EQUITY RESEARCH

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New Media/E-Commerce

Source: Gruntal & Co., L.L.C.

T-Commerce: Turning Television Sets Into Cash Registers

New technologies have enabled a shift from a few media choices consumed by mass audiences to highly individualized experiences unique to each consumer (see Table 1, inside front cover). Interactive television transforms a passive and linear viewing experience into both a participatory medium and a platform for commerce and communication. We believe that relevant timely information and offers presented seamlessly with content will create value for the consumer and generate incremental revenue streams for broadcasters, cable operators, and satellite providers. The information captured through interactivity brings advertisers the tools they need to conduct true one-to-one targeting and to acquire customers efficiently. We believe that in five years, most U.S. households will use their remote controls to interact with graphics on their television screens, enabling them to request information, make purchases, participate in activities, navigate program guides, and communicate. By 2005, Forrester Research, Inc., estimates that interactive television will generate incremental revenue of $25.0 billion, including advertising, television-based transactions (t-commerce), and subscription fees. Television-based program guides are expected to reach 87.0 million homes in the next five years. By 2005, interactive television is expected to be available to 65.0 million U.S. households.

This report examines the investment opportunities yielded by the convergence of traditional media, commerce, and the interactivity of the Internet. We discuss t-commerce participants, how their business models are changing, and the factors that will motivate them to embrace interactive television. We also include complete reports on ACTV, Inc., Princeton Video Image, Inc., ValueVision International, Inc., and Wink Communications, Inc., as well as profiles of many industry participants.

Table 1
THE EVOLUTION OF TELEVISION

	Broadcast TV	**Cable/Satellite TV**	**Web-Enabled/Interactive TV**
Programming Choices	Few	Many	Virtually infinite
Advertising	Mass market	Targeted	Precise, high response
Audience Characteristics	Captive	Fragmented	Singular
Level of Interactivity	None	Limited	Full
Commerce Opportunities	Direct response TV (DRTV), infomercials, commercials with 800 numbers	Home shopping, DRTV	Embedded offers in programs and interactive commercials, Internet retail, home shopping, DRTV, premium services, video on demand
Recipients of Commerce Revenue	Advertisers	Advertisers, home shopping networks, cable providers	Retailers, broadcasters, cable providers, satellite providers, advertisers, interactive service providers

Source: Gruntal & Co., L.L.C.

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All prices in this report are as of the close of September 11, 2000.

I. Interactive Television/T-Commerce Industry

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Highlights

- New technologies, such as personal video recorders (PVRs), threaten the traditional broadcast revenue model by enabling viewers to skip commercials. We expect (1) marketing messages to become more targeted and interactive, and (2) e-commerce offers to be embedded in content.

- The cable and broadcast industries are investing very heavily to upgrade their systems for digital transmission. Their need for the incremental cash flows from t-commerce and enhanced broadcasting to recoup their investment in digital transmission should fuel the interactive television industry.

- The migration of broadcast to digital signals from analog and the increasing penetration of digital set-top boxes allow interactive enhancements to be delivered simultaneously with video. These enhancements include data (sports statistics, TV listings), home banking, electronic program guides (EPGs), home shopping, interactive menus, corporate logos, links, e-mail, instant messaging, and interactive games. Applications must be developed for the emerging digital format.

- Digital transmission multiplies the number of cable channels available to broadcasters approximately six times, thereby enabling a proliferation of increasingly category-specific channels. As a growing number of content providers compete for advertising dollars, they will be under increasing pressure from advertisers to prove conversion of viewers to customers rather than to show mere ratings.

- The magnitude of the direct response television (DRTV) and home shopping industries demonstrates that consumers accept television as a shopping mechanism. New interactive functionality makes closing transactions easier than ever and is likely to drive impulse purchases.

- Cable and satellite providers must offer customers interactive services to remain competitive, and this should drive demand for interactive television services.

- Set-top boxes will be able to feed streaming video from the Internet to televisions, enabling a virtually infinite number of viewing options. With the breadth of content to choose from, we believe that EPGs will become indispensable and serve as a conduit for advertisers and merchants to reach consumers, much like portals on the Internet.

- The success of new technologies and services will be a function of consumer acceptance. The technologies and services must solve problems and not interfere with programming. A high “ooh-ahh” factor will not necessarily indicate a good investment.

- Innovative companies are responding to changes in technology and consumer behavior by building new business models and creating new revenue streams.

Investment Thesis

The Internet brings advertisers closer to a one-on-one dialogue with consumers. In this new interactive environment, the passive nature of one-way broadcast television becomes a less appealing choice for advertisers that wish to reach consumers. Exacerbating this situation is the proliferation of PVRs that enable consumers to skip TV commercials. Broadcasters and advertisers need to respond to these technological changes by making commercials interactive and relevant to the consumer and by placing digital advertisements within televised content. We believe that providers of interactive and enhanced broadcast services will experience a surge in demand for their services as broadcasters, cable, and satellite operators scramble (1) to offer compelling, high-response advertising opportunities for their sponsors; (2) to offer competitive, value-added services to their customers; and (3) to recoup their investments in digital transmission. Moreover, the conversion to digital programming from analog multiplies the number of channels available to consumers. The multitude of available channels will make broadcasting feasible by otherwise unlikely parties. Banks, retailers, schools, travel agencies, and other service providers will start to provide new programming services. For example, The Home Depot Channel could educate consumers about new products and special deals while serving as a customer acquisition tool. The time-shifting capabilities of PVRs make off hours viable programming times, especially as EPGs help people find programs across many time slots and channels. We believe that the firms that can provide production, fulfillment, and e-commerce services to these companies will benefit from the changing broadcast environment. We also believe that the market opportunity of TV-based commerce and advertising exceeds that of personal computer (PC)-based e-commerce and Internet advertising (see Table 2).

Table 2
INTERACTIVE TELEVISION MARKET OPPORTUNITY RELATIVE TO THE INTERNET

	Television	**Internet**
Installed Base	about **110 million** TV households	**34 million** PC households
Total U.S. Users	about **272 million**	**136 million**
Average Hours of Usage Per Week	**28**	**6.7**
Advertising Market	**$45 billion** in 1999	**$4.3 billion** in 1999
Commerce Projections	**$155 billion*** by 2004	**$104 billion** in 2004

*Includes TV-based retail sales (t-commerce), DRTV, and home shopping.

Source: Dataquest, eMarketer, *U.S. Census Bureau,* Computer Industry Almanac, *Nielsen Media Research, Inc., Forrester Research, Inc., and Gruntal & Co., L.L.C.*

Interactive Television Market Validation

Several blue chip technology firms have recently demonstrated their commitment to the interactive television market through major investments and product launches. Cisco Systems, Inc., recently invested $100.0 million in Liberate Technologies, Inc., which develops software that runs set-top boxes for interactive television. Microsoft Corporation has been very active by investing in the infrastructure that delivers interactive television applications, and has launched Microsoft TV, its own set-top box operating system. America Online, Inc., has recently extended its on-line service to be accessible via television. AT&T Corporation has partnered with many interactive firms to add enhanced services to its cable networks.

Interactive Television Defined

Interactive television (ITV) is an umbrella term that covers the transmission of data and files to analog TV, digital TV, a set-top box, or other device. ITV uses a combination of hardware and software to deliver information, graphics, files in hypertext markup language (HTML, the code used to create Web pages), and video on demand to the user's television. The delivery systems include broadcast airwaves, cable, satellite, digital subscriber lines (DSL, a high-speed telephone connection), and, to a lesser extent, multipoint multichannel distribution service (MMDS, wireless high-speed access).

Familiar graphical enhancements and information include station identification logos, opening credits, and MTV-style video/artist information. However, with ITV, viewers control the information they see and with which they interact with using a remote control or keyboard. Most broadcast enhancements are seamlessly integrated with the program. Some services enable the viewer to split the screen to interact and watch the program simultaneously while other services connect the viewer to relevant content and Internet sites that are not part of the program. ITV enables viewers to

1. Alternate between watching a program and an interactive application;
2. Continue watching a program while simultaneously interacting with an application that shares the screen with the program; and
3. Pausing the program with PVR technology and then returning when finished with an interactive application.

History of Interactive Television

There have been many experiments and trials in ITV, conducted by most of the major cable and telecommunications companies. In the early 1970s, the British Broadcasting Company (BBC) developed Teletext, a data broadcasting service. A vast menu of information and services is available through Teletext, including news, sports, weather, finance, travel, TV/radio listings, and games. Teletext still thrives, used daily across Europe by 14.2 million people and weekly by 22.2 million. The data is broadcast via the vertical blanking interval (VBI) in the analog signal, but Teletext is in the process of converting to digital transmission and is also available on the Internet. We believe that Teletext owes its endurance and penetration to the fact that, financed by advertising, it is free to consumers.

In 1977, Warner Communications launched the Qube network, which offered ten broadcast TV channels, ten premium/pay-per-view channels, and ten interactive programming channels. Interactivity was achieved with the upstream return path, which the cable operator uses to periodically poll each subscriber's set-top box to retrieve viewer communications. For example, when a viewer clicks a remote control button to order a pay-per-view movie, that information is stored on the set-top box. The cable operator downloads that information nightly, or more frequently, and bills the subscriber accordingly. This system is still in effect in one-way systems. Qube's high programming costs could not be covered, even by the prohibitively high subscription fees, and the network was broken apart and shut down. However, elements of the network have evolved into major media entities. Two original Qube programs, *Pinwheel* and *Sight on Sound*, grew into Viacom, Inc.'s Nickelodeon and MTV networks, respectively.

Perhaps the most ambitious unsuccessful attempt was Time Warner Inc.'s Full Service Network (FSN), which launched in December 1994 in more than 4,000 households in Orlando, Florida. Industry sources estimate that Time Warner invested as much as $100.0 million in FSN. The service offered video on demand, TV-based shopping, interactive games, an EPG, and interactive postal services on a pay-per-use basis. FSN's operations ceased in 1997 after failing to achieve a critical-mass level of usage and incurring substantial losses.

Why Past Attempts Have Been Unsuccessful

Most attempts at ITV have been unsuccessful for three reasons.

1. ***The equipment and service were prohibitively expensive to the consumer.*** Early ITV experiments required and charged customers a fee for every use. Qube required customers to buy a $200 set-top box, when most cable boxes available at the time cost $400.

2. ***Low penetration could not cover the capital expenditures.*** Costly to develop and deploy, interactive services require rapid large-scale acceptance to provide adequate returns to providers. Building customer bases from scratch in isolated markets proved too difficult.

3. ***Early ITV trials lacked uniform technical standards.*** It is prohibitively expensive for software developers to create several versions of an application for multiple hardware platforms. There tends to be a chicken-and-egg game between software developers and hardware manufacturers. Hardware firms are reluctant to produce set-top boxes for a platform that has very little software to run on it, and software developers tend to avoid writing applications for hardware systems that lack a large installed base. The acceptance of a uniform technical standard encourages development and promotion of the industry.

We believe that the following requirements must be fulfilled for interactive television to reach a critical-mass level of penetration.

- The ITV industry must raise awareness and educate consumers about its features and benefits.
- The installed base of ITV-enabled set-top boxes must continue to grow.
- Industry participants must adopt the Advanced Television Enhancement Forum (ATVEF) standard discussed in detail below.
- The industry must develop simple applications that either respond to consumer needs, improve convenience, or relieve a frustration.
- Market participants should continue entering alliances to harvest additional revenue streams.

Why We Think The Situation Is Different This Time

We believe that many lessons have been learned from early ITV trials. Mass production and declining technology costs have brought set-top box price points down to mass-market levels. The necessary infrastructure upgrade to support full-scale interactivity is already well under way. Many services are offered free to the consumer, or at low monthly fees, with extra charges only for premium services (such as video on demand). Market participants initiate partnerships to deploy products and services to large existing customer bases, such as cable and satellite subscribers. Further, we believe that the Internet's assimilation into American culture demonstrates that consumers crave interactivity. Finally, the industry consortium, ATVEF, has defined a technological standard to facilitate the widespread acceptance of ITV.

See Figure 1 (on pages 14-15) for a bird's-eye schematic of the t-commerce landscape at the end of 2000.

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Figure 1
THE T-COMMERCE LANDSCAPE

① **Content is produced, enhanced, and placed in proper format.**
- Broadcast enhancements, electronic commerce offers, and virtual advertisements are placed in content.
- Some programming, such as ValueVision, is also prepared to be simulcast on the Internet.
- Enhancements must be made compatible with receiver (ATVEF-compliant).

② **Broadcast signal is transmitted.**
Enhanced content is broadcast via
- satellite;
- wireless;
- terrestrial (broadcast airwaves);
- the Internet; or
- new broadcasters, such as iBlast Networks and Geocast Network Systems. These companies transmit rich, enhanced, digital video via wireless digital distribution for PCs equipped with special receivers.

③ **Delivery systems receive signal and reroute it to customer.**
- Content and enhancements are received by the delivery system, which includes
  - cable;
  - satellite;
  - DSL; and
  - MMDS.
- The delivery system stores the content and sends it to the consumer as requested. Content includes
  - TV programs;
  - videos on demand;
  - TV-based Internet access service; and
  - Internet-based applications and content.

④ **Set-top box/receiver decodes signal for viewing.**
The set-top box
- runs set-top box operating systems and applications;
- decodes the broadcast signal;
- assembles content and data for presentation on screen;
- builds and stores consumer profiles, which contain billing and shipping information for instant purchases; and
- stores filters for individualized content and advertisements.

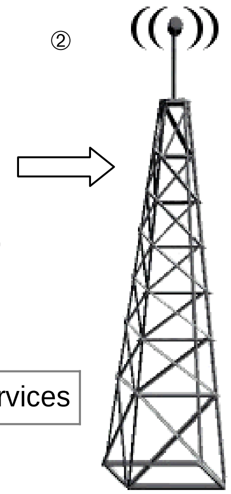
⑤ **Input device lets viewer interact.**
The viewer users a remote control or a keyboard to
- enter t-commerce orders;
- request information;
- navigate the EPG;
- play interactive games;
- surf the Internet; and
- type and send e-mail and instant messages.

⑥ **Return path transmits viewer communications back to service provider**.
A fully interactive system requires a real-time return path to the service provider. This enables the viewer to interact and communicate instantly.
- Some services require a dial-up modem to be hooked up to the set-top box.
- Many cable and satellite systems are being upgraded to two-way service.

⑦ **Customer relationship management handles fulfillment and billing.**
The viewer's orders are sent back through the delivery system.
- The delivery service provider routes this information to the appropriate party.
- Purchases and requests for information are fulfilled.
- Videos on demand and other requested content are served.
- The customer is billed.

Broadcasters and Cable Networks
- ABC
- CBS
- Discovery
- Geocast
- Home Shopping Network
- iBlast
- MTV
- NBC
- Oxygen Media
- PBS
- Shop at Home
- ValueVision
- QVC

①

②


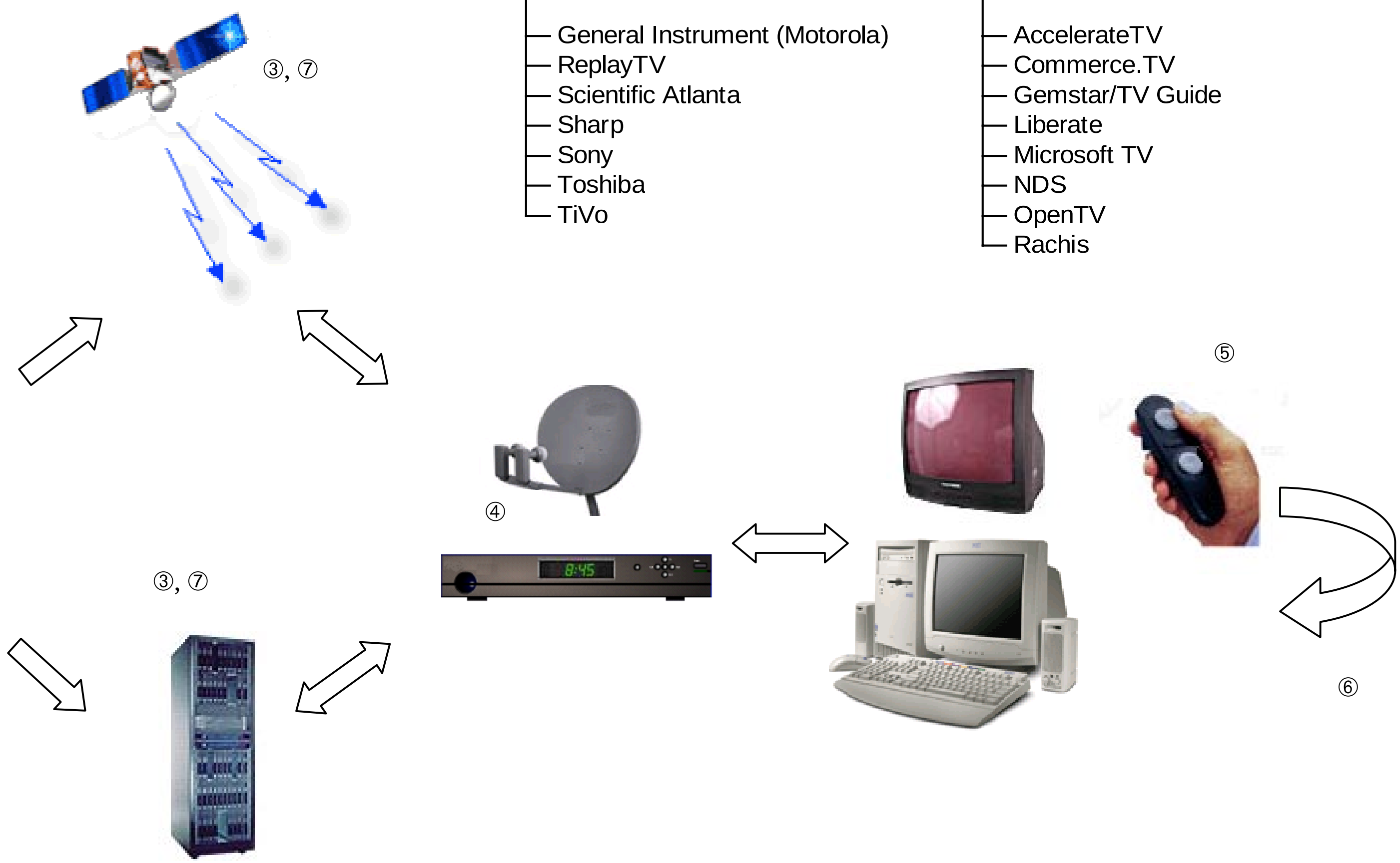
Broadcast and Advertising Services
- ACTV
- ExtendMedia
- Gemstar/TV Guide
- Liberty LiveWire (Liberty Media)
- Mixed Signals
- Princeton Video Image
- RespondTV
- SeaChange
- Spiderdance
- SporTVision
- Wink

Figure 1 (cont'd)
THE T-COMMERCE LANDSCAPE

Direct Broadcast Satellite (DBS)
- DirecTV
- Echostar
- **Services**
  - WebTV
  - Wink

Set-Top Box Manufacturers
- General Instrument (Motorola)
- ReplayTV
- Scientific Atlanta
- Sharp
- Sony
- Toshiba
- TiVo

Set-Top Box Operating Systems and Applications
- AccelerateTV
- Commerce.TV
- Gemstar/TV Guide
- Liberate
- Microsoft TV
- NDS
- OpenTV
- Rachis



Cable Operators
- Adelphia Communications
- AT&T
- Cablevision Systems
- Charter Communications
- Comcast
- Cox Communications
- Insight Communications
- MediaOne
- Time Warner Cable

Cable Services and Head-End Equipment
- ACTV
- AOL TV
- ICTV
- Gemstar/TV Guide
- PowerTV
- WebTV
- WorldGate

Video on Demand
- Concurrent Computer Corp.
- Diva
- Intertainer
- MeTV Network

Source: Gruntal & Co., L.L.C.

ATVEF Standard

Currently, interactive content producers must reconfigure their data to ensure compatibility with the growing array of television set-top receivers. Participants in the enhanced TV market realized that a proliferation of incompatible applications and hardware would limit mass acceptance of their services. They needed to agree on a standard protocol so that enhanced content can be used regardless of connection or set-top box platform. This protocol is analogous to HTML on the Internet. Regardless of type of computer, Internet service provider, operating system, or Web browser, anyone can view any Web page coded with HTML. In June 1998, representatives from 14 ITV-related companies founded the ATVEF. ATVEF has developed a technological standard that will enable content providers to deliver HTML-based enhanced programming to television sets over any delivery system (analog, digital, cable, or satellite) and through ATVEF-compliant set-top boxes and televisions. ATVEF’s members include CableLabs, Cable News Network (CNN, a division of Time Warner, Inc.), DirecTV, Inc., (a subsidiary of Hughes Electronics), Intel Corporation, Microsoft Corporation, the Public Broadcasting Service (PBS), Sony Corporation, and the Walt Disney Company.

Conversion to Digital Transmission

Television broadcasting is undergoing a transition to digital broadcasting and transmission from analog. The traditional analog signal transmits video and data at 6 Megahertz (MHz), limiting the amount of programming that can be distributed to the viewer at any one time. Broadcast enhancements through the analog signal are transmitted through the VBI, a thin slice of the broadcast spectrum that enables data to be streamed simultaneously with video. Closed-captioning, for example, has been transmitted through the VBI for decades. Many broadcasters currently transmit data via the VBI and are working with ITV companies such as Microsoft Corporation's WebTV Networks, Inc., WorldGate Communications, Inc., and Wink Communications, Inc., to provide their viewers with data enhancements, such as stock quotations, product information, TV schedules, and news headlines. The VBI, however, has very little bandwidth, which restricts the amount of data that can be transmitted on an analog signal. Once the transition to digital is 100%, VBI data transmission is expected to be phased out.

Digital transmission requires the conversion of analog content into compressed digital files, which take less bandwidth to transmit than analog content. Digital television enables the broadcast of several digital channels in the same amount of bandwidth that carried only one stream of analog programming. Digital widens the transmission spectrum, enabling broadcasters to provide viewers with more channels, offer viewers interactive applications and e-commerce, serve individualized advertisements, and add program enhancements. The higher bandwidth of the digital signal enables either of two possibilities.

