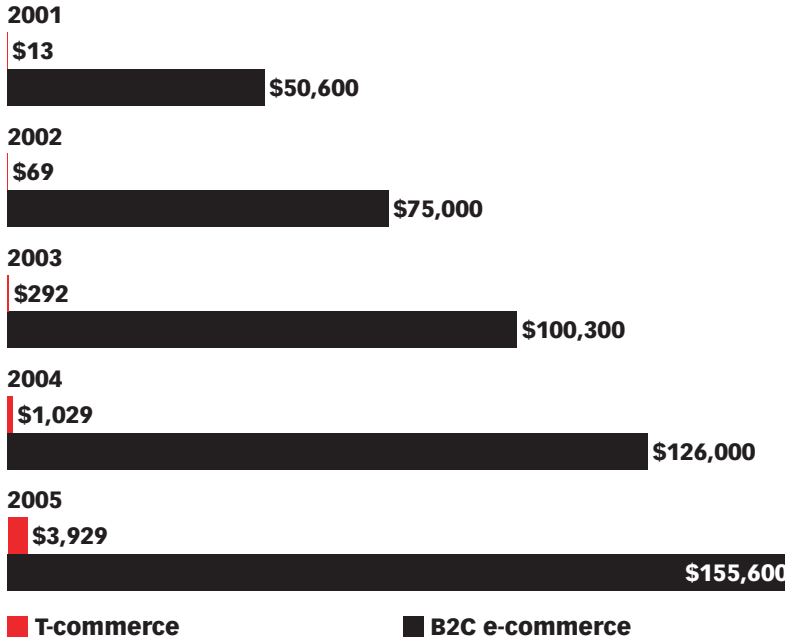
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Putting eMarketer's US t-commerce projections side by side with our PC-based e-commerce projections, what is abundantly clear is that eMarketer views the PC platform as the primary source of all B2C

e-commerce revenues in the next few years. By 2005, t-commerce will only account for 2.5% of all B2C e-commerce revenue.

T-Commerce vs. B2C E-Commerce Revenues, 2001-2005 (in millions)



Source: eMarketer, 2002

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eMarketer's t-commerce forecast is relatively conservative compared to other research firms. Gartner recently released a report predicting total B2C e-commerce in 2005 to be \$227.7 billion across the PC, TV and mobile platforms. Of that total, they predict e-commerce conducted over the television to total \$13.4 billion or 5.9% of total e-commerce.

Comparative Estimates: US T-Commerce Revenue, 2001-2005 (in millions)

	2001	2002	2003	2004	2005
Myers Mediaenomics, May 2001	\$18	\$28	\$60	\$120	\$250
eMarketer, 2002	\$12.5	\$69.1	\$292.3	\$1,029.0	\$3,928.5
Jupiter Media Metrix, June 2001	-	-	-	-	\$4,300
ABN-AMRO, 2001	\$43.1	\$272.0	\$1,213.9	\$3,405.5	\$6,211.5
Gartner, December 2001	-	-	-	-	\$13,400

Source: eMarketer, 2002; various, as noted, 2002

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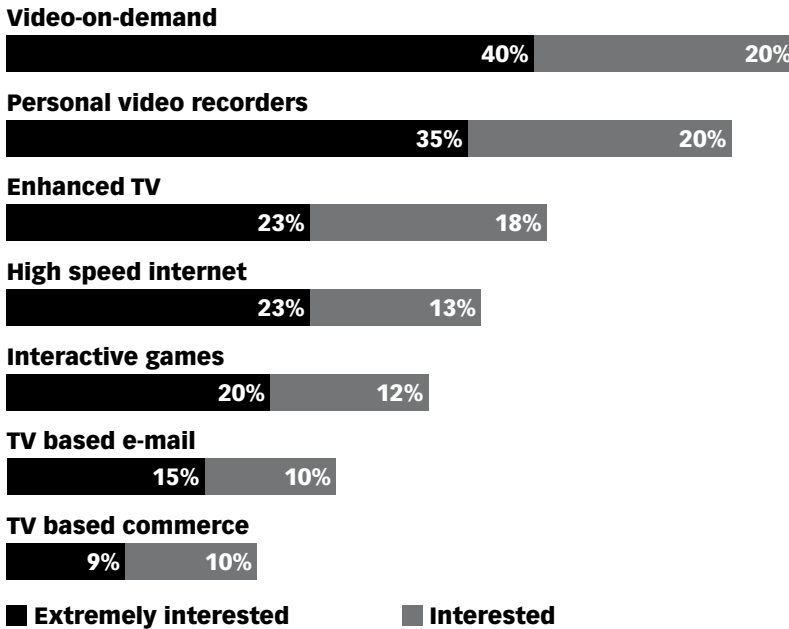
Myers, in contrast, does not predict a bright future for t-commerce at all, estimating total revenues in 2005 to be just \$250 million.