1. ***Multiple channels, each using a fraction of a channel's bandwidth.***
   A process called multiplexing enables a transmission signal to be split, multiplying the number of channels available to consumers. Another application of this is ACTV, Inc.'s One to One Television, which uses four channels to create a personalized viewing experience (described in detail on page 52).

2. ***High-definition television.***
   High-definition television (HDTV) transmits superior-quality pictures and sound inside a wider screen, making it ideal for watching movies. However, HDTV requires significantly more bandwidth (20 MHz) than an analog signal (6 MHz). HDTV essentially uses the extra bandwidth to fill in more pixels on the screen, enriching the picture. The prohibitively high price points of HDTV receivers (typically starting at $4,000) make them unlikely to achieve mass penetration in the near term. Therefore, content development for HDTV is likely to be sparse for the next one to two years. Research firm International Data Corporation (IDC) forecasts that the installed base of HDTV receivers will reach 13.0 million by 2002 and soar to 138.0 million by 2007.

Some broadcasters plan to employ a combination of the two options—offering multiple channels for most of the day and broadcasting limited HDTV content during prime time. Most major broadcasters plan to start experimenting with multichannel broadcasting by next year.

The Federal Communications Commission (FCC) and the National Association of Broadcasters (NAB) have agreed to a rollout schedule that would make digital television available to 43% of U.S. consumers in 18-24 months. This is expected to increase to 50% within 30 months. As of July 11, 2000, 143 television stations in 50 U.S. markets were broadcasting in digital. According to a joint study by research firms FIND/SVP Group, Inc., and Strategy Analytics, Inc., almost 23.0 million homes worldwide will be watching digital television by the end of this year. Furthermore, another survey conducted by research firms Paul Kagen Associates and Cabil projected that nearly 27.0 million households would have digital television by year-end (see Table 3).

Table 3
DIGITAL HOUSEHOLDS, 1999-2009E
(millions)

	1999	2000E	2009E
Cable	5.1	11.5	16.6
Direct Broadcast Satellite	10.6	15.3	25.9
Total	15.7	26.8	42.5

Source: Paul Kagan Associates and Cabil.

Digital Infrastructure Enables Incremental Revenue Streams and Interactive Services

As broadcasters, consumers, and cable and satellite operators adopt digital transmission, new interactive services are emerging that seek to generate revenue from the new technology. According to the NAB, each of the major networks must spend about $55.0 million for transmission and production equipment to convert their systems to digital. The shift to digital transmission will result in broadcasters relying to an increasing degree on revenue from targeted viewer-specific advertisements and transactions. Cable and satellite providers will attempt to increase revenue per subscriber through higher subscription fees, charges for pay-per-view events, and fees for value-added interactive services. Subscribers will be able to use their TVs to browse the Internet, conduct transactions, do their banking, view local content and information, interact with programs, send e-mail, chat with other viewers, and play games. Digital transmission also facilitates video on demand, enabling viewers to select from a menu of programming from their satellite provider or the cable head end, a centralized server maintained by their cable operator.

Digital transmission multiplies the number of channels possible, adding to the audience fragmentation that the multitude of cable channels caused. The opportunity for advertisers is that ever-smaller audiences enable increasingly targeted marketing messages. Further, digital multiplies the number of commercials that can be delivered. Eventually, set-top boxes will be equipped with filters that use the household’s profile to select the most appropriate advertisement to show. Products to perform this function are currently in development by Wink Communications, Inc., ACTV, Inc., and Princeton Video Image, Inc. Marketers that track the behavior of customers and prospects and turn that information into marketing intelligence will gain real competitive advantages.

T-Commerce Relationships

Many participants in the ITV industry derive their revenue from another link in the ITV value chain. The cable and satellite companies decide which broadcast networks to carry other than those they are required to carry by FCC-mandated must-carry laws. Other networks pay the operators for carriage and leverage existing relationships to expand their carriage. For example, ValueVision International, Inc., 36% owned by the National Broadcasting Company, Inc. (NBC, Inc.), a subsidiary of General Electric Company, recently benefited from its relationship when NBC, Inc., helped it sign an agreement to enter an additional five million households served by Time Warner Cable. Cable and satellite operators also decide which electronics manufacturers' set-top boxes and receivers to distribute to their customers. The set-top box manufacturers, together with their cable and satellite partners, control which software platforms will run their products. Software platform developers (such as Liberate Technologies, Inc., Microsoft Corporation, and OpenTV Corporation) work with application developers (such as Wink Communications, Inc., and WorldGate Communications, Inc.) to ensure that the applications will run on the software platform. (This is analogous to PC program developers ensuring that their products run on Microsoft Corporation's Windows operating system)

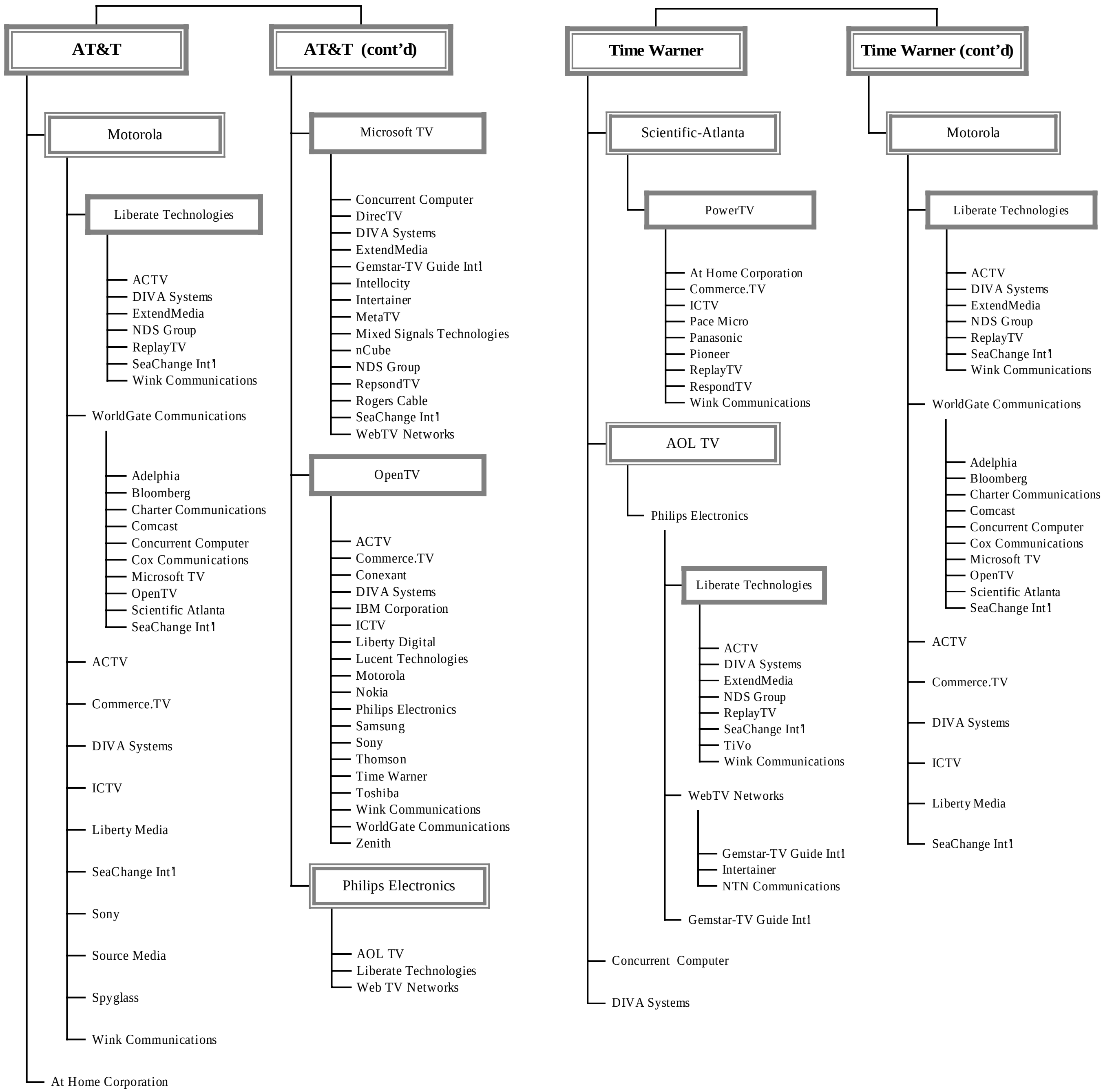
Delivery systems and media companies need each other. Media need means of transmission, and delivery systems need something to deliver. Many delivery systems, such as multiple system operator (MSO) Comcast Corporation, produce their own content, such as the QVC, Inc., home-shopping channel. However, FCC regulations prevent cable and satellite operators from controlling more than 40% of the channels they carry on their systems, so they need to carry content and services from other companies to remain in compliance. Conversely, FCC rules also limit any single company from reaching more than 30% of U.S. households with its satellites and cable systems, which translates into a maximum penetration of about 26.0 million homes. Therefore, enhanced TV and content companies need relationships with multiple cable and satellite systems to achieve national footprints.

Finally, it is important for ITV companies to partner with firms that control the billing relationships with customers, such as the cable and satellite providers and subscription-based services such as TV-based Internet access providers. The revenue models of many ITV companies depend on revenue-sharing agreements with cable and satellite providers.

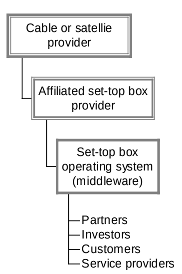
We believe that the strategic necessity of partnerships is likely to lead to consolidation in the ITV industry. For example, OpenTV Corporation, which makes ITV software, recently acquired Spyglass, Inc., which develops software for Internet devices and ITV. The acquisition of Spyglass, Inc., was strategically important to OpenTV Corporation not only because of Spyglass, Inc.'s relationship with set-top box manufacturer General Instrument (now part of the Motorola, Inc., Broadband Communications Sector unit). OpenTV Corporation also has important strategic partnerships with EchoStar Communications Corporation, America Online, Inc., Liberty Digital, Inc., News Corporation Ltd., Time Warner, Inc., and Sun Microsystems, Inc.

Figure 2 (on the next three pages) shows the multitude of connections in the ITV value chain. Starting at the top with the cable or satellite provider, we list the set-top box manufacturers, set-top box operating system developers, and ITV service providers that have commercial or investment relationships within each column.

Figure 2
T-COMMERCE RELATIONSHIPS



Legend



Note: The following organization charts illustrate the depth of relationships within the interactive television industry. A line connecting two companies indicates a commercial or investment relationship between the two companies. We limited the connections to those relevant to each group; therefore, this is not an all-inclusive partnership listing.

A company that has relationship within a lower tier does not necessarily have a relationship with the cable/satellite provider, set-top box manufacturer, or operating system. However, because distribution relationships with cable and satellite companies are crucial to the growth of most interactive television companies, we attempt to identify potential relationships through "degrees of separation" from cable and satellite providers.

Figure 2 (cont'd)
T-COMMERCE RELATIONSHIPS

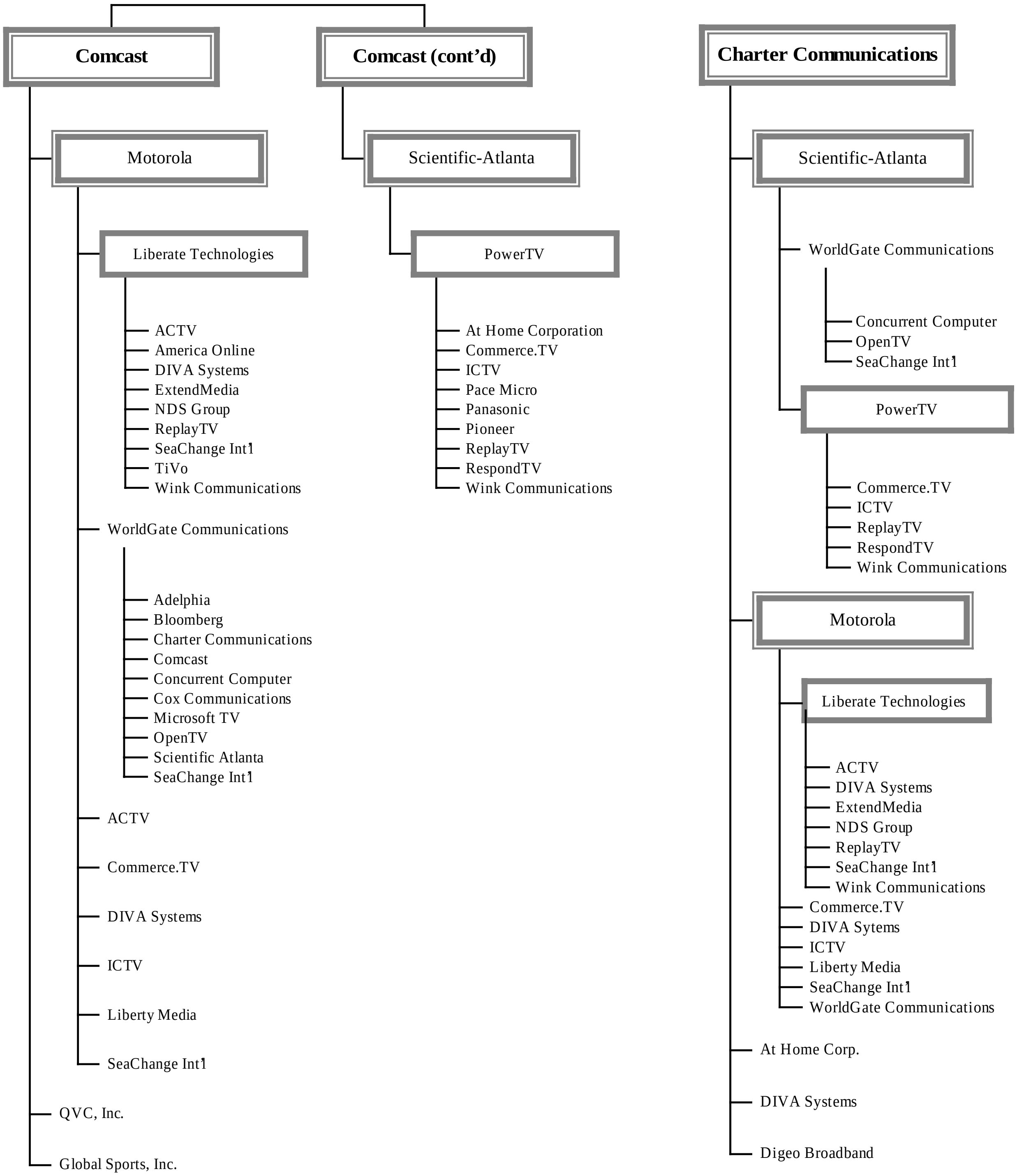
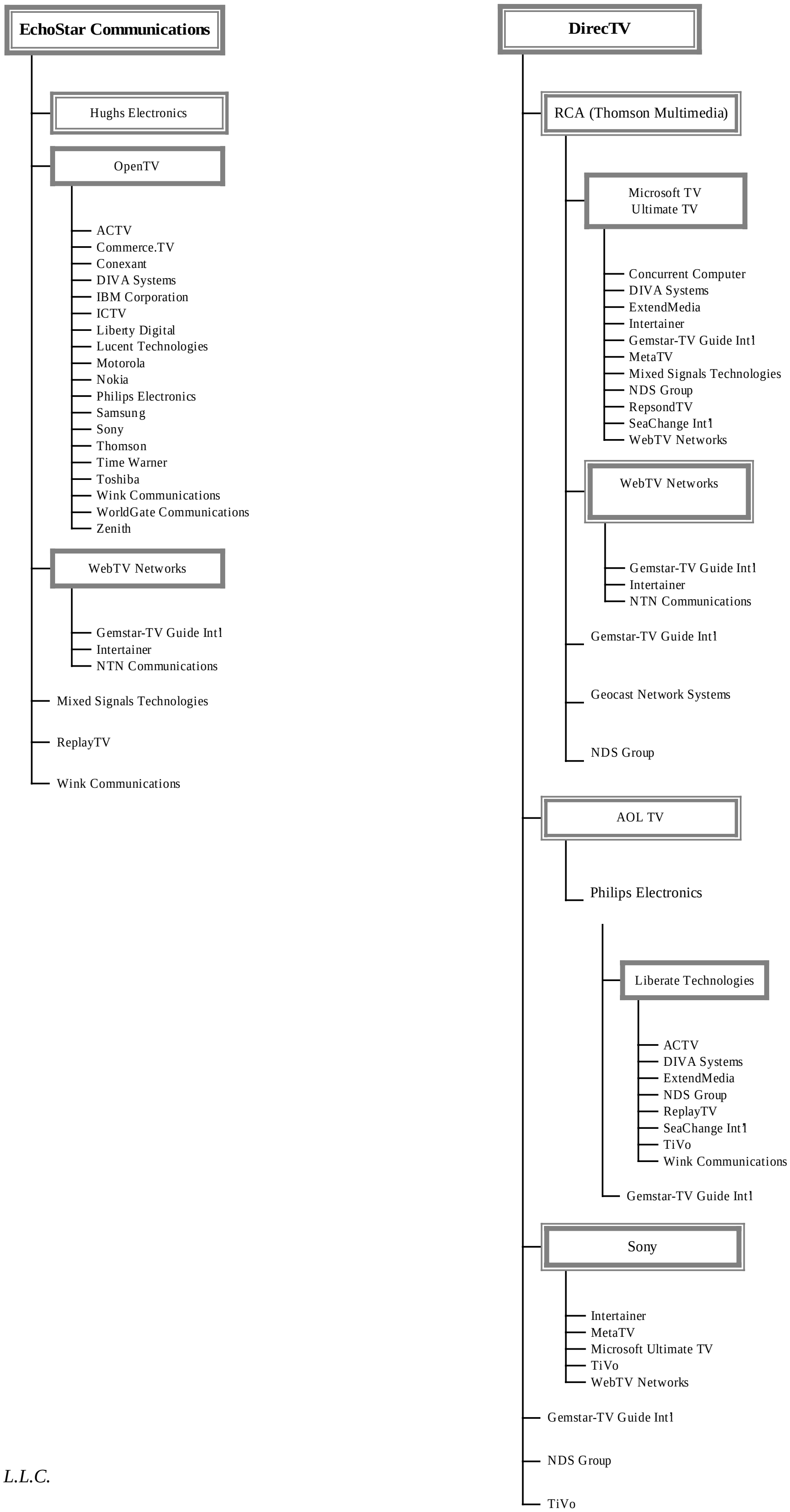


Figure 2 (cont'd)
T-COMMERCE RELATIONSHIPS



Source: Gruntal & Co., L.L.C.

Strong Foundation

We have recently witnessed the deterioration in the share prices of many Internet-related companies' common stocks as investors have grown impatient with companies that lack a defined path to profitability. The pullback has prompted industry consolidation and in other instances has caused companies to go out of business because of lack of additional financing. Before understanding the ramifications of such a shakeout, many well-established companies formed strategic alliances and invested in Internet companies by taking equity stakes. Others turned to dot-coms to drive key sources of advertising and sponsorship revenue to their Web sites. Unfortunately, many of these companies are unsuccessful and are not able to meet their obligations, and in some cases provide the more well-established companies with a negative return on investment.

Unlike Internet start-ups, companies that operate in the ITV marketplace usually partner with financially stable companies, such as major media, consumer product, and infrastructure companies. With regard to ITV, most companies depend on advertisers, cable and satellite companies, and broadcasters for their revenue streams. Table 4 below demonstrates the financial strength of many of these well-established companies, upon which ITV participants depend for integral components and drivers of their revenue streams.

Figure 3 (on the next two pages) illustrates cash flows among participants in ITV and t-commerce and cash flows from consumers.

Table 4
FINANCIAL CHARACTERISTICS OF KEY REVENUE SOURCES

Top 10 Advertisers*	Ticker	(9/11/00) Price	Shares (mil.)	Market Cap. (mil.)	Cash Balance (mil.)	Cash Flow Positive?
General Motors Corporation	GM	$74.50	534.8	$39,842.6	$13,300.0	Yes
Procter & Gamble Company	PG	62.69	1,307.9	81,989.0	1,964.0	Yes
Philip Morris Companies	MO	29.69	2,286.7	67,886.4	4,224.0	Yes
DaimlerChrysler AG	DCX	50.00	1,013.7	50,685.0	13,700.0	No
Diageo PLC	DEO	33.06	855.5	28,285.0	2,520.0	Yes
Worldcom, Inc.	WCOM	30.00	2,863.0	85,890.0	664.0	Neutral
Ford Motor Company	F	26.00	1,134.0	29,484.0	25,557.0	Yes
Johnson & Johnson	JNJ	95.01	1,390.9	132,146.4	4,500.0	Yes
Unilever PLC	UL	23.94	727.8	17,421.7	NA	NA
The Walt Disney Company	DIS	39.94	2,077.8	82,982.1	694.2	Yes
Top 10 Multiple System Operators						
AT&T Corporation	T	30.50	3,776.7	$115,189.4	$424.4	No
Time Warner, Inc.	TWX	80.31	1,201.6	96,503.5	459.2	No
Comcast Corporation	CMCSA	35.81	23.9	855.9	3,630.0	No
Charter Communications, Inc.	CHTR	14.25	222.0	3,163.5	130.8	No
Cox Communications, Inc.	COX	33.88	577.3	19,556.0	82.5	No
Adelphia Communications Corporation	ADLAC	31.44	113.1	3,555.6	138.5	No
Cablevision Systems Corporation	CVC	68.13	130.3	8,876.7	34.0	No
Insight Communications Company, Inc.	ICCI	17.44	49.2	857.9	112.9	No
Top Direct Broadcast Satellite Companies						
Hughes Network Systems	GMH	35.69	1,296.0	$46,251.0	$277.6	No
Echostar Communications Corporation	DISH	44.63	234.4	10,460.1	890.6	No
Top Broadcasters						
General Electric Company (NBC, Inc.)	GE	59.69	9,898.8	$590,834.6	$12,100.0	Yes
The Walt Disney Company (ABC, Inc., ESPN Network)	DIS	39.94	2,077.8	82,982.1	694.2	Yes
Viacom, Inc. (CBS, Inc., MTV Networks, Nickelodeon)	VIA	64.63	137.5	8,885.9	681.0	No
FOX Entertainment Group	FOX	29.94	176.6	5,287.0	133.2	Yes
USA Networks, Inc.	USAI	21.88	298.5	6,529.7	527.8	Neutral
Time Warner, Inc. (Turner Broadcasting, etc.)	TWX	80.31	1,201.6	96,503.5	459.2	Yes

**Determined by 1998 advertising expenditures on both cable and network television. NA = Not available.*

Source: Bloomberg, Baseline, and Gruntal & Co., L.L.C

Figure 3
INTERACTIVE TELEVISION CASH FLOWS

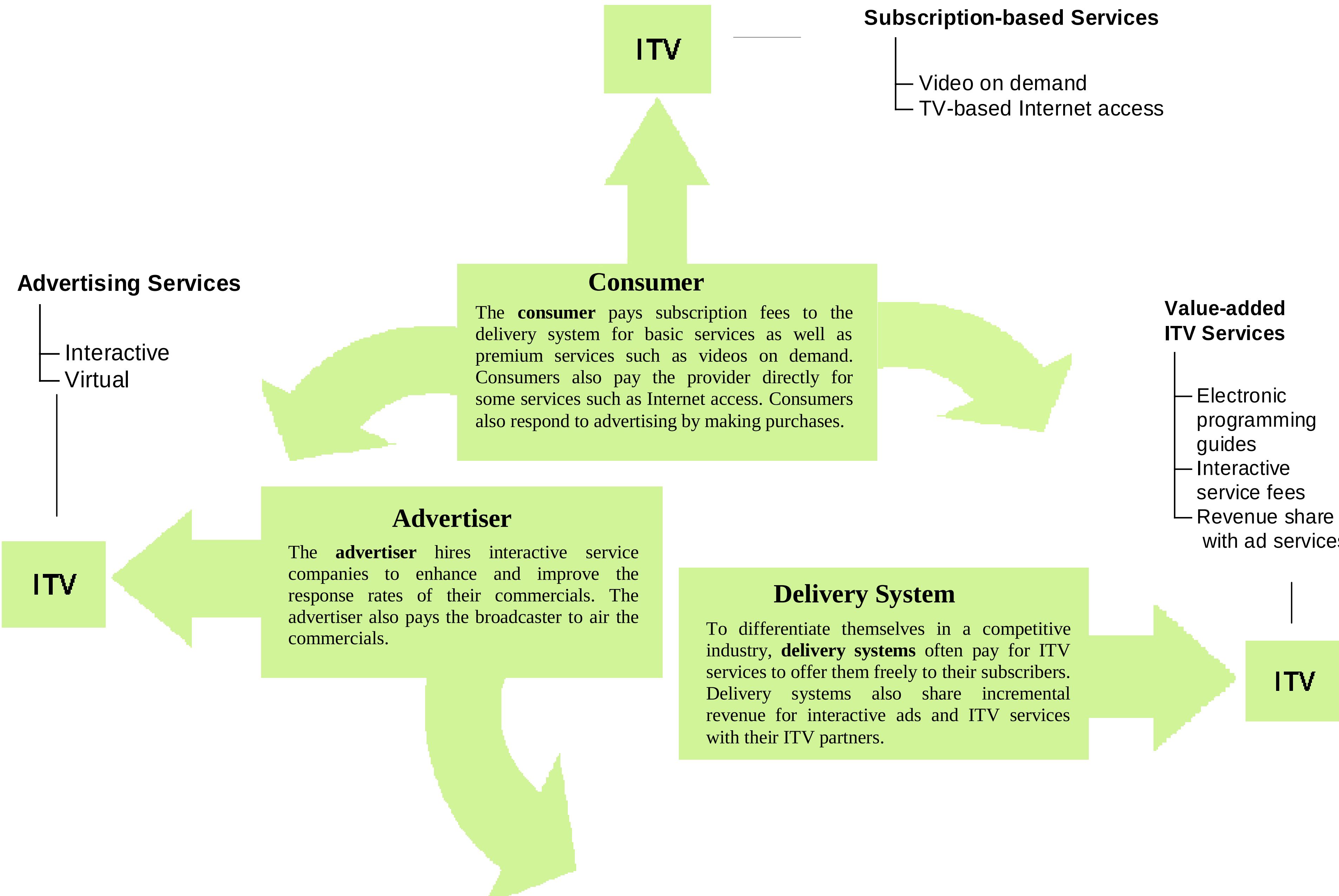
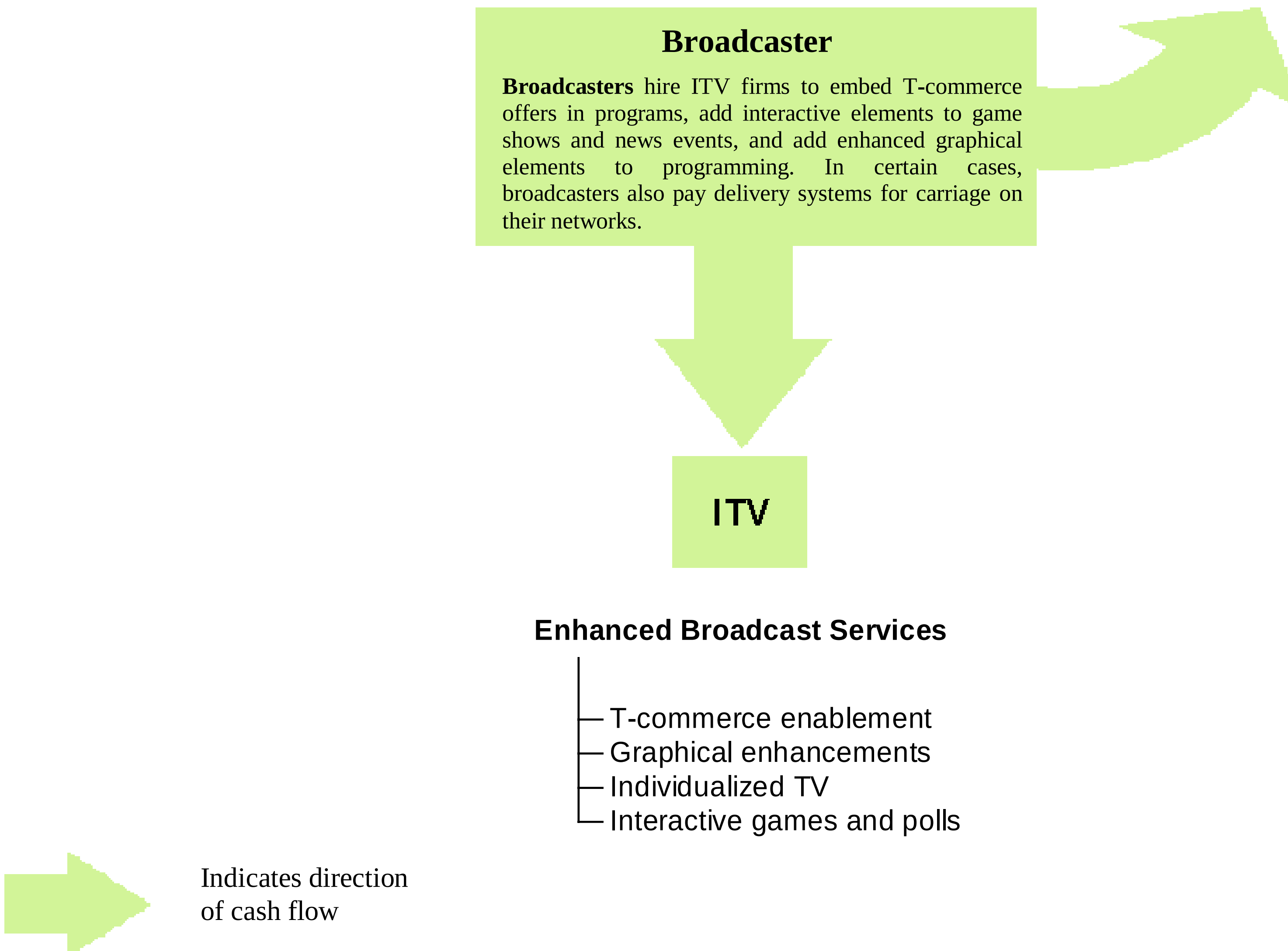


Figure 3 (cont'd)
INTERACTIVE TELEVISION CASH FLOWS



Source: Gruntal & Co., L.L.C.

Interactive Television—The Demand Side

Broadcasters, advertisers, and cable and satellite operators are usually the parties that pay for or deliver ITV services, and fueling the demand for them. The following sections discuss the changing environments and business models of advertisers, broadcasters, and cable and satellite providers. We believe that these changes will motivate each of these industries to capitalize on the opportunities of ITV.

Broadcasters and Advertisers

The Threat of Commercial Zapping and Time Shifting

Viewers consume broadcast television freely, funded by advertisers via television commercials. Cable subscription fees compensate cable television networks only partially; they too rely on advertising revenue to support their operations. The one-way nature of television (network to consumer) limits its revenue streams to passive advertising. Total revenue of the television broadcast industry rose 3.7% in 1999 to $40.6 billion, according to the Television Bureau of Advertising (TVB), CMR Research, and McCann-Erickson Worldwide. This system has been successful to date; however, new technology is threatening the advertising model that has covered the expenses of broadcasting. PVRs equipped with digital hard drives enable viewers to manipulate programming and skip commercials effortlessly, resulting in problems for broadcasters. Advertisers will be less inclined to support broadcast television if their marketing messages can be avoided easily. We believe that within five years a significant majority of television viewers will have access to PVR technology, either through a stand-alone unit, or built into a set-top box, or embedded in the television. Therefore, broadcasters need to make sure that advertising is compelling, targeted, and relevant.

Is Broadcast Doomed?

When remote controls were introduced, some warned that channel surfing during commercial breaks would ruin the ad-supported broadcast models. Then videocassette recorders (VCRs) were predicted to hurt broadcast as viewers fast-forwarded through commercials. However, most consumers use VCRs to watch prerecorded movies and not to record programs. Despite our concerns about PVRs, we do not forecast the demise of broadcasting or anything remotely as dramatic. However, we do believe that PVRs are much easier to use than VCRs to record programs and that broadcasters must address these issues immediately to protect their advertising streams. We believe that healthy broadcasters will respond with more competitive programming and interactive features.

Table 5
BROADCAST TELEVISION AD REVENUE, 1996-2000E
($ millions)

Year	Revenue	% Change
1996	$31,271	—
1997	$32,458	3.8%
1998	$39,145	20.6%
1999	$40,575	3.7%
2000E	$44,266	9.1%

Source: Television Bureau of Advertising, CMR Research, McCann-Erickson Worldwide.

PVRs also enable consumers to time shift, or watch a program whenever they choose. Time shifting diminishes the importance of the network and its role in programming and scheduling. With simple-to-use EPGs, viewers are less likely to watch a show just because it is broadcast at 8:30 P.M., between their two favorite shows. Research firm Forrester Research, Inc., projects that 28.0 million PVRs will be installed in households by 2005. If content is more important than network identity, networks need to reinvent themselves and their value propositions to the consumer.

However, the success of PVR technology depends on the continued health of network television. If the PVR industry weakened the broadcast industry by undermining its revenue streams and therefore, its hit-making mechanism, there would be no hit shows to record. In fact, TiVo, Inc., counts NBC, Inc., CBS Worldwide, Inc., (CBS, Inc., a unit of Viacom, Inc.), and the American Broadcasting Company, Inc. (ABC, Inc., a unit of the Walt Disney Company) among its investors. NBC, Inc., in particular, has been proactive in partnering with PVR companies, investing in both TiVo, Inc., and ReplayTV, Inc. NBC, Inc., has also made a priority of developing appointment TV, shows that prompt viewers to adhere to a program schedule to be prepared for the following day's water cooler chat. However, we believe that the broadcasters are well aware of the challenges and opportunities prompted by new technology and will be proactive in adopting enhanced broadcasting, interactive advertising, and T-commerce.

Converting Viewers to Shoppers

The Internet's two-way nature permits consumers to interact with content providers, advertisers, and each other instantly. This enables consumers to react to media in real time and to conduct transactions on line. While advertising is still an important source of revenue on the Internet, commerce (the sale of goods and services) has emerged as a crucial component of many business models. Having observed this phenomenon, television networks realize that to compete for advertising budgets they must also offer advertisers the tools to close transactions. By adding interactivity to broadcasts, Web-enabling their content, and driving viewers to their Web sites, broadcasters too can add transactional revenue streams. The success of home shopping networks, infomercials, and 800 numbers has shown that consumers accept TV as a shopping mechanism. We expect new digital technology to accelerate the use of the television as a transactional and informational appliance.

Driving Traffic

Broadcasters are beginning to leverage the power of their reach to drive audiences to their Web sites for more information and to participate in e-commerce. The massive reach of broadcasters will help them educate consumers about ITV and persuade them to use it. They can also use their on-line presence to promote their TV broadcasts. A new study by research firm Cyber Dialogue, Inc., finds that traditional media are the best means of driving visitors to the Internet, estimating that 19.0 million people use the Web to visit television-related Web sites. The report finds that 40% of this group is looking for additional information versus 2% intending to download TV clips. The official Web sites of the big three networks, ABC, Inc., NBC, Inc., and CBS, Inc., account for about half of this traffic. NBC, Inc., for example, has put its marketing muscle behind its sister Internet network, NBC Internet, Inc., the goal of which is to convert NBC, Inc., viewers into NBC Internet, Inc., members and customers. NBC Internet, Inc., is now one of the top ten most visited sites on the Internet according to audience measurement statistics from Media Metrix, Inc.

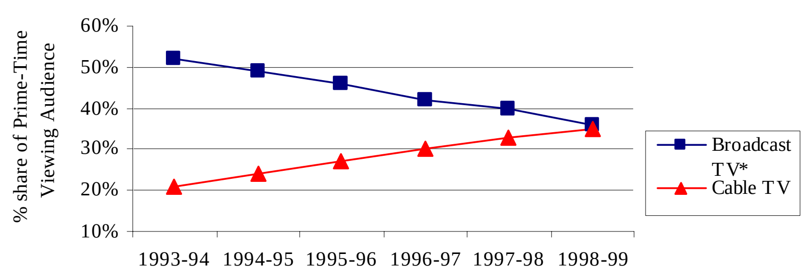
Enhanced TV, which enables TV viewers to access unique content via their PCs synchronized to the second with television programming, attracted 650,000 users on Super Bowl Sunday. ACTV, Inc.'s HyperTV service is a leader in this category and holds many important patents on the delivery of Web content that complements TV programs. Broadcasters are experimenting with programs that require Web participation in order to watch the entire program. A recent episode of the ABC, Inc.'s *Drew Carey Show* attracted 1.7 million TV viewers, almost 2.0 million Web page hits, and 650,000 downloaded video streams. Enhanced TV telecasts of ABC, Inc.'s *Who Wants to Be a Millionaire?* have drawn more than two million players who have typically logged on for an extraordinary 45 minutes at a time. PBS television has also been progressive in its convergence strategy, making its content available on such devices as Palm Pilots, digital and wide-screen TVs, and companion Web sites. PBS television frequently urges viewers to extend their content experience on line. This business model enables many broadcasters to participate in transactions for the first time rather than stopping at delivering impressions for sponsors.

We believe that two-screen experiences will thrive as more consumers multitask (use the PC and TV simultaneously). However, new interactive TV applications bypass the need to switch to the PC to close transactions by making the full functionality of e-commerce available on the TV screen through a remote control. According to a study by research firm Yankelovich Partners, 52% of Internet users would rather access the Internet by television rather than a PC. WebTV Networks, Inc., WorldGate Communications, Inc., and AOL TV deliver Internet access to cable and satellite subscribers through their televisions.

So Many Channels . . .

Cable television networks caught up to broadcast networks in terms of ratings almost two years ago (see Figure 4). We believe that the flood of Internet-streamed video will intensify the competition for viewers. We believe that broadcasters will offer viewers compelling interactive content to rescue their declining ratings.

Figure 4
CABLE TV vs. BROADCAST TV MARKET SHARE, 1993-1999



**ABC/CBS/NBC*

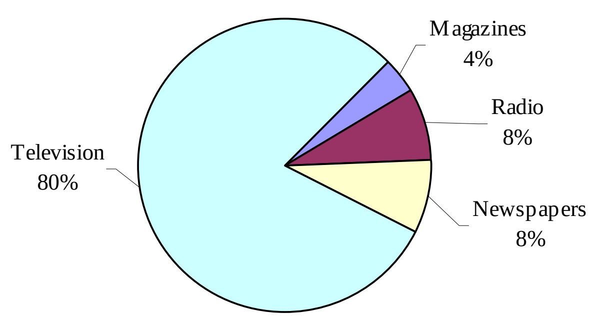
Source: Cabletelevision Advertsing Bureau and Nielsen Media Research, Inc.

Instant Lead-Generation Mechanism

Because TV commercials have several objectives, their effectiveness is difficult to quantify. Those objectives include building brand awareness, improving brand recall at the point of sale, and generating leads and/or transactions. Many studies measure only brand recall by polling test groups and asking whether members of the group remember commercials that they viewed. Media research firm Roper-Starch Worldwide, Inc., found that 62% of consumers are likely to learn about products that they would like to buy from

TV commercials versus 20% from newspaper ads, 12% from magazine ads, and 4% from radio ads. However, until recently, there has been no way to evaluate the lead-generating abilities of an impression. A recent report by industry market research groups the TVB, The Media Center, and Bruskin-Goldring found that 80% of consumers identified television as the most influential advertising medium (see Figure 5). ITV offers advertisers an instant lead-generation mechanism. Advertisers need more than the delivery of static impressions from broadcasters. They want qualified leads. Interactive services such as Wink Communications, Inc., and ACTV, Inc., will be motivated to share the consumer data they gather on viewers in exchange for the broadcasters' continued development of enhanced content.

Figure 5
RELATIVE INFLUENCE OF ADVERTISING MEDIA



Source: TVB, The Media Center, and Bruskin-Goldring.

Economics of TV Commercials

Walter Chrysler used to say that he knew 50% of the Chrysler Corporation's advertising budget was wasted. The only trouble was, he did not know which half. According to an article published in *The Wall Street Journal* (a unit of Dow Jones & Company, Inc.), the average 30-second spot costs $308,000 to produce. The number of times a spot airs varies widely, so we assume an average of 100 airings to estimate the total cost of each airing (production plus air time). A 30-second spot during the NBC, Inc., show *Friends* costs $450,000. Therefore, we estimate that a prime-time network TV spot costs advertisers $453,080 ($450,000 + $308,000/100). *Friends* is watched weekly by 42.8 million viewers, according to Nielsen Media Research, Inc., resulting in a $10.59 cost per thousand impressions (CPM). However, a joint study in TV commercial effectiveness by the Cabletelevision Advertising Bureau (CAB) and Nielsen Media Research, Inc., found that only about 62% of viewers continue watching at the commercial break. Of those viewers, only about 13% were able to recall at least one commercial. Applying these findings to the *Friends* audience, the advertiser made about 3.5 million memorable impressions (assuming that its ad was among those recalled). This translates to a cost of $131.32 per impression. By Internet retail standards, this is a high customer acquisition cost even if it guaranteed a sale.

Increasing Advertiser Return on Investment

To justify the cost of this advertising, advertisers should be motivated to close transactions with as many of these viewers as possible. Adding an interactive element to continue a dialogue with the viewer and proceed with a transaction has become easy to do and is very cost effective. The cost to enhance a commercial is as little as a few thousand dollars—pennies when amortized over the actual attentive audience. According to a study by Forrester Research, Inc., advertisers value a qualified lead 100 times more than a simple impression. We believe that the opportunities for advertisers to dramatically improve their return on advertising investment will be a powerful driver of the ITV industry. Figure 6 (on pages 32-33) provides an overview of the milestones in the relatively recent history of television and advertising.

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Figure 6
MILESTONES IN THE HISTORY OF TELEVISION AND ADVERTISING

1940s

1948
Early cable systems are developed in isolated areas of the U.S. to bring TV signals to areas without off-air reception.

1949
The U.S. Dept. of Commerce comments that television has been pushed beyond an advertising medium and "into the realm of personal solicitation."

1950s

1952
TV households increase 33% over the prior year to 20.0 million.

Advertisers spent a record $228.0 million on TV ad time.

1954
Television becomes the leading advertising medium, spurring discussions for the establishment of the Television Advertising Bureau.

1955
Popular show "Queen for a Day" moves from radio to TV, and NBC increases the show's length to sell ad time at premium rates.

1957
Variety magazine reports that, during a typical week, an individual views 420 commercials totaling over five hours.

1958
There are 525 cable systems with 450,000 subscribers in the U.S.

Ad expenditures for radio and TV cross the $2-billion mark.

1960s

1963
Instant replay becomes a feature of televised sporting events.

1964
The FCC requires programmers to "black out" certain shows.

One million homes are wired for cable.

CBS, Inc., commands $50,000 for each prime-time minute of advertising while ABC, Inc., brings in $45,000 and NBC, Inc., $41,000

1967
According to an influential report, 63% of the U.S. population would rather view TV without commercials.

1969
First moon landing is witnessed on network television.

1970s

1972
Concern over the effect of TV on children intensifies, and commercial time in children's programming is cut 25%.

Product tie-ins are restricted.

1973
Variety magazine reports that most Americans believe that commercials are a "fair price to pay for being able to view programs."

1974
Gross television advertising revenue increases to $7.5 billion, representing a 20% share of the total U.S. advertising market.

Figure 6 (cont'd)
MILESTONES IN THE HISTORY OF TELEVISION AND ADVERTISING

1980s

1980
CNN and MTV make their debuts.

1982
The Home Shopping Network, Inc., launches.

1984
Apple Computer, Inc., runs a 60-second spot during the Super Bowl that cost $400,000 to produce and $500,000 to broadcast.

Cable industry deregulation begins. By the end of the decade, TCI, Inc. (now part of AT&T Corporation) will have spent $3.0 billion on 150 companies.

1988
60% of households report owning at least one VCR.

1989
Pay per view reaches almost 20% of all households.

The top three networks capture a record low 55% of the total audience.

1990s

1992
Infomercials generate annual sales of $750.0 million.

1993
98% of households report owning at least one TV set, while 64% own two or more.

Time Warner, Inc., begins interactive TV trials in Florida.

1997
Microsoft Corporation acquires WebTV Networks, Inc.

Princeton Video Image, Inc., completes its initial public offering.

1998
The FCC rules that all broadcasters must begin digital transmission by 2006.

1999
Individuals watch an average of 28 hours of television a week, and the total advertising market reaches $45.0 billion.