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“Couch potatoes and channel surfers have had decades to become set in their ways. If suddenly they can interact with their TVs, will they actually do it?” – Steve Molman, J@pan Inc, 2001

There are a variety of challenges facing the iTV industry, but one of the most pressing is educating the consumer about what iTV is, and what potential benefits there are in having it. A survey conducted by Statistical Research, in August 2001, reported that 72% of survey respondents were not interested in interacting with their TV programs. However, a variety of surveys do indicate that of the interactive features currently available, the ability to skip ads and video-on-demand and the most popular applications consumers would be willing to pay for.

US Consumers’ Interest in Selected iTV Services, 2001 (as a % of respondents)



Note: n=700
Source: Accenture, 2001

A. Challenges of iTV Advertising

There are some significant challenges to iTV advertising. These include:

- The emergence of personal video recorders (PVRs)
- The potential privacy backlash
- The problem of who owns the customer data, and who is going to sort and analyze it
- Technological incompatibility

Personal video recorders are fundamentally changing the way people watch television. Two important ways particularly relevant to advertisers are that:

- There is an increasing amount of television watched outside the scheduled program time slot (time-shifted TV viewing)
- PVRs allow a user to record shows without ads and to fast forward ads in live shows

“[We’re] laying down the foundation to destroy advertising models, and thus, TV as we know it today.” – CEO of Sonic Blue, Ken Potashner

While the demise of the 30-second ad slot is some way off, if a growing percentage of all TV viewing is time-shifted and PVR owners are avoiding at least some ads, there is a considerable amount of money being spent on TV advertising which is not reaching its target audience. Estimates for PVR growth vary, but one would surmise that with next generation digital set-top-boxes having pre-installed PVR functionality, the installed base of PVRs will grow in line with households upgrading to digital TV in the future.

Comparative Estimates: Installed Base of Personal Video Recorders (PVRs) in the US, 2004 (in millions)

International Data Corporation (IDC)

13.0

Deutsche Bank

16.0

Cahners In-Stat

28.0

Forrester Research

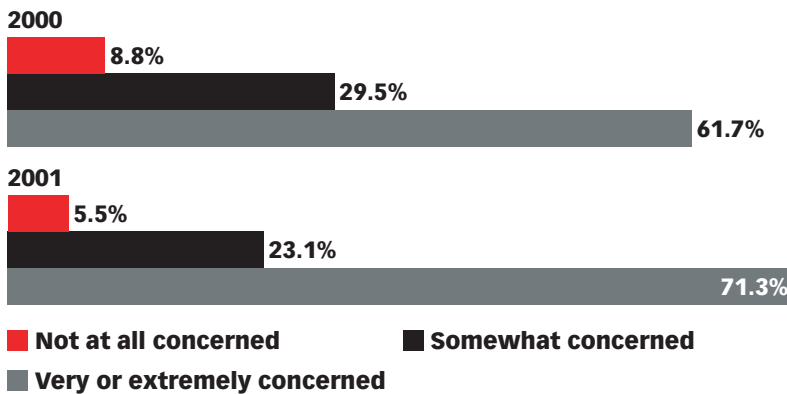
34.0

Note: Includes stand-alone PVRs as well as set-top-boxes which have PVR functionality

Source: eMarketer; various, as noted, 2001

iTV has the potential to assist advertisers in better targeting their advertising, because each digital set-top box is uniquely identified – not unlike a PC connected to the internet. It stands to reason that if advertisers know more about their audience, they will be in a better position to target relevant advertising to them. The challenge, of course is to ensure that iTV users do not feel their privacy is being abused. Despite the fact that more people are using and becoming more knowledgeable about the internet and interactive platforms, their concern about privacy is not waning.