1999
PVRs debut, shaking up the broadcast industry.

EchoStar Communications Corporation introduces DISHPlayer; the first combined Internet satellite TV receiver, PVR, and game player, developed jointly with WebTV Networks, Inc.

2000s

2000
AOL TV service launches.

Gemstar International Group acquires TV Guide, Inc.

2000
Princeton Video Image, Inc., introduces iPoint service, which provides advertising and programming enhancements.

2000
ValueVision International, Inc., adds five million households through distribution agreements with Time Warner, Inc.

2000
Forrester Research, Inc., predicts that interactive TV will generate revenue of $21.0 billion by 2004.

2000
WorldGate Communications, Inc., provides cable TV households in LaGrange, Georgia, with free Internet access with its Internet on EVERY TV Service.

2000
Sales of interactive TV appliances are expected to reach $2.4 billion this year, with annual shipments of interactive TV devices projected to reach 7.4 million units and rise 44% per year to 26.4 million units by 2005.

2000
Wink Communications, Inc., deploys service in key markets, including New York City, through Time Warner, Inc.

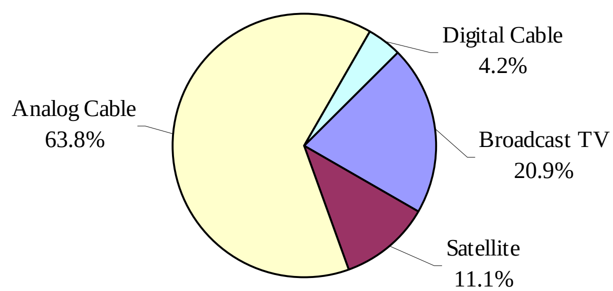
2000
ACTV, Inc., introduces SpotOn, which enables the delivery of targeted interactive advertising.

Source: NAB, Direct Marketing Association, Nielsen Media Research, Inc., Strategy Analytics, Inc., and Gruntal & Co., L.L.C.

Interactive Television Delivery Systems

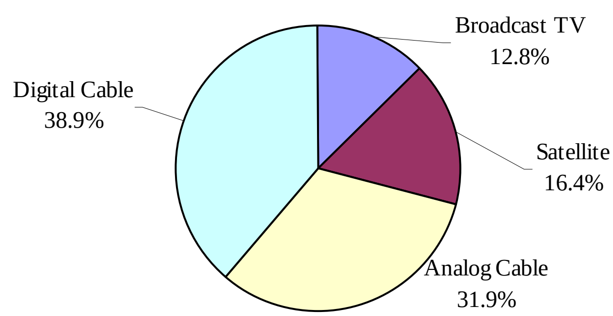
A delivery system is a connection by which content and data are transmitted. The primary delivery systems for TV broadcast signals include terrestrial (over the air), cable MSOs, digital broadcast satellite (DBS) providers, wireless carriers, and, to a lesser extent, fast telephone-based DSL (see Figures 7 and 8). Most delivery systems are converting their systems to transmit content digitally. We believe that delivery systems need the revenue from ITV services to boost their return on capital to exceed the cost of capital for network upgrades.

Figure 7
DELIVERY SYSTEM MARKET SHARE, 2000



Source: Forrester Research, Inc.

Figure 8
DELIVERY SYSTEM MARKET SHARE, 2004E



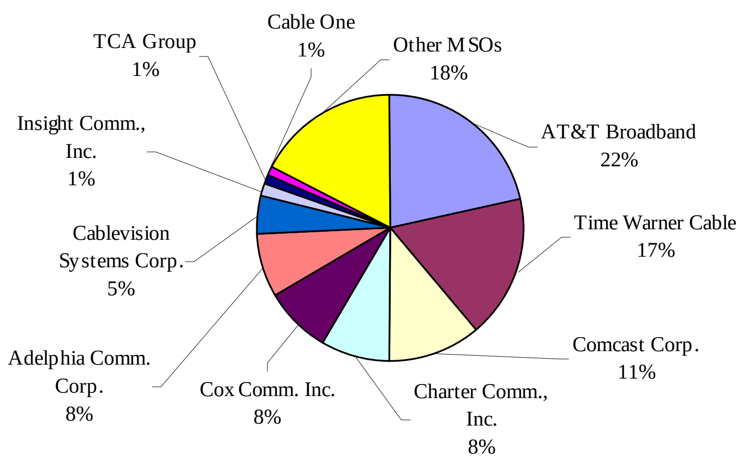
Source: Forrester Research, Inc.

Cable MSOs

The cable industry needs to prepare for the possibility of mandated open access. If legislation requires open access, cable providers must allow competing Internet service providers (ISPs) to run on the cable networks. The ISPs argue that, by law, consumers must have free choice of Internet content and access. The cable industry, however, opposes open access because they have invested billions of dollars in their systems and believe that they have the right to limit competitive access. Regardless of the outcome, we believe that this tension will prompt the cable industry to offer a competitive menu of interactive and value-added services. If open access resulted in increased competition and pricing pressure for cable companies, we believe that they would be especially motivated to seek the incremental revenue streams inherent in ITV. Further, MSOs (as well as DBS companies) are often valued on a multiple of subscribers, and the multiple is often based on revenue per subscriber. By adding interactive services and increasing revenue per subscriber, MSOs can positively influence the variables that determine their valuations.

Figure 9 illustrates the market share of the ten largest MSOs as a percentage of the current total of about 69.0 million cable subscribers as well as the approximately 18% of the total market share attributable to smaller MSOs not included in the top ten. See Table 6 for a ranking of the top ten MSOs by number of subscribers.

Figure 9
MARKET SHARE OF TOP MSOs AS OF MAY 31, 2000



Source: Companies and Cablevision *magazine (Summer/Fall 2000).*

Table 6
TOP TEN MSOs

Rank	Multiple System Operator	Basic Subscribers*
1	AT&T Broadband	16,000,000
2	Time Warner Cable	12,600,000
3	Comcast Corporation	8,200,000
4	Charter Communications, Inc.	6,200,000
5	Cox Communications, Inc.	6,000,000
6	Adelphia Communications Corporation	5,600,000
7	Cablevision Sytems Corporation	3,500,000
8	Insight Communications Co., Inc.	1,000,000
9	TCA Group	883,000
10	Cable One	745,000

**Basic subscriber numbers are an approximate count and assume completion of pendng transactions.*

Source: Companies and Cablevision *magazine (Summer/Fall 2000).*

See Table 7 (on page 36) for a list of the top 20 cable systems in terms of location, where a cable system is defined as a community served by a single head end.

Table 7

TOP 20 CABLE SYSTEMS[1]

Rank	Location	Operator	Basic Subs
1	New York City, New York	Time Warner Cable	1,032,872
2	Long Island, New York	Cablevision Systems Co., Inc.	683,718
3	Orlando, Florida	Time Warner-Advance/Newhouse	543,049
4	Bronx/Brooklyn, New York	Cablevision Systems Co., Inc.	502,205
5	Phoenix, Arizona	Cox Communications, Inc.	450,303
6	Puget Sound, Washington	AT&T Broadband	424,500
7	Pittsburgh, Pennsylvania	AT&T Broadband	415,720
8	Chicago Suburbs	AT&T Broadband[2]	390,602
9	Denver, Colorado	AT&T Broadband	369,844
10	San Diego, California	Cox Communications, Inc.	354,500
11	Los Angeles, California	AT&T Broadband[2]	352,411
12	Tampa/St. Petersburg, Florida	Time Warner-Advance/Newhouse	336,954
13	Las Vegas, Nevada	Cox Communications, Inc.	319,295
14	Cleveland, Ohio	Cablevision Systems Co., Inc.	311,674
15	San Antonio, Texas	Time Warner Cable	310,281
16	Houston, Texas	Time Warner-Advance/Newhouse	294,123
17	New Orleans, Louisiana	Cox Communications, Inc.	273,360
18	Broward/Dade County, Florida	AT&T Broadband[2]	269,448
19	Palm Beach County, Florida	Adelphia Communications Corporation	266,000
20	Milwaukee, Wisconsin	Time Warner Cable	262,700

[1] *A cable system is defined as communities served by a single head end.*
[2] *Operated by MediaOne prior to being acquired by AT&T Corporation.*

Source: Cablevison *magazine (Summer/Fall 2000).*

MSOs have been aggressively rolling out digital cable services that enable interactive applications.

- As of July 2000, AT&T Broadband had rolled out digital cable in more than two million households, with a target to deploy digital cable services to 2.5-3.5 million customers by the end of 2000.
- In August 2000, Comcast Corporation announced that it had surpassed the one-million mark in terms of digital set-top box deployment. Comcast Corporation is one of the most aggressive MSOs in terms of rolling out digital cable service.
- At of the end of first-quarter 2000, Time Warner Cable's rollout of its digital service had reached 613,000 customers, up 50% from 1999's year-end total of 430,000.
- Charter Communications, Inc., reported 375,000 digital cable households as of August 2000 and estimates that 70% of its cable systems will be upgraded by the end of the year, with plans for all of its cable subscribers to be converted to digital by the end of 2002.
- Cox Communications, Inc., had converted 560,000 of its subscribers to its digital platform as of July 2000.
- Adelphia Communications Corporation reported 342,000 digital subscribers at the end of June 2000 and plans to convert another 458,000 by year-end 2000.

Satellite Providers

Although the cable industry's subscriber base outnumbers satellite subscriber base by about six to one, more satellite subscribers use ITV services than cable subscribers. A study by research firm Carmel Group found that five million satellite subscribers are expected to use ITV services by the end of 2000 versus four million cable subscribers. The two leading satellite providers are EchoStar Communications Corporation and DirecTV, Inc.

EchoStar Communications Corporation—EchoStar Communications Corporation delivers direct-to-home satellite television products and services. EchoStar's DISH Network digital satellite television service passed the four-million-customer milestone in April 2000. The company plans to unveil an enhanced group of TV services in 2000, including two-way high-speed Internet access via satellite to homes and small offices. The company also intends to offer hundreds of EchoStar satellite TV channels.

DirecTV, Inc.—DirecTV, Inc., provides direct broadcast satellite service. Launched in June 1994, DirecTV, Inc., offers more than 210 channels of digital programming, including local networks, cable networks, premium and pay-per-view programming, original programming, and music channels. DirecTV, Inc., has teamed with America Online, Inc., to develop a satellite-based set-top box that would compete directly with Microsoft Corporation's WebTV Networks, Inc. This does not appear to have upset Microsoft Corporation, which announced an alliance with DirecTV, Inc., and Thomson Multimedia (parent of RCA Electronics) to introduce a new DirecTV, Inc., system that uses an RCA-built box and features the new Microsoft UltimateTV ITV service. DirecTV, Inc., has also signed a deal with personal TV provider TiVo, Inc., to develop a receiver that will combine digital TV recording, ITV, and satellite television. DirecTV, Inc., plans to provide a free ITV service from Wink Communications, Inc. This capability is now being added to DirecTV satellite receivers, which are manufactured by Sony Corporation and RCA Electronics. Further, Hughes Electronics Corporation acquired a 4% stake in Wink Communications, Inc., and plans to have four million of its receivers equipped with the company's functionality by the end of 2001.

Telephone Companies

Telephone companies have been active in bringing data and content to PCs through high-speed DSL connections and have recently begun plans to offer services for television. AT&T Corporation plans to launch its own set-top television, Internet, and telephone packages in 2001. Qwest Communications International, Inc., through its acquisition of local phone company U.S. West, Inc., announced plans to launch WebVision, a new service bundling telephone, TV, and Internet access services. The menu will range from a new television-based Internet service to a new broadband portal. With the new offerings, U.S. West, Inc., expects to tap customers who have yet to embrace the Internet, according to company management. The set-top service, which incorporates software from Liberate Technologies, Inc., uses DSL to connect to the Internet.

Interactive Television—The Supply Side

Supplying the products and services in the ITV market are the ITV application developers, the set-top box software developers and the set-top box manufacturers.

Interactive Television Applications

T-Commerce

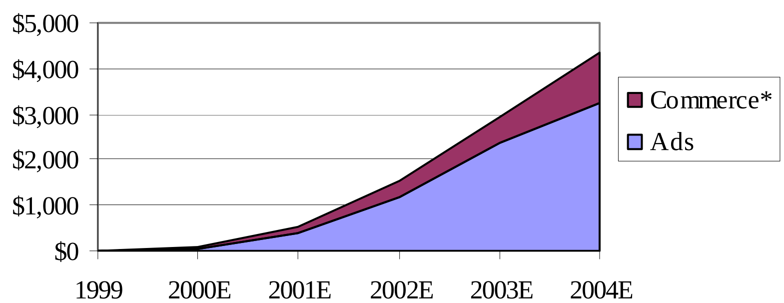
According to Forrester Research, Inc., as many as 14.7 million households may be using their TVs to access the Internet by 2002.

Contextual merchandise opens and interactive commercials immediately close the loop between introducing a product, creating a desire for the product, and enabling the consumer to buy the product immediately. For example, using technology from Wink Communications, Inc., NBC, Inc.'s *The Tonight Show with Jay Leno* offers for instant purchase the latest CDs of its musical guests. While programmers must refrain from overloading shows with sales pitches, relevant t-commerce offers add value for the consumer and enable programmers to monetize their content in a new way. Forrester Research, Inc., projects that TV-based impulse purchases will reach $7.0 billion by 2004.

Electronic Programming Guides

The penetration of cable and satellite, combined with the conversion to digital transmission, has multiplied the number of viewing options available to consumers. According to market research firm The Myers Group, the average TV household currently has a choice of 62 channels and is expected to have 180 channels by 2005. Further, as digital TVs and set-top boxes are used to receive Internet-streamed video, consumers will need navigational help. EPGs can be thought of as the portals of television and will have advertising-based business models similar to those of Internet portals. Good positioning on a popular EPG may be as valuable as it is on America Online, Inc.'s opening screen. During the PC revolution, companies such as Microsoft Corporation competed to gain desktop real estate—positioning on the screens of PC users. In the era of ITV, we believe that companies will aspire to command TV screen real estate for its inherent advertising and t-commerce opportunities.

Figure 10
EPG REVENUE, 1999-2004E
($ millions)



**Excludes video on demand and pay per view.*

Source: Forrester Research, Inc.

The Myers Group projects that 80.0 million U.S. households will have access to at least one EPG by 2003. Most cable and satellite services will offer an EPG to their customers, and all PVRs provide one as part of the service package. Forrester Research, Inc., estimates that EPGs will generate advertising and lead generation revenue of $4.3 billion by 2004 (see Figure 10 above and Table 8 on page 39). Gemstar-TV Guide International, Inc., holds many important patents in the EPG category and is likely to benefit through licensing revenue from EPGs' expected ubiquity.

Table 8
EPG REVENUE, 1999-2004E
($ millions)

	1999	2000E	2001E	2002E	2003E	2004E
Ads	$9	$57	$395	$1,184	$2,362	$3,248
Commerce*	—	$16	$135	$346	$575	$1,099
Total	$9	$73	$530	$1,530	$2,937	$4,347

**Excludes video on demand and pay-per-view revenue.*

Source: Forrester Research, Inc.

Enhanced Advertising

We believe that enhanced advertising and virtual product placements will expose the vast majority of the TV-viewing public to ITV. Services such as those provided by Wink Communications, Inc., which are free to the consumer, are currently being rolled out. Princeton Video Image, Inc., has digitally inserted ads in more than 2,000 major broadcast sporting events and is beginning to appear in nonsports programming such as NBC, Inc.'s *Dateline* and CBS, Inc.'s *The Early Show*. Given the overall decline in broadcasters' ratings, we expect them to embrace enhanced advertising to sustain their ad revenue streams. We believe that the targeting and deal-closing capabilities of enhanced advertisements will eclipse the importance of ratings. According to Forrester Research, Inc., the interactive advertising market will grow to $11.0 billion by 2004. We expect most commercials to be interactive within five years.

Enhanced Broadcasting Services

Enhanced television enables viewers to access additional information on certain products and/or services. The process, known as request for information, or RFI, enables people to interact directly with the program upon the appearance of an icon that lets the viewer know that an enhanced television offering is available. In addition, cable and satellite subscribers have the ability, using only a remote control, to purchase products that appear within a program or advertisement. The information that viewers access is embedded in either an analog or a digital signal within the set-top box and no real-time return path is needed. According to Forrester Research, Inc., by 2004 television-based impulse buys will create $7.0 billion in commerce, and enhanced broadcasts will be visible to 24.0 million households, creating an additional $3.8 billion in commerce (see Table 9). The market participants in this space include Wink Communications, Inc., Commerce.TV, and RespondTV, Inc.

Table 9
ENHANCED BROADCAST REVENUE, 1999-2004E
($ millions)

	1999	2000E	2001E	2002E	2003E	2004E
Ads	$1	$15	$216	$1,188	$3,429	$6,177
Commerce*	—	$52	$233	$1,233	$2,490	$3,838
Subscriptions	—	$2	$10	$31	$47	$72
Total	$1	$69	$459	$2,452	$5,966	$10,087

**Excludes video on demand and pay per view.*

Source: Forrester Research, Inc.

According to Paul Kagan Associates, 66.1 million U.S. households—about 66% of the total—spent $30.9 billion on subscription-based cable TV services in 1998.

TV-Based Internet Access and Other Subscription Services

With the use of advanced analog and digital cable set-top boxes and either a remote control or a keyboard, television-based Internet access enables viewers to have full Web browsing, e-mail, and chat capabilities. Web browsing via the television is expected to reach 13.0 million U.S. households by 2004, according to Forrester Research, Inc. WorldGate Communications, Inc., WebTV Networks, Inc., PowerTV, Inc.'s Sofasurf and AOL TV earn both subscription fees and advertising fees for sponsorship positioning on their opening screens. We believe that AOL TV's monthly fees of $14.95 for America Online, Inc., members and $24.95 for nonmembers will meet with resistance, and we favor WorldGate Communications Inc.'s free- to lower-priced service. However, we are very optimistic about America Online, Inc.'s ability to raise awareness of the ITV industry. With about one million subscribers, Microsoft Corporation's WebTV Networks, Inc., is regarded as only moderately successful and requires a slow dial-up connection. We are more optimistic about WorldGate Communications, Inc., and AOL TV, which are delivered on high-speed connections. See Table 10 for our TV-based Internet access revenue projections.

Table 10
TV-BASED INTERNET ACCESS REVENUE, 1999-2004E
($ millions)

	1999	2000E	2001E	2002E	2003E	2004E
Ads	$93	$197	$319	$617	$1,041	$1,546
Commerce*	$168	$569	$1,328	$1,406	$1,581	$1,916
Subscriptions	$403	$820	$1,403	$1,519	$1,674	$1,840
Total	$664	$1,586	$3,050	$3,542	$4,296	$5,302

**Excludes video on demand and pay per view.*
Source: Forrester Research, Inc.

Home Shopping Channels

Traditional home shopping requires consumers to respond to a call to action and make a phone call to make a purchase. Home shopping channels increasingly seek to drive customers to their Web sites to close transactions. The four major home shopping channels—Comcast Corporation's QVC, Inc., USA Network Inc.'s Home Shopping Network (HSN), ValueVision International, Inc., and Shop at Home, Inc.,—all operate companion Web sites and use their reach to drive viewers on line. When the return path to the network is built into the TV system and can be activated with a push of a remote control button, it becomes virtually effortless to make a purchase. ValueVision International, Inc., is testing interactivity in some markets with Wink Communications, Inc. Excluding Internet operations, the home shopping industry generated revenues of approximately $4.3 billion in 1999.

Video on Demand and Personal Television

Imagine being told that you can only visit yahoo.com on Thursday nights at 8:00. We believe that consumers are beginning to expect of their TVs the same interactivity and instant gratification afforded by the Internet. Video on demand (VOD) and personal television are two applications that shift TV control to the viewer. With VOD, content is stored with the delivery system and streamed to the viewer upon request. With personal television, content is stored locally on the viewer's PVR or set-top box.

- *Personal Television*

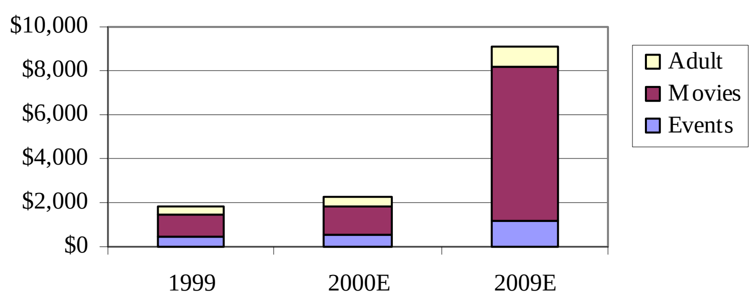
  Personal television enables viewers to take control of what they see and when rather than have content pushed to them on the basis of broadcast network schedules. The term personal television is synonymous with the PVR. The PVR has full VCR functionality, enabling a viewer to pause, rewind, and fast forward during a broadcast or a commercial. PVR functions by using a hard drive on which content is cached (stored) for viewing at a later time. Forrester Research, Inc., estimates that 750,000 households will record programming on PVRs by the end of 2000, and of the estimated 8.2 million households that will use personal video recording by 2002, 43% will have their PVRs built into satellite boxes and 20% will have them installed by cable operators. Key market participants include TiVo, Inc., and Replay Networks; however, EchoStar Communications Corporation's satellite service offers PVR functionality as well, and so does Microsoft Corporation's WebTV Networks, Inc.

- *VOD and Near Video on Demand*

  VOD and near video-on-demand (NVOD) services are available through cable and satellite companies. Currently, most consumers who watch pay-per-view movies are tied to a schedule dictated by their cable or satellite provider and are limited in their choice of movies. NVOD improves up on this system by running many copies of films on multiple channels at staggered start times to minimize the viewer's wait until the next showing. When VOD services are fully deployed, people will be able to choose from a vast library of content. The content is stored on a video file server that plays back content on request or demand and uses a two-way digital system. The research firm Yankee Group estimates that by 2003 nearly 8.0 million subscribers to VOD services will generate more than $1.0 billion in revenue. Previous attempts at offering VOD services proved too expensive and unreliable, but a 12-fold decline in the price of VOD set-top boxes over the past seven years has paved the way for cable and satellite companies to begin rolling out VOD service. Forrester Research, Inc., estimates that a $3.5-million investment in VOD infrastructure by cable companies will break even after two years (assuming 200,000 subscribers per system). Established participants in the VOD market include Concurrent Computer Corporation, DIVA Systems, nCUBE, SeaChange International, Inc., Starz Encore Group, iN DEMAND, and Intertainer, Inc.

The video rental industry, an $11.0 billion market, must respond to the VOD threat, as Forrester, Inc., predicts that, by 2005, nearly 15% of the video rental industry's business will be cannibalized by cable providers offering VOD services. Recently, Blockbuster Entertainment, Inc., made inroads into the VOD market by partnering with Enron Broadband Services to deliver VOD functionality over Enron Corporation's network, to asymmetric digital

Figure 11
PAY PER VIEW, VOD, AND NVOD REVENUE, 1999-2009E
($ millions)



Source: Paul Kagan Associates and Cabil.

subscriber line (ADSL) partners such as SBC Communications, Inc. We believe that this move validates the VOD marketplace and simultaneously puts pressure on cable companies to expand their VOD offerings. See Figure 11 (on page 41) for a representation of the projected market opportunity for VOD.

Individualized Television

With individualized television, content and advertising are customized to fit a viewer's demographic profile. This profile, determined through remote control entries or information about a viewer's buying habits and preferences, is stored in the set-top box. In addition to receiving customized content, the viewer can also modify a program by changing camera angles or viewing instant replays. The viewer is sent multiple television signals that are related in time and content and is able to switch seamlessly among the various signals to maximize her or his viewing experience. The market leader in this category is ACTV, Inc.'s One to One Television service, but other companies, such as OpenTV Corporation are launching initiatives in this market.

Direct Response TV

Direct Response TV (DRTV) encompasses any television advertising designed to generate a transaction immediately, to identify a lead, or to generate store traffic. ITV brings to DRTV the same ease-of-transaction characteristics that it brings to home shopping. Each week, an average of 250,000 30-minute commercials are aired in the U.S., according to the Infomercial Monitoring Service, Inc. According to *American Demographics* magazine, direct marketers spent $15.9 billion to reach shoppers through television-based marketing. The Direct Marketing Association estimates that DRTV sales (not including home shopping channels) rose 10.4% to $105.8 billion in 1999 and projects that they will grow to $127.0 billion in 2002. A study by direct marketing firm Response Marketing Group found that 37% of television commercials display either a toll-free phone number or a Web-site address. These data indicate that this category of marketers will capitalize on the impulse-purchase temptation and return-path capabilities of ITV.

Aggregated Consumer Information

Advertisers want as much information as possible about consumer preferences. Consumer information helps them plan product design, determine appropriate inventory levels, and maximizes the effectiveness of marketing. Because of their ability to track a shopper's every click, Internet retailers have become an important source of insight about consumer behavior. New ITV services will bring such tracking capabilities to t-commerce participants. Digital set-top boxes, equipped with memory, can capture viewer TV-watching habits and response patterns. Wink Communications, Inc.'s Response Server collects and mines this data, resulting in a revenue stream incremental to its enhanced broadcast services. ACTV, Inc., also plans to offer data profiling services.

Consumer Hardware and Peripherals

Major electronics manufacturers have already begun to expand production capacity to meet consumer demand for ITV devices such as digital set-top boxes and next-generation game consoles. According to research firm Strategy Analytics, Inc., sales of interactive appliances are projected to rise 107% to $2.4 billion in 2000. Annual shipments of ITV devices are projected to reach 7.4 million units in 2000 and rise 44% per year to 26.4 million units by 2005. Using the TV for interactive applications is likely to boost sales of peripheral products that work with the TV, such as printers, wireless keyboards, and digital cameras for videoconferencing. Hewlett-Packard Company and AT&T Corporation have teamed up to develop a product that will enable customers to print directly from their television sets. The ITV-compatible Hewlett Packard DeskJet printers are also expected to work with PCs. The printers are expected to be available later this year in conjunction with the introduction of AT&T Corporation's Broadband ITV platform.

Datacasting

Datacasting enables Internet content to be broadcast to a wide array of consumers that may not be Internet subscribers. Datacasting services are marketed to cable companies, broadcasters, providers of DBS services, and local television stations. Key market participants in this space include iBEAM Broadcasting Corporation, iBlast Networks, Inc., Geocast Network Systems, SkyCache, Inc., SkyStream Networks, and Wavexpress, Inc.

Interactive Games

Many TV game shows are adding interactive elements to enable viewers to participate and win prizes. Spiderdance, Inc., and Mixed Signals, Inc., add interactivity to broadcast and cable networks' game shows. Also, interactive video games enable individuals to play against each other on set-top consoles that are connected through a digital network. Interactive video games on television include single- and multiplayer card, board, sports, action, and trivia games. IDC estimates that there will be 15.0 million game consoles in use by the end of 2002. Market participants include game developers, set-top console manufacturers, and broadcast enhancement developers. Some of the companies involved in this market include SEGA Enterprises, Ltd., Nintendo Company, Ltd., and NTN Communications, Inc. Microsoft Corporation will join these companies soon, when it launches Xbox.

Convenience, Communications, Other Services

Virtually all of the electronic banking and e-commerce applications on the Internet are capable of being ported to the television set. Therefore, companies can offer convenience services, such as banking and retail shopping, that enable individuals to conduct transactions and manage tasks through their television sets. Educational television combines videoconferencing and communications tools to facilitate distance learning. WorldGate Communications, Inc., currently works with local cable operators and school systems to provide free in-school and in-home Internet access on the TV during the school year. Community television provides content relevant to a specific geographic area and facilitates community functions such as council meetings and electronic balloting.

Set-Top Box Operating Systems

Operating systems are a layer between hardware and software applications, giving the application a platform on which to run and enabling interaction with the hardware. The set-top box operating system market has become highly competitive, with OpenTV Corporation, Liberate Technologies, Inc., Microsoft TV, and France-based Canal+ U.S. Technologies (a unit of Canal+ Group) vying for market share and lucrative licensing fees.

- OpenTV Corporation's operating system is installed in 9.3 million set-top boxes worldwide, with more than 100 content development companies and 29 set-top box manufacturers licensing its software to develop ITV services. OpenTV Corporation recently partnered with Wink Communications, Inc., to offer enhanced broadcast and t-commerce to EchoStar Communications Corporation subscribers.
- Liberate Technologies, Inc., will supply the platform for AOL TV and has partnerships with DIVA Systems Corporation (video on demand), ACTV, Inc. (interactive TV applications), Koninklijke Philips Electronics N.V. (Philips Electronics Company), and NDS Group PLC (PVR functionality).
- Microsoft Corporation's Microsoft TV platform enables interactive TV services to be developed and deployed.
- Canal+ U.S. Technologies develops interactive TV platforms that are currently deployed in about six million set-top boxes worldwide. Canal+ U.S. Technologies has partnered with Wink Communications, Inc., to integrate Wink Communications, Inc.'s capabilities into Canal+ U.S. Technologies-enabled set-top boxes.

Profiles on Liberate Technologies, Inc., Microsoft Corporation, OpenTV Corporation, and Canal+ U.S. Technologies are on pages 130, 133, 136, and 185, respectively.

Set-Top Box Manufacturers

An integral determinant of the ITV industry's ability to scale is the capacity of set-top box manufacturers to fill large orders from cable and satellite providers. We believe that both consumer usage rates and total revenue streams of the ITV industry will be functions of the installed based of ITV-enabled set-top boxes. We note the risk that production bottlenecks of boxes could slow the rollout of ITV services and delay the revenue growth of ITV service providers.

Table 11
DIGITAL SET-TOP BOX PENETRATION, 2000E-2005E

	2000E	2001E	2002E	2003E	2004E	2005E
Satellite	11.1%	13.2%	14.6%	15.6%	16.1%	16.4%
Digital Cable	4.2%	7.3%	11.9%	18.3%	27.1%	38.9%
Total	15.3%	20.5%	26.5%	33.9%	43.2%	55.3%

Source: Forrester Research, Inc.

Boxes Support Multiple Functions

Digital set-top boxes have memory that can store personal information about (1) the consumer, such as address and credit card number; and (2) the consumer's TV-watching behavior, such as what programs were watched on each set and what advertisements were seen. This functionality makes impulse shopping and responding to ads almost effortless for consumers. The data is also very valuable to advertisers and can generate substantial revenue to firms that aggregate it, data-mine it, and repackage it. Advertisers can use detailed consumer profiles for precision marketing, increasing the efficiency and response rate of marketing messages. Of course, as on the Internet, consumer privacy advocates may try to prevent firms from selling information about specific individuals.

Internet-enabled set-top boxes will be able to feed Webcasts to TVs, enabling a virtually infinite number of viewing options. PVR set-top boxes from TiVo, Inc., and ReplayTV, Inc., that enable consumers to create their own personal television channels by recording television shows digitally also keep track of programs that consumers like and record them automatically. Electronics manufacturer Thomson Multimedia and Seagate Technology, Inc., a specialist in storage solutions, recently announced a joint venture to develop, manufacture, and distribute TV hard drives that will let consumers store and manage movies, music, and television programs. New set-top box designs include credit card swipe readers for easy shopping and home banking. Eventually, televisions are likely to feature built-in hard drives and PVR technology previously available only on set-top boxes. According to a study by research firms FIND/SVP Group, Inc., and Strategy Analytics, Inc., sales of set-top boxes are projected to reach a level of 53.0 million units annually by 2005.

Retail Availability

Traditionally, consumers have had very little choice in set-top boxes—they used what their cable provider gave or leased to them. However, the FCC has mandated that cable companies must begin to offer cable set-top boxes at retail outlets by July 2000 and stop leasing them by 2005. This practice follows the lead of the satellite industry, which distributes its receivers at retail stores. Only about one-third of cable subscribers have set-top boxes. Availability of cable set-top boxes in retail stores is expected to accelerate their penetration and to expand the market for advanced ITV applications.

Thin Clients Versus Fat Clients

Set-top boxes can be categorized generally as thin clients or fat clients. Thin clients are machines that display files retrieved from a central network server and do not have much processing power by themselves. Applications are stored on a network server and can be maintained and upgraded by the network administrator easily. With regard to ITV, thin clients are usually inexpensive and easy to deploy but are not capable of running advanced interactive applications that require local processing and memory. Also, without a fast reliable connection to the network, it may be difficult to access centrally located files. WorldGate Communications, Inc., is an advocate of thin clients and holds a patent for its Ultra-Thin Client architecture, which enables processing to be performed at the cable head end.

Fat clients have storage, applications, and processing power built into them and act as stand-alone machines. While fat clients tend to be higher priced than thin clients, processing power and storage prices have come down enough in recent years so that it is no longer prohibitively costly to have advanced functionality in a home PC or set-top box. The disadvantages are that it is less convenient to upgrade applications on a fat client, and there are often production delays in their rollout because of their more complex nature. We expect set-top boxes to tend toward the fat side and to handle multiple functions—receiving digital signals, PVR functionality, Internet access, communications tasks, and interactive gaming—at least until there is sufficient bandwidth for these applications to be stored centrally.

Paul Kagan Associates projects that more than 95% of all set-top boxes shipped in 2000 will be from Motorola, Inc., or Scientific-Atlanta, Inc. Therefore, securing alliances with these firms to ensure compatibility and distribution in their set-top boxes is essential to the scalability of ITV application and operating system developers.

Motorola, Inc.

Motorola, Inc., develops a wide range of communications and electronics products, with set-top boxes made by its General Instrument unit (now part of the Motorola Broadband Communications Sector unit). Motorola, Inc.'s Broadband Communications Sector unit's current core set-top box product is the DCT-2000, which has a processor, memory, and graphics capabilities built in. This machine enables cable operators to offer customers digital TV, increased channel lineups, and interactive services including e-mail, video on demand, and TV-based Internet access. Motorola, Inc.'s Broadband Communications Sector unit's next-generation machine, the DCT-5000, is an advanced interactive digital terminal that lets users simultaneously watch television and surf the Internet or talk on the telephone using their cable connection. Motorola, Inc.'s Broadband Communications Sector unit has agreements to supply many of the leading cable TV operators with approximately 15.0 million interactive digital set-top boxes by 2004.

Scientific-Atlanta, Inc.

Scientific-Atlanta, Inc., designs products for advanced communications networks including two-way interactive digital TV, high-speed data and voice communications, Internet access, video on demand, and e-commerce. The company has made significant progress in its effort to enhance its set-top boxes with t-commerce capabilities. By partnering with companies such as Wink Communications, Inc., and Commerce.TV Corporation and through its 80% ownership of PowerTV, Inc., Scientific-Atlanta, Inc., is enabling MSOs to capture additional revenue from subscriber purchases. Scientific-Atlanta Inc.'s flagship set-top box is the Explorer. More than 1.3 million Explorer set-tops had been deployed in consumers' homes as of March 31, 2000, for a sequential increase of 507,000. In Scientific Atlanta, Inc.'s fourth (June) fiscal quarter of 2000, more than one million Explorer set-tops had been ordered and 835,000 were shipped, a greater than fivefold increase over the comparable quarter in 1999. Scientific-Atlanta, Inc., also began shipping the Explorer 3000 set-top box, which expands the capability of the Explorer platform for demanding interactive applications. In response to heavy demand from cable operators, the company recently announced plans to expand its manufacturing capacity to enable production of 5.2 million Explorer set-tops per year starting in January 2001. Scientific-Atlanta, Inc.'s next-generation machine, the Explorer 6000, which adds a DOCSIS cable modem, a second application processor, more memory, and an optional disk drive, should begin shipping in summer 2000. MSOs that deploy Scientific-Atlanta, Inc.'s products include Adelphia Communications Corporation, Charter Communications, Inc., Comcast Corporation, and Time Warner, Inc.

Microsoft Corporation

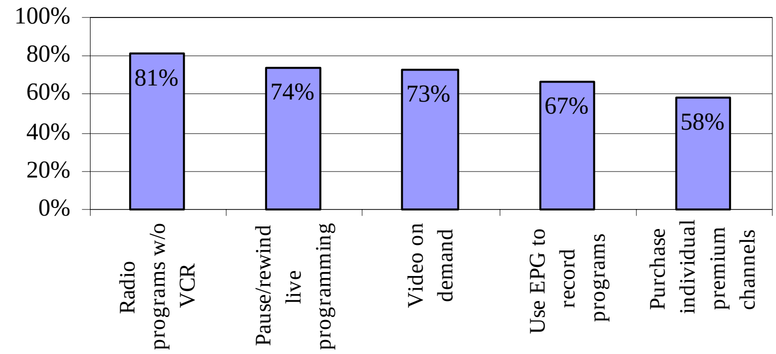
Microsoft Corporation plans to deploy its Microsoft TV platform in its Web TV Networks, Inc., TV-based Internet access set-top box/service. Microsoft Corporation's new Xbox video game console boasts an Intel Corporation Pentium III processor, a hard drive for storage, and a digital versatile disc (DVD) drive capable of playing DVD movies. Microsoft Corporation's new product will compete with Sony Corporation's Playstation 2, and SEGA Enterprises Ltd.'s Dreamcast consoles, all of which feature advanced processors and Internet connectivity for multiplayer gaming. We believe that these products serve as an entry point for young consumers to begin using their televisions interactively.

Other prominent set-top box manufacturers include Sony Corporation, Koninklijke Philips Electronics N.V., Sharp Corporation, and Panasonic Industrial Company (a unit of Matsushita Electric Industrial Company, Ltd.).

Redefining Television Requires a Shift in Consumer Behavior

Virtually every U.S. household has at least one TV set, and three out of every four have several. Cable or satellite TV is available to 75% of households. In the average household, the TV set is on more than 7.5 hours a day every day of the year, according to Nielsen Media Research, Inc. Television's reach and heavy usage have made it a leading vehicle for advertisers to reach consumers.

Figure 12
CONSUMERS FAVORABLY DISPOSED TO ITV SERVICES



Source: Cable and Telecommunications Association for Marketing (CTAM).

Advertising agency McCann-Erickson Worldwide estimates that $47.4 billion was spent on television advertising in 1998, representing more than 23% of total advertising spending.

Through ITV, e-commerce companies will be able to reach consumers who are unable or unwilling to buy a PC. ITV does not necessarily require the purchase of additional hardware or services.

Lean-Forward Television

There is already a lot of television programming that can be characterized as lean forward, or encouraging viewer involvement, such as game shows, home shopping, and infomercials. For decades, this type of programming has been conditioning consumers to respond to questions and to make purchases. According to a recent consumer survey by Jupiter Communications, Inc., 41% of viewers also want the ability to pause or rewind programming that is enabled by PVRs. Thirty percent of viewers want automatic program notification, also enabled by PVRs and certain EPGs. Another 30% of viewers want the ability to access additional information related to the program they are watching, and 25% want to vote on issues, both of which are easily done with technologies developed by Wink Communications, Inc. Because TV screens are not ideal for reading text, we believe that the TV will be used primarily for quick tasks, information retrieval, impulse purchases, and EPGs. We believe that the instant-on characteristic of TV will prompt its use for daily tasks like checking the weather and looking up phone numbers. E-mail and chat appear less desirable to TV watchers, who typically sit six to eight feet away from the television.

According to research by Gartner Group Inc.'s Dataquest, the number of U.S. adult consumers who watch TV and surf the Web simultaneously increased from 8.0 million in 1998 to 27.0 million in 1999 and is 44.0 million currently. Nearly 40% of these people interact with a TV show's related Web site at least once a week. These findings bode well for two-screen experiences such as ACTV, Inc.'s HyperTV service. We also believe that they indicate a predisposition on the part of consumers to using television-based Internet services such as WorldGate Communications, Inc.'s Channel HyperLinking, which links viewers to relevant Web content.

Some interactive services, such as WorldGate Communications, Inc., and Wink Communications, Inc., do not require digital transmission and can be used with a regular analog TV. Analog TVs will simply require set-top boxes that receive the digital signals from broadcasters or from the Internet and translate them to analog signals. However, to receive a digital signal, viewers must have either a digital TV set, a digital set-top box, or a digital TV tuner card in their PC. The Electronic Industries Association estimates that the replacement cycle for television sets is approximately seven years. Digital applications will have to be extremely compelling to motivate people to replace their televisions sooner. Therefore, we expect most digital interactive applications to be delivered to consumers through digital set-top boxes, which are often rented to consumers by cable and satellite service providers and should be increasingly available in retail stores.

Significance of Patents

The number of patents for software and Internet-related technologies soared to 21,000 in 1999 from 1,300 in 1990, according to the Internet Patent News Service. Securing patents is important to firms for three primary reasons, both offensive and defensive.

1. Patents create significant barriers to entry, limiting the patent holder's competition. A strong patent likely to be held up in court may entitle its holder to a prohibitively high licensing fee, discouraging competitors.

2. Patents are inexpensive and easy to get and may result in incremental revenues. Companies often license their patented technology to partners or to competitors that introduce an infringing product in the marketplace or would prefer to license rather than build alternative technology. Many companies prefer to pay a licensing fee to a patentholder than engage in costly time-consuming litigation.

3. A firm's patent portfolio enables it to defend its market position and revenue streams in the event that a competitor tries to patent a similar product or business method.

We describe many of the key patents relating to t-commerce, ITV, and virtual advertising in the company reports and profiles following this overview.

Investment Criteria

Many of the companies in the ITV industry are currently unprofitable, having spent the last few years developing their technology and initiating its rollout. We look for companies that have moved beyond the visionary stage of development and have graduated into the execution stage. The path to profitability is clearer for companies with proven concepts and paying customers. Further, while critical mass and reach are clearly important valuation factors, as demonstrated by the overlap of companies with high market capitalizations and companies with top traffic and revenues, we believe that performance-based metrics are becoming more important. For example, increasing household penetration is imperative, but increasing usage rates is even more crucial. A portfolio of defensible patents also makes a company more attractive. We also evaluate firms based on their relationship networks, which are critical for distribution, particularly in the ITV industry. In the past, many superior technologies have failed because they were incompatible with mass-distributed products. Through joint ventures and alliances, and membership in industry groups, ITV companies can also ensure compliance with technology standards such as ATVEF. Firms must also avoid limitations to scale, as the impact of fixed costs diminishes with rapidly growing revenue. As capital expenditures subside and a business scales up, the company may be positioned to achieve a high level of free cash flow. This characteristic is important because most new-economy companies are valued by the discounted cash flow (DCF) method. In the DCF method, earnings before interest, taxes, depreciation, and amortization (EBITDA) less capital expenditures are projected out several years and discounted back to approximate a valuation.

II. Interactive Television/T-Commerce Companies

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ACTV, Inc.# (IATV-$16.31)

INVESTMENT RATING

Intermediate Term (up to 6 months): **1–Outperformer** **Target Price: $28**

Common stock is expected to provide a total return that is 5 or more percentage points greater than that of the S&P 500 Index.

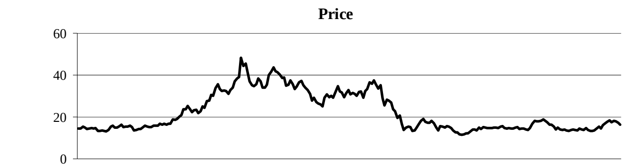
Long Term (6-18 months): **1–Outperformer** **Target Price: $35**

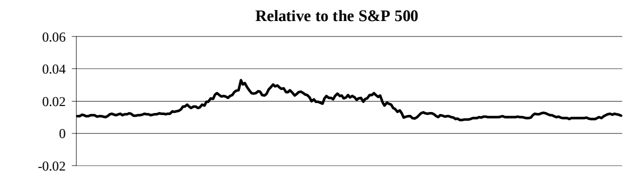
Common stock is expected to provide a total return that is at least 10 percentage points greater than that of the S&P 500 Index.