US Internet Users' Level of Concern Regarding Online Privacy, 2000 & 2001 (as a % of respondents)



Source: UCLA Center for Communication Policy, November 2001

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It seems clear then that if advertisers or pay-TV companies wish to gather personal information from iTV users, they will need to get their permission every step of the way.

But let us suppose one is able to gather broad demographic (non-identifying data) from iTV users as well and also track their activity online. How will advertisers get their hands on this data? Will cable companies, for example, be willing to share it? Are they allowed to under their privacy guidelines? Who will be the ones to gather, analyze and process this vast amount of data into useful information? How much will this process cost in man-hours and back-end software/hardware? These are all questions that largely remain unresolved in the iTV space. While there is no doubt the response rate for targeted and addressable advertising will be higher than that of traditional TV advertising, this does not necessarily equate to a greater return on investment, if the investment is that much greater.

Another challenge for iTV advertising is that there is little compatibility across the various middleware platforms. For example, AT&T may partner with one set-top box manufacturer with a particular middleware platform, while DirecTV may have a partnership with a different and completely incompatible middleware platform. This has the potential to severely restrict the scope of iTV advertising to only those platforms capable of receiving it. If an advertiser wants to conduct a national campaign across a variety of platforms, then the technical hurdles would not be insignificant.

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Dominoes Pizza (UK) – Uses iTV as a sales and marketing channel and at the end of 2001 reported that interactive TV sales made up 2.3% of total sales and was its largest e-commerce channel. According to Sky, Domino's use of interactive ads has led to a 27% increase in pizza orders through the iTV platform.

Unilever - For its Chicken Tonight brand, it used Open [Sky's iTV middleware platform] to prompt a trial. By clicking on the red button on their remote control, as the interactive icon appeared during the ad, viewers were taken into a branded "Creative Kitchen" site, where they could access an interactive cookbook providing video recipes or elect to receive a coupon for a free jar of Chicken Tonight. (From Sky Interactive)

Ford – Sky's Open platform created a prototype for Ford, where clicking on the red remote control button, as the interactive icon appeared during the TV ad, brought the viewer into a Ford branded site. Options included ordering a brochure and booking a test drive.

MasterCard, Clorox, HotJobs, Sears – All are using Gemstar's interactive program guide (IPG) to target particular audiences. The IPG is laid out with advertising display panels on the left and program listings on the right. Listings can be sorted by theme, genre etc. When an ad or program is selected (clicked on), additional information is displayed, and a call to action – watch the show, buy the product – is offered.

This is a small selection of the variety of marketing and advertising opportunities available on the iTV platform.

Further examples of marketing and advertising on the iTV platform can be found at:

<http://www.itvt.com>

<http://www.broadbandbananas.com>

<http://www.itvmarketer.com>

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eMarketer Methodology

The methodology for all of our statistical reports is founded on a simple philosophy of aggregation:

The key to approaching quantitative truth on the internet is to consider data from as many reputable sources as possible. No one has all the answers. But taken together, multiple sources, coupled with healthy doses of common sense and business intelligence, create a reasonably accurate picture.

Unlike other research organizations, eMarketer does not conduct primary research. eMarketer has no testing technique to protect, no research bias and no clients to please.

The eMarketer research team first aggregates data from hundreds of published, publicly available sources; we then filter, synthesize and organize the information into easy-to-read tables, charts and graphs. For each topic, we provide comparative source data along with our own analyses, estimates and projections. As a result, each set of findings reflects the collected wisdom of numerous research firms and industry analysts.

Interactive TV: Reality & Opportunity

This report contains 194 pages and 200 charts.

For more information on Interactive TV: Reality & Opportunity, visit:

http://www.emarketer.com/ereports/itv_reality/welcome.html

To view the complete table of contents for Interactive TV: Reality & Opportunity, visit:

http://www.emarketer.com/ereports/itv_reality/contents.html

To view the complete index of charts for Interactive TV: Reality & Opportunity, visit:

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Call 877-378-2871 (877-eStats1), or e-mail sales@emarketer.com

Sales Contact:

Nick Fainelli
New Business Development
nfainelli@emarketer.com
212.677.6300