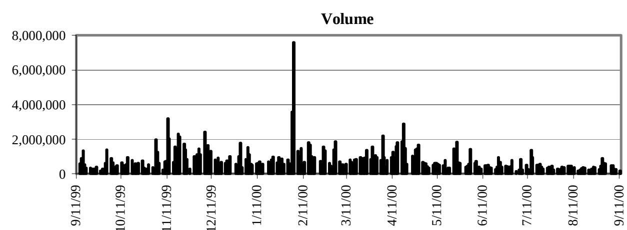
Ticker/Exchange	IATV/NASDAQ
Price (09/11/00)	$16.31
52-Week Range	$52-$11
Current Shares Outstanding	49.7 million
Avg. Daily Trading Volume (last 20 days)	542,842
Suitability	Aggressive Risk

EPS*	**1999**	**2000E**	**2001E**	**2002E**
1Q	($0.23)	($0.10) A	($0.08)	NE
2Q	($0.14)	($0.15) A	($0.10)	NE
3Q	($0.08)	($0.15)	($0.10)	NE
4Q	($0.18)	($0.14)	($0.10)	NE
	($0.61)	**($0.54)**	**($0.38)**	**$0.04**
P/E	NM	NM	NM	407.8x

Dividend	—
Yield	—
Five-Year Expected Revenue Growth Rate	153.1%
Common Stock Market Capitalization	$811 million
2000E Book Value/Share	$3.33
2000E Cash Flow/Share	($0.55)
1999 ROC	NM
Total Debt/Capitalization	0
Insider Holdings	11.4%
Institutional Holdings	46.1%
End of Fiscal Year	December 31







Corporate Headquarters New York, NY

A = Actual; E = Estimate; NE = No estimate; NM = Not meaningful.

**Figures may not add due to share-count changes and rounding.*

 # Gruntal & Co., L.L.C., makes a market in this security.

Investment Summary

On August 7, 2000, when the share price was $13.50, we initiated coverage on the common stock of ACTV, Inc., with intermediate-term and long-term ratings of 1-1, Outperformer. ACTV, Inc., has unique technology, multiple revenue streams, and a meaningful network of partners. Its portfolio of patents creates significant barriers to entry as well as high gross margin revenue streams from licensing fees. We believe that ACTV, Inc.'s products will become indispensable resources as cable and satellite operators, broadcasters, and advertisers prepare to deliver digital customized programming and advertising. Our projected five-year compound annual growth rate (CAGR) for revenue is 153.1%. Our intermediate-term target price is $28. Based on the stock's current valuation relative to the S&P 500 multiple, we believe that it merits a long-term price per share of $35, representing appreciation of 114.6% from current levels.

Key Points

- We believe that ACTV, Inc., is well positioned to benefit from the rapid growth of digital broadcast transmission and digital set-top box deployment. Our projected five-year CAGR for revenue is 153.1%.

- ACTV, Inc.'s innovative products and unique patented technologies address the convergence of the Internet and television as well as the markets for digital media and targeted advertising.

- We expect ACTV, Inc.'s powerful network of relationships, which includes Motorola, Inc., OpenTV Corporation, and Liberty Digital, Inc., to drive the penetration of its products.

- Our intermediate- and long-term target prices for the shares are $28 and $35, respectively.

Company Description

ACTV, Inc., is a digital media company that has developed and provides patented software-based technologies for interactive digital television and enhanced television. The company's core products are One to One Television and HyperTV. One to One Television enables television programmers and advertisers to create programming for digital television tailored to the viewers' preferences. It also enables advertisers to deliver precisely targeted marketing messages to individual consumers. HyperTV enhances standard television content with informative interactive companion Web sites. ACTV, Inc., has a solid patent portfolio and partnerships with Motorola, Inc., Liberty Digital, Inc., Liberate Technologies, Inc., and OpenTV Corporation. The company was founded in 1989 and is based in New York City.

Products and Customers

ACTV, Inc., designs and implements enhanced video compression and advertising services that use its patented technology. The market for ACTV, Inc.'s products includes television programmers, advertisers, cable operators, and consumers who want to capitalize on digital television and the broadband infrastructure. We believe that consumers are increasingly demanding more customized media experiences. The rise of personal video recorders (PVRs) testifies to consumers' interest in personalizing their TV viewing experiences. The popularity of customized homepages such as My Yahoo! shows that consumers want instant access to relevant information. Moreover, consumer receptiveness to custom retail experiences such as Amazon.com, Inc.'s recommendations indicates that consumers prefer relevant marketing messages. ACTV, Inc.'s products exploit the opportunities of the new digital infrastructure and offer the company's clients means of additional revenue streams to monetize their digital infrastructure investments.

One to One Television

One to One Television enables viewers to instantly customize their television content and advertising based on the profile stored in their digital set-top box and on choices made through the remote control. It is compatible with digital TV transmission systems and set-top boxes supplied by leading U.S. manufacturers. Users can design their own interactive experiences by choosing camera angles and deciding among TV commercial choices. Well aware that consumers have the tools—remote controls, videocassette recorders (VCRs), and PVRs—to skip TV commercials, broadcasters and advertisers are constantly making them more relevant and entertaining, perhaps even enjoyable. With viewers empowered to select the commercial they see next, we believe that they are more likely to pay attention and absorb the message. The advertiser records the viewers' expressions of interest and can make sure that future ads reflect their profiles. ACTV, Inc., markets One to One Television to cable operators as a tool to generate incremental advertising revenue.

Digital broadcasting increases the bandwidth that a broadcaster has available to deliver programming. Broadcasters can use that bandwidth to send high-definition TV (HDTV) signals, which take up most of the available bandwidth, or they can offer more channels. A third option is to offer ACTV, Inc.'s One to One Television, which appears to the consumer as one channel but requires four channels to deploy. A code is embedded in the TV set top that stores viewer choices made with the TV remote control. Content and advertising messages can be tailored to the profile created by those choices. One to One Television takes advantage of the increased channels available with digital television. The cable operator effectively sends four broadcast signals to the viewer, whose set-top box seamlessly (without a flicker) switches channels based on the viewer's choices or stored profile without a perceptible delay. ACTV, Inc., developed this process and has a patent on it. Users are not required to have a real-time return path to the cable company for One to One Television to function. ACTV, Inc., is working with Motorola, Inc., and has integrated this functionality into its set-top boxes and cable plant equipment.

Consumers have demonstrated through their Internet usage behavior that they prefer a personalized experience in which they control what they see. Nielsen NetRatings, Inc., has found that users of custom home pages MyYahoo! and My Netscape stay three times longer and view four times more pages per visit than users of the standard portal home page. The research firm also found that portals offering personalized home pages can increase traffic and revenue as much as 30% if one in ten visitors uses the personalization features. We believe that broadcasters will embrace ACTV, Inc.'s tools to translate these results to TV-watching.

LMC IATV Events L.L.C.

With Liberty Media Group, ACTV, Inc., has formed a joint venture, IATV Events L.L.C., to incorporate One to One Television into national and international marquee sports, concerts, and theatrical events. A third partner, iN DEMAND (a distributor of pay per view programming), plans to market and distribute the venture's programming in the U.S. With a simple click of a standard remote control, the viewer of a national or international pay per view sporting event will be able to select such features as different views of the action, highlight packages, statistics, and instant replays. ACTV, Inc.'s share of the income from this partnership is reflected in our model as LMC IATV Events partnership income.

SpotOn

ACTV, Inc., recently announced the formation of Digital ADCO Inc., in partnership with OpenTV Corporation. Digital ADCO Inc.'s core product is SpotOn, a targeted advertising service for interactive television (ITV). ACTV, Inc., owns 51% of Digital ADCO, Inc. ACTV, Inc., and OpenTV Corporation have recently joined with Motorola, Inc.'s Motorola Broadband Communications Sector, to create Digital ADCO International, Inc., a subsidiary of Digital ADCO, Inc.

SpotOn enables advertisers to deliver commercials to digital cable TV viewers based on their interests, their geographic locations, and their languages. SpotOn also gives viewers a choice of commercials, like ACTV, Inc.'s One to One Television service. SpotOn services are designed for digital cable operators, satellite system providers, digital broadcast and cable television networks and programmers, consumer product advertisers, advertising agencies, and media buyers. The goal of these features is to improve the efficiency of TV commercials, which enhances the multiple system operators' (MSOs) attractiveness as an advertising platform, thereby maximizing advertising revenue.

ACTV, Inc., licensed five of its patents and Motorola, Inc., licensed six patents and invested $5.0 million in cash in Digital ADCO, Inc. OpenTV Corporation brings its prominent technology platform, strong international presence, and installed base of more than 9.3 million set-top boxes worldwide. OpenTV Corporation made an undisclosed investment in Digital ADCO International, Inc., and plans to assist the company in integrating its advertising solutions into OpenTV Corporation's operating system. Digital ADCO, Inc., has partnered with advertising firms Young & Rubicam, Inc., and Starcom Worldwide to bring SpotOn into the advertising marketplace. ACTV, Inc., plans to use Net Perceptions, Inc.'s personalization software to enhance SpotOn's targeting capabilities. Net Perceptions, Inc., uses a process called collaborative filtering to suggest products to consumers by cross-referencing their purchasing history with the purchasing histories of other consumers. For example, if a customer buys a Harry Potter book, Net Perceptions, Inc., will check which other books Harry Potter readers buy and suggest those to the customer.

ACTV, Inc., Motorola, Inc., and OpenTV Corporation will be equal partners in the newly formed entity, Digital ADCO International, Inc. We believe that it will leverage the existing Motorola, Inc./OpenTV Corporation infrastructure to a global customer base.

Addressing the difficulty in gauging the effectiveness of advertising, ACTV, Inc., has partnered with Nielsen Media Research, Inc., to measure the results of SpotOn and to determine the best way to report those results. For example, advertisers can be told when a spot was shown and whether the viewer took any action, such as a request for further information. We believe that the results will serve as an important marketing tool for SpotOn, as few advertising outlets offer this level of accountability. This, in our opinion, will make it an indispensable resource for cable operators vying for advertising business.

HyperTV

HyperTV enables broadcasters to deliver personal computer (PC)-based Internet content synchronized with the program and advertisements that viewers are watching on TV. HyperTV is currently a two-screen experience; it is designed for users with both a TV and a PC in the same room. Research firm Dataquest, Inc. (a division of Gartner Group, Inc.), refers to consumers that watch TV and use the Internet simultaneously as telewebbers and estimates that there are 44.0 million of them in the U.S. currently. Dataquest, Inc., projects the number of telewebbers to reach 52.0 million by the beginning of 2001. HyperTV essentially provides a companion Web site that enables consumers to drill deeper into content and advertisements viewed on TV and to make transactions. HyperTV is a patented software-based service that requires a PC, a television, and a standard digital set-top box. More than 100,000 copies of the HyperTV browser plug-in have been downloaded. The HyperTV service benefits many companies within the ITV/t-commerce space. Television programmers are likely to adopt this service in an effort to enrich the viewer's experience and increase advertising revenue. Advertisers are attracted by the package's ability to generate customer profiles that allow them to develop more effective and targeted advertising campaigns.

Recent HyperTV initiatives include a partnership with SporTVision, Inc., to add enhancements to sports events and a deal with broadcaster TV Land to add an interactive element to a game show. SporTVision, Inc., has a method of enhancing sports broadcasts instantly with real-time statistics, such as TeeVelocity, which measures golf club and ball speeds. In conjunction with the partnership, ACTV, Inc., participated in SporTVision, Inc.'s most recent round of financing. ACTV, Inc., is also developing the interactive portion of TV Land's Ultimate *Fan Search* game show. Participants can answer trivia questions and win prizes. Key content partners include New Line Cinema, a unit of The Seagram Co., Ltd., and responsible for the Austin Powers hit movies; Showtime Networks, Inc., a unit of Viacom, Inc.; The Box Music Network, a 24-hour-a-day interactive music television network; and Turner Entertainment, Inc.'s TBS and TNT networks (subsidiaries of Time Warner, Inc.)

ACTV, Inc., recently announced that it had closed the acquisition of Bottle Rocket, Inc., a developer of interactive game applications, in an all-stock transaction. We believe that ACTV, Inc., plans to use Bottle Rocket, Inc.'s interactive tools to supplement its HyperTV convergence products (see Figure 13 on page 56). The acquisition will equip ACTV, Inc., to develop companion Web sites for television game shows.

Liberty Media Group's subsidiary, Liberty Livewire Corporation, is also an important partner providing marketing expertise and production and hosting scale to the

Figure 13
ACTV, Inc.
HYPERTV SCREEN SHOT

Source: Company.

HyperTV model. Seventy-five percent of all TV commercials produced involve at least one Liberty Livewire Corporation participant. ACTV, Inc. is using its access to Liberty Livewire Corporation's extensive production facilities to scale HyperTV's content offerings. The two companies refer to their marketing venture as "HyperTV with Livewire."

Liberty Digital, Inc., a subsidiary of Liberty Media Group, recently announced the acquisition of a 50% stake in Sony Pictures Entertainment's Game Show Network, a 24-hour television network devoted to game show programming. Although ACTV, Inc.'s acquisition of Bottle Rocket, Inc., and Liberty Digital, Inc.'s acquisition are independent of each other, we believe that ACTV, Inc.'s acquisition positions the company to provide extensive interactive applications for the Game Show Network. The management teams of both Liberty Digital, Inc., and ACTV, Inc., have identified game show programming as an ideal category to introduce interactivity to viewers. All new shows on the network are planned to be fully interactive, indicating that there will be opportunities for ACTV, Inc., to provide interactive services for the network.

Revenue Streams

ACTV, Inc., generates revenue both directly from customers and jointly with partners. With respect to direct revenue, the company makes money through licensing, hosting services, and creative services such as content development and consulting. ACTV, Inc., charges licensing or hosting fees per program, which comprise a flat fee and then an override amount based on the number of HyperTV users that tap into each program. ACTV, Inc., has the potential to generate shared revenue through participating in the incremental advertising and e-commerce revenue that is generated from each program. Furthermore, we expect the company to derive revenue from database management as advertisers increasingly seek access to the valuable demographic information and customer profiles stored in set-top boxes. We also expect ACTV, Inc., to sell advertising inventory both on line through HyperTV and on television through One to One Television.

Another revenue opportunity involves licensing its patented channel-switching technology for digital ad insertion. Inserting a specific targeted ad in a digital satellite feed without noticeable interruption is complex, yet ACTV, Inc.'s switching technology, which already resides in the system, facilitates insertion. ACTV, Inc., has also licensed its patented TV-Internet bookmarking technology to Evolve Products, Inc., for integration into its Second Screen universal remote controls. Evolve Products, Inc., will pay ACTV, Inc., a licensing fee for every remote control it manufactures that uses ACTV, Inc.'s technology.

- **One to One Television and SpotOn**. ACTV, Inc., receives fees for One to One Television events based on the number of subscribers that each event reaches. ACTV, Inc.'s subsidiary, Digital ADCO, Inc., generates revenue from (1) annual software licenses to MSOs; (2) fees for striping, or digitally encoding targeted commercials; and (3) t-commerce transaction fees. The creation of Digital ADCO, Inc., brings additional revenue streams to ACTV, Inc., through processing the data that SpotOn gathers, as ACTV, Inc., provides advertisers with aggregated information on prospective customers while protecting their anonymity. This recurring revenue is primarily software- and information-based, resulting in comparatively higher gross margins. Early applications of One to One Television include enhanced regional sports programming, which makes good use of the company's seamless switching technology. We expect this revenue to One to One Television to gain traction in 2001 and grow rapidly as the products are rolled out, climbing to $55.3 million in 2004.

- **HyperTV**. Users of HyperTV must register and download the browser plug-in software necessary to use the service. Through the registrations, ACTV, Inc., gathers information such as location, age, e-mail address, and interests. This information is used to tailor content and advertisements for the user, if the user consents. The first application of HyperTV was eSchool Online, which develops Internet content to enhance educational video programming. HyperTV currently represents 100% of ACTV, Inc.'s revenues. We project HyperTV revenues to be $6.5 million in 2000, rising to $146.4 in 2004.

Partnerships and Investments

ACTV, Inc., has relationships with many of the dominant participants in the ITV and digital technology fields, including key strategic relationships with Liberty Livewire Corporation, Liberty Digital, Inc., and Motorola Inc.'s Broadband Communications Sector unit. ACTV, Inc., works closely with its partner Liberty Livewire Corporation to develop an even richer HyperTV experience. ACTV, Inc., also works with Liberty Digital, Inc., in its joint venture with iN DEMAND, L.L.C. (formerly Viewer's Choice), to develop pay-per-view programming for cable and satellite television. Liberty Digital, Inc., owns a 25% stake (fully diluted) in ACTV, Inc. ACTV, Inc., has relationships with both OpenTV Corporation and Liberate Technologies, Inc., market share leaders in ITV software platforms. ACTV, Inc., has agreements with Motorola, Inc., Scientific-Atlanta, Inc., and Pioneer Corporation to ensure compatibility of ACTV, Inc., software with their set-top boxes. Gemstar-TV Guide International Inc. announced plans to deploy ACTV, Inc.'s interactive advertising into the TV Guide Interactive portal. This service is expected to reach more than 2 million digital subscribers. ACTV, Inc., also joined with Motorola, Inc., OpenTV Corporation, Gemstar-TV Guide International Inc., Liberty Digital, Inc., Adelphia Communications Corporation, and Shaw Communications, Inc., to invest $87.0 million in ICTV, Inc. ICTV, Inc., develops software that runs on cable companies' head-end equipment, from which TV signals and interactive applications are delivered to viewers.

Patents

ACTV, Inc., currently has 19 patents that are in force and additional patents pending. The patents expire at various dates from 2003 to 2016. Corresponding patents for some of the U.S. patents have been granted or are pending in Canada, Japan, Australia, and the European Patent Office. ACTV, Inc.'s patent on HyperTVs' method covers the synchronized delivery of televised programming with related Web content and chat. HyperTV's functionality is extended by the patented Wolzien process, which enables users to retrieve relevant Internet content to enhance TV programming or to communicate. ACTV, Inc., also has a patent on its seamless channel-switching technology, which is the cornerstone of One to One Television.

Recent Results

Since the company's inception in 1989, ACTV, Inc.'s operations have been focused on developing the company's suite of ITV services. The company has just begun to aggressively market and roll out its services. ACTV, Inc.'s financial results reflect this stage in the company's development.

ACTV, Inc., reported revenues for second-quarter 2000 of $1.1 million, up 134% compared to the year-ago period. These results exceeded our projected $901,000, driven by better-than-expected performance of HyperTV, which accounted for all of the company's revenue. Operating expenses rose 312.9% versus last year, due primarily to increased staffing and operational expenses for HyperTV. The company has approximately 160 employees, up about 100% compared to year-end 1999.

For the quarter ended March 2000, revenue increased 109.6% to $840,237. All revenue through first-quarter 2000 was derived from the company's HyperTV product. The company reported a gross margin of $516,500, or 61.5%, on cost of sales of $323,700. ACTV, Inc.'s net loss for the first quarter of 2000 was $4.7 million or $0.10 per share, versus $7.4 million or $0.23 per share, for the first quarter of 1999.

For full-year 1999, the company reported total revenue of $2.1 million, an increase of 50% over 1998 revenue. The majority of ACTV, Inc.'s revenue in 1999 was derived from HyperTV software, service, and related hardware sales. ACTV, Inc.'s cost of sales declined 20% to $174,032, resulting in a gross margin for the year of approximately $1.9 million, or 91.8%. This decline in cost of sales can be attributed to the company generating a larger amount of service-driven revenue, which has proportionately less associated direct costs than does product-driven revenue. Year-over-year total operating expenses increased 57% to $24.2 million, due in large part to continued expansion of the HyperTV unit. ACTV, Inc., reported a net loss for 1999 of $23.4 million, or $0.61 per share, compared with a net loss of $20.9 million, or $0.98 per share, for 1998.

Earnings Outlook

For third-quarter 2000, we project revenue of $1.6 million, a 242.9% increase over third-quarter 1999 revenue. Our loss-per-share estimate is $0.15 versus a loss per share of $0.08 last year. Our 2000 revenue projection is $5.2 million, a 47.0% increase over 1999. Our loss-per-share estimate is $0.54 in 2000 compared with a loss per share of $0.61 in 1999. We expect the company's revenue to have a five-year CAGR of 153.1%, driven by increasing penetration of digital set-top box households and by growing usage of HyperTV. We expect revenue to be driven further by more events using ACTV, Inc., technology, as well as by expansion of the company's data profiling business. Our revenue projection in 2004 is $201.7 million, with a gross margin of 82.0%. We expect the operating margin to reach 48.8% in 2004, when we project the company to earn $1.05 per fully diluted share.

Financial History

ACTV, Inc., completed its initial public offering (IPO) in May 1990. The 850,000-share offering was led by Josephthal, Lyon & Ross, Inc., and proceeds to ACTV, Inc., were approximately $4.68 million less underwriting fees.

In February 2000, ACTV, Inc., successfully completed a follow-on offering of 4.6 million shares resulting in net proceeds to the company of $129.7 million. The underwriters for the offering were Credit Suisse First Boston Corporation, Bear Stearns & Company, Inc., Lehman Brothers, Inc., and Salomon Smith Barney, Inc. (a unit of Citigroup, Inc.). The company use of proceeds included repaying all of its outstanding debt, funding general operations, and pursuing minority investments and strategic alliances. In 1999, Liberty Media Group invested $9.0 million in ACTV, Inc. In April 2000 Liberty Media Group invested an additional $20.0 million in ACTV, Inc., by exercising a warrant for 2.5 million shares that brought its equity stake to 25% fully diluted.

ACTV, Inc.'s cash balance as of its most recent completed quarter was $135.8 million. We expect ACTV, Inc.'s current cash balance to be more than sufficient until the company becomes cash flow positive, which we project to occur in 2002. Further, Liberty Media Group holds warrants for an additional 2.5 million shares priced at approximately $12.00 per share and another 2.5 million shares priced at $15.00 per share. The exercise of these warrants would result in an additional cash infusion into ACTV, Inc., of $67.5 million.

Valuation

We expect ACTV, Inc.'s share price to respond positively to certain catalysts, including (1) agreements with broadcasters and cable and satellite operators to roll out its products; and (2) increasing digital set-top box penetration. Our 2004 fully taxed earnings-per-share (EPS) estimate for ACTV, Inc., is $1.05. The shares currently trade at a multiple of 15.5 to our 2004 estimate, a 12.4% premium to the 2004 S&P 500 multiple of 13.8 (see Table 12). With a projected earnings growth rate of 35.6% in 2004, ACTV, Inc., is expected to grow about three times the rate of the S&P 500 projected earnings. We believe that ACTV, Inc., merits a price-to-earnings (P/E) ratio of between two to three times the S&P 500 ratio, which gives us our long-term target price of $35.

Management/Board of Directors

William C. Samuels has been CEO since August 1993, a director since August 1989, and chairman of the board since November 1994. In addition, Samuels is chairman of the board of subsidiaries ACTV Entertainment, Inc., and HyperTV Networks, Inc. From August 1989 to February 1999, Samuels served as president of the company. He is a trustee of Howard J. Samuels Institute at City College of New York and is on the board of directors of the Council of Economic Priorities.

Bruce Crowley has served as an executive vice president since October 1995 and as president of HyperTV Networks, Inc., a subsidiary, since December 1995. He has also served as a director since December 1995. Crowley joined as president, distance learning, in October 1994. He had previously been employed by KDI Corporation.

Joseph P. Dwyer is CFO and executive vice president of ACTV, Inc. He has more than 20 years of experience in financial management, strategic planning, Securities Exchange Commission reporting, acquisition integration, and business development. Most recently, Dwyer was senior vice president of finance at Winstar Communications, Inc., a leading broadband service provider.

Christopher Cline joined ACTV, Inc., in 1993, and was recently promoted to the position of executive vice president, new business development. Prior to joining the company, he was vice president of International Trade and Finance Corporation, a cross-border financial trading and consulting company, and, prior to that a, vice president of Citicorp Investment Bank.

David Reese has been president and COO since February 1999 and has served as a director since 1992. From November 1992 to February 1999, Reese was an executive vice president and president of ACTV Entertainment, Inc., a subsidiary of the company, since November 1994. He has been employed by the company since December 1988, and served as the vice president of finance from September 1989 to November 1992. Reese is the chair of the advisory board of Pennsylvania State University's School of Information Science and Technology.

William A. Frank has been a director since April 1996. He currently serves as COO of Cognitive Arts Corporation, a position he has held since June 1997. He was formerly the CEO of Greenwich Entertainment Group, and from 1991 to 1996 he also served as chairman of the board of directors of Corsearch, Inc., a data research company.

Melvyn N. Klein has been a director of the company since December 1999. Currently, he is a general partner of GKH Partners, L.P., an investment firm. Klein is also a principal of Questor Management Company and a director of Anixter International, Inc., Bayou Steel Corporation, and Hanover Compressor Corporation.

Table 12
ACTV, Inc.
VALUATION ANALYSIS

	Price (09/11/00)	2000E EPS	Projected Five-year growth	2004E EPS	2004E P/E	Premium to S&P 500 2004E P/E Multiple
S&P 500	$1,489.26	$60.85	12.1%	$107.72	13.8	—
ACTV, Inc.	$16.31	—	35.6%	$1.05	15.5	12.4%

Source: Gruntal & Co., L.L.C.

Steven W. Schuster has been a director since May 1996. Schuster has been engaged in the practice of law for more than 16 years; since January 1996, he has been a partner with the law firm of McLaughlin & Stern L.L.P. From June 1993 to December 1995, he was a member of the law firm of Shane & Paolillo, P.C.

John C. Wilcox is a director of ACTV, Inc., and is currently vice chairman of Georgeson Shareholder Communications Inc., the oldest and largest firm specializing in proxy solicitation, takeovers and control transactions, corporate governance, small shareholder programs, and pre-escheat services. Previously, Wilcox was chairman of Georgeson & Company Inc., which merged with Shareholder Communications Corporation in 1999. During his 25 years with the firm, Wilcox has specialized in corporate governance, and he has consulted with many corporations on defensive and offensive tactics in proxy contests and tender offers.

Risks

Advanced Digital Set-Top Box Penetration

Our projections of ACTV, Inc.'s revenue growth assume increased penetration of advanced digital set-top boxes. Any production bottlenecks experienced by the leading manufacturers of these devices, Motorola, Inc., and Scientific-Atlanta, Inc., could adversely impact the rollout of ACTV, Inc.'s products.

Simultaneous Use of TVs and PCs

ACTV, Inc.'s primary revenue generator, HyperTV, depends upon increased usage of TVs and PCs simultaneously. If this usage were to decline, we believe that the decline would negatively affect demand for HyperTV. Our projections for telewebber growth are conservative, and in our opinion, quite easily achievable.

See Tables 13-18 for ACTV, Inc.'s financial statements and our projections.

Table 13
ACTV, Inc.
REVENUE PROJECTIONS, 2000E-2004E

Fiscal Year ends December 31	2000E	2001E	2002E	2003E	2004E
One to One Television revenue streams:					
Subscriber fees					
Subscribers with advanced digital set-top boxes (thousands)	6,500	12,000	17,500	21,800	25,200
Estimated ACTV penetration	—	2.0%	6.0%	8.0%	10.0%
One to One Television subscribers (thousands)	—	$240.0	$1,050.0	$1,744.0	$2,520.0
Licensing fee per subscriber	—	$3.10	$3.20	$3.30	$3.40
Annual subscriber licensing fees (thousands)	**—**	**$744.0**	**$3,360.0**	**$5,755.2**	**$8,568.0**
SpotOn production enhancements					
Clients	—	20	60	150	250
Spots per client	—	20	40	75	100
Number of spot enhancements—i.e. striping (thousands)	—	400	2,400	11,250	25,000
Fee per assignment	—	$180	$185	$190	$195
Production enhancement revenue (thousands)	**—**	**$72.0**	**$444.0**	**$2,137.5**	**$4,875.0**
Data profiling					
Data mining fee per subscriber	—	—	$0.10	$0.10	$0.10
Total per-subscriber data mining fees (thousands)	—	—	$88.0	$143.3	$225.2
Data profiling clients	—	15	60	150	250
Reports per client	—	4	6	8	12
Fee per report (thousands)	—	$10.00	$10.50	$11.00	$11.50
Net data profiling revenue (thousands)	**—**	**$600.0**	**$3,868.0**	**$13,343.3**	**$34,725.2**
Regional sports programming services:					
Subscribers with access (thousands)	—	$52.8	$220.5	$313.9	$378.0
Subscribers that buy event	—	1.056	8.82	18.8352	30.24
Event fee	$9.95	$9.95	$9.95	$9.95	$9.95
ACTV Inc.'s share of event fee	$4.98	$4.98	$4.98	$4.98	$4.98
Licensing fee per event	$1.00	$1.10	$1.15	$1.20	$1.25
Number of events	—	6	8	10	12
Regional Sports Revenue	**—**	**$348.5**	**$2,291.9**	**$4,516.7**	**$7,174.4**
Total One to One Television/SpotOn Revenue	**—**	**$1,764.5**	**$9,963.8**	**$25,752.6**	**$55,342.6**
% of total revenue	—	11.0%	18.5%	23.9%	27.4%
year/year % change	NM	NM	464.7%	158.5%	114.9%
HyperTV revenue streams:					
Number of telewebbers—simultaneous users of PC/Internet and television (thousands)	44,000	52,800	62,832	75,398	89,724
ACTV, Inc., penetration	0.5%	0.9%	1.4%	1.9%	2.5%
HyperTV users (thousands)	234.8	475.2	879.6	1432.6	2252.1
Number of regular programming events	130	179.5	300	350	400
Number of special programming events	4	8	12	18	24
Total number of ads during all events	292	782	2040	2460	2891
Cost per thousand impressions realized by ACTV, Inc.	$13.75	$13.50	$12.75	$12.25	$12.25
Advertising revenue (thousands)	**$942.5**	**$5,016.7**	**$22,879.6**	**$43,170.5**	**$79,755.0**
Licensing fee per subscriber per event	$0.025	$0.035	$0.038	$0.044	$0.050
Total licensing fees (thousands)	**$786.4**	**$3,118.5**	**$10,429.1**	**$23,196.2**	**$47,844.2**
Subscriber click through rate	2.5%	3.0%	3.5%	4.0%	4.5%
Clicks (thousands)	786.4	2,673.0	9,605.8	21,087.4	43,059.8
Buy rate on click throughs	5.0%	5.0%	5.0%	5.0%	5.0%
Transaction fee	$0.05	$0.05	$0.05	$0.05	$0.05
t-commerce revenue (thousands)	**$1.97**	**$6.68**	**$24.01**	**$52.72**	**$107.65**
Content production services cost event (thousands)	$15.00	$15.00	$15.00	$15.00	$15.00
Percentage of content produced by ACTV, Inc.	75.0%	60.0%	45.0%	35.0%	26.0%
Content production revenue (thousands)	**$1,507.5**	**$1,687.5**	**$2,106.0**	**$1,932.0**	**$1,657.1**
eSchool Online contract Revenue	**$2,000.0**	**$4,500.0**	**$8,500.0**	**$13,500.0**	**$17,000.0**
% of total revenue	38.2%	28.0%	15.8%	12.5%	8.4%
year/year % change	NM	125.0%	88.9%	58.8%	25.9%
Total HyperTV Revenue	**$5,238.4**	**$14,329.4**	**$43,938.8**	**$81,851.4**	**$146,363.9**
% of total revenue	100.0%	89.0%	81.5%	76.1%	72.6%
year/year % change	NM	173.5%	206.6%	86.3%	78.8%
Total ACTV, Inc., Revenue	**$5,238.4**	**$16,093.9**	**$53,902.6**	**$107,604.0**	**$201,706.6**
	147.3%	207.2%	234.9%	99.6%	87.5%

NM = Not meaningful.

Source: Gruntal & Co., L.L.C.

Table 14
ACTV, Inc.
INCOME STATEMENT, 1999-2004E
($ thousands, except per share)

Fiscal year ends December 31	**1999**	**% sales**	**% change**	**2000E**	**% sales**	**% change**	**2001E**	**% sales**	**% change**	**2002E**	**% sales**	**% change**	**2003E**	**% sales**	**% change**	**2004E**	**% sales**	**% change**
Net revenue	$2,117.9	—	50.7%	$5,238.4	—	147.3%	$16,093.8	—	207.2%	$53,902.6	—	234.9%	$107,604.0	—	99.6%	$201,706.6	—	87.5%
Cost of revenue	174.0	8.2%	(20.4%)	1,894.8	0.4	988.8%	1,754.2	10.9%	(7.4%)	7,007.3	13.0%	299.5%	16,140.6	15.0%	130.3%	30,256.0	15.0%	87.5%
Gross profit	**$1,943.9**	**91.8%**	**63.7%**	**$3,343.7**	**$0.6**	**72.0%**	**$14,339.6**	**89.1%**	**328.9%**	**$46,895.3**	**87.0%**	**227.0%**	**$91,463.4**	**85.0%**	**95.0%**	**$171,450.6**	**85.0%**	**87.5%**
Operating expenses	$3,241.1	153.0%	61.7%	$9,187.1	$1.8	183.5%	$11,700.0	72.7%	27.4%	$14,000.0	26.0%	19.7%	$18,500.0	17.2%	32.1%	$21,000.0	10.4%	13.5%
Selling and administrative	17,036.6	804.4%	72.7%	26,000.8	5.0	52.6%	29,600.0	183.9%	13.8%	36,500.0	67.7%	23.3%	45,500.0	42.3%	24.7%	52,000.0	25.8%	14.3%
Operating income	**($18,333.8)**	**NM**	**—**	**($31,844.3)**	**($6.1)**	**NM**	**($26,960.4)**	**(167.5%)**	**NM**	**($3,604.7)**	**(6.7%)**	**NM**	**$27,463.4**	**25.5%**	**NM**	**$98,450.6**	**48.8%**	**258.5%**
Other expenses:																		
Depreciation and amortization	$1,576.7	74.4%	42.5%	$2,685.6	$0.5	70.3%	$3,528.8	21.9%	31.4%	$3,945.8	7.3%	11.8%	$3,850.6	3.6%	(2.4%)	$3,989.5	2.0%	3.6%
Amortization of goodwill	426.4	20.1%	—	426.4	0.1	0.0%	443.9	2.8%	4.1%	399.5	0.7%	(10.0%)	359.6	0.3%	(10.0%)	82.9	NM	(76.9%)
Stock appreciation rights	1,950.3	92.1%	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Income before interest and taxes	**($22,287.1)**	**NM**	**NM**	**($34,956.3)**	**($6.7)**	**NM**	**($30,933.1)**	**(192.2%)**	**NM**	**($7,950.0)**	**(14.7%)**	**NM**	**$23,253.2**	**21.6%**	**-392.5%**	**$94,378.2**	**46.8%**	**305.9%**
Interest income, net	($595.5)	NM	NM	$7,806.4	$1.5	NM	$8,000.0	49.7%	2.5%	$7,320.0	13.6%	(8.5%)	$9,360.0	8.7%	27.9%	$13,920.0	6.9%	48.7%
LMC IATV Events partnership income	—	—	—	—	—	—	95664.2%	5.9%	NM	313898.3%	5.8%	228.1%	695160.1%	6.5%	121.5%	1255593.2%	6.2%	80.6%
Minority interest-subsidiary preferred stock dividend and accretion	(0.6)	NM	NM	1,364.3	0.3	NM	1,250.0	7.8%	(8.4%)	—	NM	(100.0%)	(2,000.0)	(1.9%)	NM	(5,000.0)	(2.5%)	NM
Pretax income	**($22,883.2)**	**NM**	**NM**	**($25,785.6)**	**($4.9)**	**12.7%**	**($21,683.1)**	**(134.7%)**	**NM**	**$2,509.0**	**4.7%**	**NM**	**$37,564.8**	**34.9%**	**NM**	**$115,854.1**	**57.4%**	**208.4%**
Tax rate	—	—	—	—	—	—	—	—	—	—	—	—	0.4	—	—	0.4	—	—
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM	14,274.6	13.3%	—	44,024.6	21.8%	208.4%
Net income	**($22,883.2)**	**NM**	**NM**	**($25,785.6)**	**($4.9)**	**NM**	**($20,726.4)**	**(128.8%)**	**NM**	**$2,509.0**	**4.7%**	**NM**	**$23,290.2**	**21.6%**	**NM**	**$71,829.5**	**35.6%**	**208.4%**
Preferred stock dividend and accretion	$494.4	23.3%	NM	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Net income avaliable to common stockholders	**($23,377.6)**	**NM**	**NM**	**($25,785.6)**	**($4.9)**	**10.3%**	**($20,726.4)**	**(128.8%)**	**(19.6%)**	**$2,509.0**	**4.7%**	**NM**	**$23,290.2**	**21.6%**	**NM**	**$71,829.5**	**35.6%**	**208.4%**
EPS	($0.61)	—	—	($0.54)	—	—	($0.38)	—	—	$0.05	—	—	$0.41	—	—	$1.26	—	—
Shares Outstanding	38,219.0	—	—	47,678.8	—	—	53,875.0	—	—	54,000.0	—	—	56,500.0	—	—	57,000.0	—	—
Diluted EPS	**($0.61)**	—	—	**($0.54)**	—	—	**($0.38)**	—	—	**$0.04**	—	—	**$0.34**	—	—	**$1.05**	—	—
Diluted shares outstanding	38,219.0	—	—	47,678.8	—	—	53,875.0	—	—	66,000.0	—	—	68,000.0	—	—	68,500.0	—	—

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 15
ACTV, Inc.
2000E QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends December 31	1Q00	% sales	% change	2Q00	% sales	% change	3Q00E	% sales	% change	4Q00E	% sales	% change
Net revenue	$840.2	—	109.6%	$1,062.4	—	134.2%	$1,627.0	—	242.9%	$1,708.8	—	116.6%
Cost of revenue	323.7	38.5%	491.0%	371.0	38.0%	NM	602.0	37.0%	641.0%	598.1	35.0%	NM
Gross profit	**$516.5**	**61.5%**	**49.3%**	**$691.4**	**65.1%**	**61.6%**	**$1,025.0**	**63.0%**	**160.6%**	**$1,110.7**	**65.0%**	**43.0%**
Operating expenses	$1,916.1	228.0%	430.1%	$1,821.0	171.4%	312.9%	$2,650.0	162.9%	330.5%	$2,800.0	163.9%	53.6%
Selling and administrative	3,564.7	424.2%	26.4%	7,236.1	681.1%	90.3%	7,700.0	473.3%	46.6%	7,500.0	438.9%	45.3%
Operating income	**($4,964.3)**	**(590.8%)**	**NM**	**($8,365.7)**	**(787.4%)**	**NM**	**($9,325.0)**	**(573.1%)**	**NM**	**($9,189.3)**	**(537.8%)**	**NM**
Other expenses:												
Depreciation and amortization	$662.6	78.9%	78.9%	$703.0	66.2%	134.5%	$660.0	40.6%	79.2%	$660.0	38.6%	22.6%
Amortization of goodwill	106.6	12.7%	NM	106.6	10.0%	NM	106.6	6.6%	NM	106.6	6.2%	NM
Stock appreciation rights	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Income before interest and taxes	**($5,733.4)**	**(682.4%)**	**NM**	**($9,175.3)**	**(863.6%)**	**NM**	**($10,091.6)**	**(620.3%)**	**NM**	**($9,955.9)**	**(582.6%)**	**NM**
Interest income, net	$902.0	107.3%	NM	$2,204.4	207.5%	NM	$2,300.0	141.4%	NM	$2,400.0	140.5%	NM
LMC IATV Events partnership income	—	—	—	—	—	—	—	—	—	—	—	—
Minority interest-subsidiary	170.5	20.3%	NM	307.4	28.9%	NM	443.2	27.2%	NM	443.2	25.9%	NM
Pretax income	**($4,661.0)**	**(554.7%)**	**NM**	**($6,663.5)**	**(627.2%)**	**NM**	**($7,348.4)**	**(451.7%)**	**NM**	**($7,112.7)**	**(416.2%)**	**NM**
Tax rate	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income	**($4,661.0)**	**(554.7%)**	**NM**	**($6,663.5)**	**(627.2%)**	**NM**	**($7,348.4)**	**(451.7%)**	**NM**	**($7,112.7)**	**(416.2%)**	**NM**
Preferred stock dividend and accretion	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income avaliable to common stockholders	**($4,661.0)**	**(554.7%)**	**NM**	**($6,663.5)**	**(627.2%)**	**NM**	**($7,348.4)**	**(451.7%)**	**NM**	**($7,112.7)**	**(416.2%)**	**NM**
EPS	**($0.10)**	**—**	**—**	**($0.15)**	**—**	**—**	**($0.15)**	**—**	**—**	**($0.14)**	**—**	**—**
Shares Outstanding	44,943.1	—	—	45,771.9	—	—	50,000.0	—	—	50,000.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 16
ACTV, Inc.
2001E QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends December 31	1Q01E	% sales	% change	2Q01E	% sales	% change	3Q01E	% sales	% change	4Q01E	% sales	% change
Net revenues	$3,218.8	—	283.1%	$3,701.6	—	248.4%	$4,345.3	—	167.1%	$4,828.2	—	182.6%
Cost of revenues	386.3	12.0%	19.3%	407.2	11.0%	9.8%	478.0	11.0%	(20.6%)	482.8	10.0%	(19.3%)
Gross profit	**$2,832.5**	**88.0%**	**448.4%**	**$3,294.4**	**89.0%**	**376.5%**	**$3,867.4**	**89.0%**	**277.3%**	**$4,345.3**	**90.0%**	**291.2%**
Operating expenses	$1,900.0	59.0%	(0.8%)	$3,000.0	81.0%	64.7%	$3,200.0	73.6%	20.8%	$3,600.0	74.6%	28.6%
Selling and administrative	7,000.0	217.5%	96.4%	7,100.0	191.8%	(1.9%)	7,600.0	174.9%	(1.3%)	7,900.0	163.6%	5.3%
Operating income	**($6,067.5)**	**(188.5%)**	**NM**	**($6,805.6)**	**(183.9%)**	**NM**	**($6,932.6)**	**(159.5%)**	**NM**	**($7,154.7)**	**(148.2%)**	**NM**
Other expenses:												
Depreciation and amortization	$882.2	27.4%	33.1%	$882.2	23.8%	25.5%	$882.2	20.3%	33.7%	$882.2	18.3%	33.7%
Amortization of goodwill	111.0	3.4%	4.1%	111.0	3.0%	4.1%	111.0	2.6%	4.1%	111.0	2.3%	4.1%
Stock appreciation rights	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Income before interest and taxes	**($7,060.7)**	**(219.4%)**	**NM**	**($7,798.8)**	**(210.7%)**	**NM**	**($7,925.8)**	**(182.4%)**	**NM**	**($8,147.8)**	**(168.8%)**	**NM**
Interest income, net	$2,000.0	62.1%	NM	$2,000.0	54.0%	NM	$2,000.0	46.0%	NM	$2,000.0	41.4%	NM
LMC IATV Events partnership income	239.2	—	—	239.2	—	—	239.2	—	—	239.2	—	—
Minority interest-subsidiary	312.5	9.7%	NM	312.5	8.4%	NM	312.5	7.2%	NM	312.5	6.5%	NM
Pretax income	**($4,509.0)**	**(140.1%)**	**NM**	**($5,247.1)**	**(141.8%)**	**NM**	**($5,374.2)**	**(123.7%)**	**NM**	**($5,596.2)**	**(115.9%)**	**NM**
Tax rate	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income	**($4,509.0)**	**(140.1%)**	**NM**	**($5,247.1)**	**(141.8%)**	**NM**	**($5,374.2)**	**(123.7%)**	**NM**	**($5,596.2)**	**(115.9%)**	**NM**
Preferred stock dividend and accretion	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income avaliable to common stockholders	**($4,509.0)**	**(140.1%)**	**(3.3%)**	**($5,247.1)**	**(141.8%)**	**NM**	**($5,374.2)**	**(123.7%)**	**NM**	**($5,596.2)**	**(115.9%)**	**NM**
EPS	**($0.08)**	**—**	**—**	**($0.10)**	**—**	**—**	**($0.10)**	**—**	**—**	**($0.10)**	**—**	**—**
Shares Outstanding	53,500.0	—	—	54,000.0	—	—	54,000.0	—	—	54,000.0	—	—

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 17
ACTV, Inc.
CASH FLOW STATEMENT, 2000-2004E
($ thousands)

Fiscal year ends December 31	**3 ME 3/31/00**	**2000E**	**2001E**	**2002E**	**2003E**	**2004E**
Cash flows from operating activities:						
Net income	($4,661.0)	($25,785.6)	($20,726.4)	$2,509.0	$23,290.2	$71,829.5
Adjustment to reconcile net loss to net cash used in operating activities:						
Depreciation and amortization	769.2	2,642.6	3,528.8	3,945.8	3,850.6	3,989.5
Stock appreciation rights	—	—	—	—	—	—
Amortization and accretion of deferred expenses related to debt financing	246.8	426.4	443.9	399.5	359.6	323.6
Common stock issued for services	68.2	68.2	9,000.0	9,000.0	9,000.0	9,000.0
Changes in operating assets and liabilities:						
Accounts receivable	($68.5)	($111.0)	($1,426.3)	($2,654.3)	($528.0)	($4,167.1)
Other assets	(732.2)	(2,000.0)	—	—	—	—
Preferred dividends and accretion	—	—	—	—	—	—
Accounts payable and accrued expenses	(596.4)	117.4	2,931.0	10,208.4	14,499.4	17,339.4
Minority interest	(170.5)	(1,500.0)	(1,250.0)	—	2,000.0	5,000.0
Net cash used in operating activities	**($5,144.4)**	**($26,142.0)**	**($7,499.1)**	**$23,408.3**	**$52,471.8**	**$103,315.0**
Cash flows from investing activities:						
Investment in patents and patents pending	($68.3)	($100.0)	($150.0)	($200.0)	($250.0)	($300.0)
Purchases of property and equipment	(486.4)	(1,500.0)	(2,000.0)	(2,500.0)	(3,000.0)	(3,500.0)
Investment in software development costs	(270.7)	(800.0)	(1,300.0)	(1,800.0)	(2,200.0)	(2,500.0)
Net cash used in investing activities	**($825.4)**	**($2,400.0)**	**($3,450.0)**	**($4,500.0)**	**($5,450.0)**	**($6,300.0)**
Cash flows from financing activities:						
Exercise of warrants	—	—	$30,000.0	—	$37,500.0	—
Net proceeds from equity financing	150,256.4	150,257.4	—	—	—	—
Net cash provided by financing activities	**$150,256.4**	**$150,257.4**	**$30,000.0**	**—**	**$37,500.0**	**—**
Net increase (decrease) in cash and cash equivalents	$144,286.6	$121,715.4	$19,050.9	$18,908.3	$84,521.8	$97,015.0
Cash and cash equivalents at beginning of the period	8,816.4	8,816.4	130,531.8	149,582.6	168,491.0	253,012.7
Cash and cash equivalents at end of the period	**$153,103.0**	**$130,531.8**	**$149,582.6**	**$168,491.0**	**$253,012.7**	**$350,027.7**

Source: Company and Gruntal & Co., L.L.C.

Table 18
ACTV, Inc.
BALANCE SHEET, 2000-2004E
($ thousands)

Fiscal year ends December 31	**3 ME 3/31/00**	**2000E**	**2001E**	**2002E**	**2003E**	**2004E**
ASSETS						
Current assets:						
Cash and cash equivalents	$153,103.0	$130,531.8	$149,582.6	$168,491.0	$253,012.7	$350,027.7
Accounts receivable, net	1,228.5	1,309.6	2,736.0	5,390.3	5,918.2	10,085.3
Other	1,786.5	2,143.8	2,572.6	3,087.1	3,704.5	4,445.4
Total current assets	**$156,118.0**	**$133,985.2**	**$154,891.2**	**$176,968.3**	**$262,635.5**	**$364,558.4**
Property and equipment, net	$3,529.9	$5,029.9	$5,520.9	$6,364.7	$7,455.3	$8,718.7
Patents and patents pending	8,066.1	8,166.1	5,866.3	4,306.4	3,264.5	2,585.1
Software development costs	2,285.9	3,085.9	3,460.1	4,222.1	5,155.5	6,108.8
Goodwill	1,681.9	1,362.1	935.7	509.3	82.9	—
Other assets	1,545.6	3,545.6	3,191.0	2,871.9	2,584.7	2,326.3
Total assets	**$173,227.4**	**$155,174.8**	**$173,865.3**	**$195,242.7**	**$281,178.3**	**$384,297.3**
LIABILITIES AND STOCKHOLDERS' EQUITY						
Current liabilities:						
Accounts payable and accrued expenses	$1,297.0	$1,414.4	$4,345.3	$14,553.7	$29,053.1	$46,392.5
Long-term notes payable	4,865.3	4,438.9	3,995.0	3,595.5	3,236.0	2,912.4
Minority interest	1,830.1	2,000.0	1,750.0	500.0	(1,500.0)	(4,500.0)
Total current liabilities	**$7,992.4**	**$7,853.3**	**$10,090.3**	**$18,649.2**	**$30,789.0**	**$44,804.9**
Total liabilities	**$7,992.4**	**$7,853.3**	**$10,090.3**	**$18,649.2**	**$30,789.0**	**$44,804.9**
Stockholders' equity	**$165,234.9**	**$147,321.5**	**$163,774.9**	**$176,593.5**	**$250,389.3**	**$339,492.5**
Total liabilities and stockholders' equity	**$173,227.3**	**$155,174.8**	**$173,865.3**	**$195,242.7**	**$281,178.3**	**$384,297.3**

Source: Company and Gruntal & Co., L.L.C.

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Princeton Video Image, Inc.# (PVII-$4.25)

INVESTMENT RATING

Intermediate Term (up to 6 months): **1–Outperformer** **Target Price: $10**

Common stock is expected to provide a total return that is 5 or more percentage points greater than that of the S&P 500 Index.

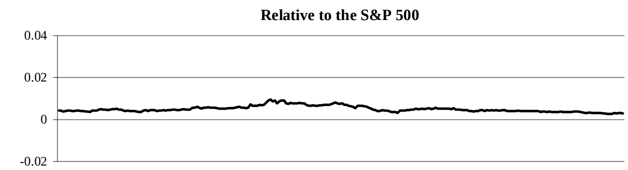
Long Term (6-18 months): **1–Outperformer** **Target Price: $15**

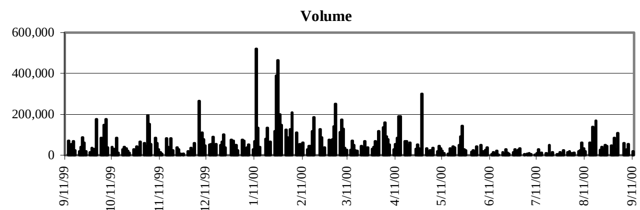
Common stock is expected to provide a total return that is at least 10 percentage points greater than that of the S&P 500 Index.

Ticker/Exchange	PVII/NASDAQ
Price (09/11/00)	$4.25
52-Week Range	$15-$4
Current Shares Outstanding	9.9 million
Avg. Daily Trading Volume (last 20 days)	17,095
Suitability	Aggressive Risk

EPS*	2000	2001E	2002E	2003E
1Q	($0.37)	($0.30)	NE	NE
2Q	($0.34)	($0.23)	NE	NE
3Q	($0.32)	($0.24)	NE	NE
4Q	($0.31)	($0.17)	NE	NE
	($1.33)	**($0.93)**	**($0.30)**	**$0.40**
P/E	NM	NM	NM	10.6

Dividend	—
Yield	—
Five-Year Expected Revenue Growth Rate	115.1%
Common Stock Market Capitalization	$42 million
2000E Book Value/Share	$1.33
2000E Cash Flow/Share	($1.03)
1999 ROC	NM
Total Debt/Capitalization	0
Insider Holdings	32.0%
Institutional Holdings	26.7%
End of Fiscal Year	June 30





Corporate Headquarters Lawrenceville, NJ

A = Actual; E = Estimate; NE = No estimate: NM = Not meaningful.

**Figures may not add due to share-count changes and rounding.*

#Gruntal & Co., L.L.C., makes a market in this security.

Investment Summary

On August 7, 2000, when the share price was $5.25, we initiated coverage on the common stock of Princeton Video Image, Inc., with intermediate- and long-term ratings of 1-1, Outperformer. The company has a (1) blue-chip client list that includes major broadcasters and advertisers; (2) a defensible patent portfolio; and (3) recently launched products that we believe will accelerate revenue growth. In our opinion, Princeton Video Image, Inc.'s products will experience heavy demand as broadcasters and advertisers prepare to deliver interactive customized programming and advertising. Our projected five-year compound annual revenue growth rate (CAGR) for revenue is 115.1%. Our intermediate-term target price of $10 implies appreciation of 135.3%. Our long-term target price, based on the stock's valuation and growth rate relative to the S&P 500, is $15 per share.

Key Points

- Princeton Video Image, Inc., is positioned to benefit from the expected surge in demand for virtual advertising and enhanced broadcasting services.
- We believe that the recent downturn of technology stocks, combined with Princeton Video Image, Inc.'s historical lack of Wall Street research coverage, has created an exceptional buying opportunity.
- Another reason that this company is more obscure than it deserves to be is the fact that most of its competitors are nonpublic, which makes comparative valuation difficult.
- Our intermediate- and long-term target prices are $10 and $15, respectively, implying appreciation of 135.3% and 252.9%.

Company Description

Princeton Video Image, Inc., develops technology to insert digital images into televised programming, ranging from simple corporate logos to sophisticated 3-D images and animated enhancements. Princeton Video Image, Inc., currently operates in four distinct markets. They are (1) virtual advertising (corporate names and logos); (2) program enhancements (such as virtual first-down lines); (3) post-production services (first-run entertainment programs and syndicated shows); and (4) interactive services (the Internet, and both interactive and personal television). Princeton Video Image, Inc., was founded in 1990 and commercially introduced its first product in 1997.

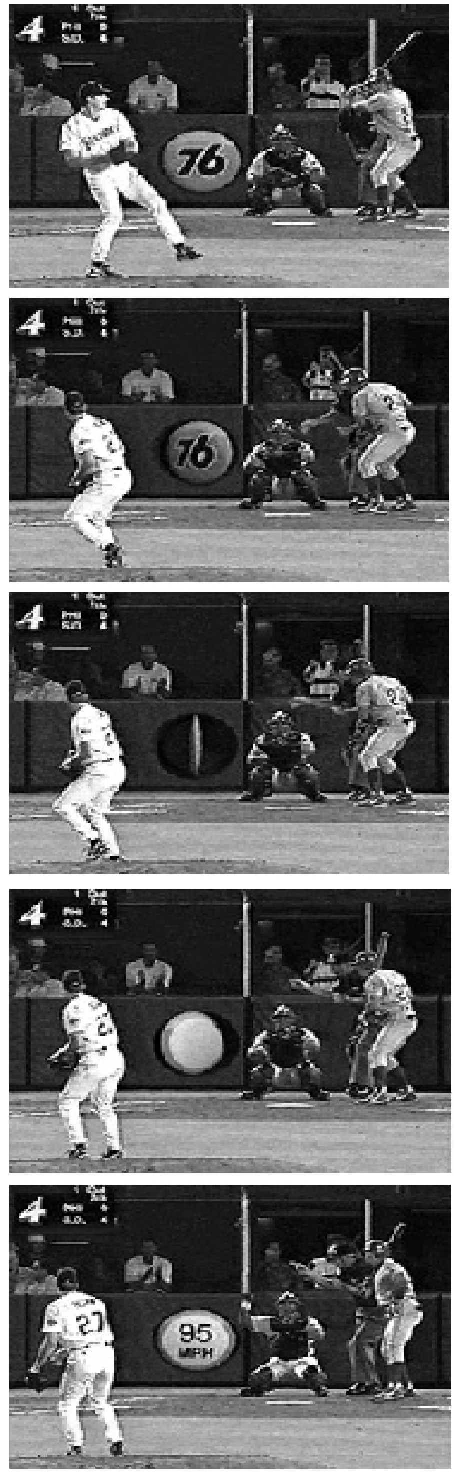
Products

Princeton Video Image, Inc.'s core products are L-VIS (Live Video Insertion System) and iPoint. L-VIS is Princeton Video Image, Inc.'s original ad-insertion system, targeted to TV-based experiences. Princeton Video Image, Inc., recently introduced iPoint, which addresses both TV- and personal computer (PC)-based entertainment.

L-VIS

L-VIS is a proprietary patented hardware and software system that enables the seamless insertion of electronic images in real time into any video stream. L-VIS uses patented technology to search the video to identify an appropriate surface for an insertion and ensures that it appears naturally in the scene. For instance, if an object moves in front of the insertion, L-VIS allows that object to appear to pass in front of the inserted image. The inserted images may be two or three dimensional, still or animated, opaque or semitransparent. The insertion can also be another video stream. Princeton Video Image, Inc., digital animations can also be made to interact with events in the program for even greater impact (see Figure 14).

Figure 14
Princeton Video Image, Inc.
THE L-VIS SYSTEM AT WORK



Source: Company.

iPoint

Princeton Video Image, Inc.'s new iPoint system enables individualized enhancements, e-commerce, interactivity, and targeted advertising to be inserted into both PC- and TV-based video. iPoint delivers virtual rich media enhancements, animated advertisements, three-dimensional product placement, and transactional capabilities to streamed content. Princeton Video Image, Inc., has partnered with Real Networks, Inc., a leader in the delivery of streaming media on the Internet. Real Network, Inc.'s RealPlayer, a software application that allows Internet users to watch streaming video on the Internet, has 115.0 million unique registered users worldwide. Princeton Video Image, Inc., and RealNetworks, Inc., have integrated iPoint technology into the new version of RealPlayer, Version 8.0, making iPoint enhancements available to RealNetworks, Inc.'s users. Princeton Video Image, Inc., has also partnered with Engage Technologies, Inc., a provider of on-line marketing technology and a subsidiary of incubator CMGI, Inc. Princeton Video Image, Inc., plans to work with Engage Technologies, Inc., to develop and promote the iPoint advertising solution in the Internet community. The viewer sees personalized ads and offers, which are integrated seamlessly into the streaming video. Examples include on-screen player statistics, a virtual strike zone, individualized advertising, and product placement (see Figure 15).

iPoint serves as a vehicle for direct response TV, enabling advertisers to close transactions with viewers rather than settle for delivering passive impressions. Revenue opportunities for rights holders include fees for virtual ad impressions, click throughs, and completed transactions. Cable and satellite operators may be able to use iPoint virtual enhancements to differentiate themselves from competitors.

Figure 15
Princeton Video Image, Inc.
iPOINT IN ACTION

Source: Company.

iPoint is platform-independent software that resides on the consumer's digital set-top box, personal video recorder (PVR), or PC. Program enhancements and ads are delivered to the viewer separately from the program via the Internet.

Markets Addressed

Beneficiaries of Princeton Video Image, Inc.'s products include advertisers (who benefit from targeted in-program advertising), broadcasters (who benefit from incremental revenue streams), and rights holders (who benefit from the increase in value of their properties). We also believe that virtual program enhancements benefit (1) the sporting leagues and teams by increasing sponsorship and advertising revenue; and (2) the general viewing public, which gets a richer, more interactive viewing experience. Princeton Video Image, Inc.'s products create new advertising inventory, which translates to incremental revenue streams for the company's customers.

Advertisers. L-VIS enables advertisers to associate their brands with the content, by having brands and products visible during the broadcast of live televised events. Placing products in a natural setting allows advertisers to stand out from the usual advertising noise during commercial breaks. Contextual placement also lends the product a level of authenticity unattainable in commercials. With Princeton Video Image, Inc.'s tools, advertisers can reach channel surfers and viewers who leave the room during commercial breaks.

Broadcasters. As programming costs rise, networks are reviving the old practice of heavy sponsorship and involvement by advertisers. The producers of the popular Warner Brothers show *Dawson's Creek* signed a deal with clothing retailer American Eagle Outfitters, Inc., to dress the cast. *Survivor*, CBS Worldwide, Inc.'s (CBS, Inc.) new reality-based series, sold exclusive product placement rights to General Motors Corporation and Reebok International. Broadcasters have adopted L-VIS because they can use the technology to sell nonconventional advertising during their programs. Further, Princeton Video Image, Inc.'s tools enable broadcasters to differentiate themselves with program enhancements such as virtual first down line markers in football games, real-time game scores, baseball pitch speeds, and other information relevant to the content.

Rights holders. Princeton Video Image, Inc.'s products enables rights holders to monetize their properties in ways not previously possible. L-VIS allows insertion of ads in highly visible locations that are impractical for conventional billboards, such as the space between football goal posts. The company's products also enable narrowcasting specific advertising to specific geographical regions. For instance, rights holders can sell the same advertising space to different advertisers in different markets. In one example, the New York broadcast of a Padres-Mets Major League Baseball game can include a different inserted advertisement than the San Diego broadcast.

Local television stations. Traditionally, broadcast networks paid their affiliates (the local stations that air their programs) to carry their signals. Recently, however, there has been a movement among major broadcasters to reverse the stream of those payments and demand fees from the stations for the right to air their content. The National Broadcasting Company, Inc. (NBC, Inc., a unit of General Electric Company) plans to phase out payments to affiliates by 2005. NBC, Inc., made headlines recently when it replaced a popular station in favor of one that was willing to pay for its broadcast signal. Because of changes like these, local television stations must secure incremental revenue streams to cover the potential swing in cash flows. We believe that this bodes well for virtual advertising, which increases advertising inventory.

Post-production studios. In addition to being ideal for live events, L-VIS can be used to rapidly place computer-generated graphics or video clips into prerecorded video. This gives post-production studios the ability to tailor the advertising shown in prerecorded broadcasts and to contemporize the advertising in content libraries. We believe that this application of the company's technology holds significant potential as broadcasters seek to reduce their dependence on 30-second commercials.

Key Customers and Market Acceptance

The acceptance of Princeton Video Image, Inc.'s technology by television viewers, advertisers, broadcasters, and sporting event rights holders is essential for scaling the company's business. To achieve market acceptance, Princeton Video Image, Inc., must develop relationships with advertising salespeople, educate them of the products' effectiveness, and persuade them to augment their existing 30-second spot plans with virtual advertising. Princeton Video Image, Inc.'s sales force of eight must educate content owners about the benefits of virtual advertising. This is particularly important because rights holders must grant permission to broadcasters before their content can be modified. Since cable operators control which applications reside on the set-top boxes that they distribute, Princeton Video Image, Inc., also must try to develop relationships within the cable industry to secure distribution for iPoint.

Princeton Video Image, Inc.'s L-VIS had been used to insert advertising images into more than 2,000 live television broadcasts of baseball games, soccer matches, football games, motor sports events, and tennis matches, giving the company more field experience than all of its competitors combined. The company's products appeared at Super Bowl XXXIII and are the exclusive virtual advertising solutions for National Football League (NFL) International broadcasts. Princeton Video Image, Inc., renewed deals with two major league baseball teams, the Philadelphia Phillies and the San Diego Padres, and cable television networks ESPN and TNT. Princeton Video Image, Inc., has commitments to create and insert virtual advertisements in a minimum of 20 ESPN Networks Sunday Night Baseball games. Further, Princeton Video Image, Inc., signed deals with Jack Nicklaus Productions to create insertions for the broadcasts of golf events and the Indy Racing League to do the same for auto racing. Princeton Video Image, Inc.'s video insertion technology is being used both nationally and locally. National contracts, such as the one with ESPN Networks, yield per-game revenue on the order of 10-100 times greater than those realized on the local level. The San Diego Padres have sold all of their virtual ad space for home games for the current season, generating nearly $1.0 million in incremental ad revenue for the team.

While its services have been used primarily for live sporting events, Princeton Video Image, Inc.'s proprietary technology has the ability to enhance any type of broadcast signal. The company has agreements to place virtual images for such large broadcasters as CBS, Inc., NBC, Inc., the American Broadcasting Company (ABC, Inc., a unit of the Walt Disney Company), FOX Entertainment Group (a subsidiary of News Corporation Ltd.), ESPN Networks, and UPN (a unit of Viacom, Inc.). Princeton Video Image, Inc.'s technology played a role in the Grammy award presentations and can be seen regularly on CBS, Inc.'s *The Early Show*. UPNs' sci-fi series *7 Days* incorporated virtual product placements for the Coca-Cola Company, Evian, and the Wells Fargo Company. A recent episode of the NBC, Inc., program *Dateline* ("Body Clock") featured Princeton Video Image, Inc.'s virtual imaging.

Another market opportunity for Princeton Video Image, Inc., is virtual product placement in syndicated television shows. For example, new revenue streams can be generated from old *Seinfeld* episodes by discreetly inserting a box of, for example, Cheerios on the kitchen counter. International opportunities include foreign syndication, as a virtual advertisement could be replaced with another brand sold in that country. Current international business includes a multiyear agreement to insert virtual advertisements in Mexican national team soccer broadcasts on Mexico's two largest television networks, Grupo Televisa S.A. and TV Azteca S.A. de C.V. Other foreign clients include Global (Canada), VTM (Belgium), and SABC (South Africa). Princeton Video Image, Inc., has offices in Brussels, Belgium.

Market Opportunity

We believe that advertisers will embrace unzappable virtual ads, particularly as PVR technology enables viewers to easily skip commercials. Advertisers want to deliver marketing messages tailored to specific consumers. One of Princeton Video Image, Inc.'s patents is based on the ability to serve unique advertisements to any viewer based on the preferences programmed into his or her set-top box. This will allow narrowcasting and interactivity based on the individual's purchasing profile and observed and volunteered preferences. Furthermore, studies show that virtual signage can increase viewer recognition and recall of sponsors to more than 90%. According to research by the Gallup Organization's Mexican branch, virtual advertisements on TV generate a perception of brand importance higher than any other type of in-program advertising. Sixty percent of the respondents who recalled the virtual ad identified it as the most impactful type of advertising.

Advertisers in the U.S. spent an aggregate of $9.56 billion to purchase television advertising and sponsorship rights for sporting events in 1998, according to information from industry sources. Media research firm Paul Kagan Associates, Inc., estimates that in 1998, the network and cable television sports advertising markets in the U.S. were $3.7 billion and $1.3 billion, respectively. Sports research firm IEG, Inc., estimated that $5.09 billion was spent to sponsor specific teams, stadium locations, and sporting events in 1998.

Revenue Streams

Unlike those technology companies with revenue generated from cash-constrained Internet companies, Princeton Video Image, Inc., has a client base that consists primarily of blue-chip industrial and consumer brand companies, broadcast networks, and rights holders. Large corporations such as the Coca-Cola Company, General Motors Corporation, NBC, Inc., ABC, Inc., CBS, Inc., Charles Schwab Corporation, GTE (now part of Verizon Communications), VISA, Southwest Airlines Co., PepsiCo, Inc., Adidas, Heineken N.V., Gateway, Inc., and Eastman Kodak Company have contracted to use Princeton Video Image, Inc.'s technology. The company shares in revenue generated from the sale of advertising through several avenues.

1. **Negotiated fixed fees for product placements and interactive program enhancements**. The company generates revenue through in-house development of program enhancements such as the virtual first down line and animated graphics in football games. Princeton Video Image, Inc., also offers an advanced post-production package in which L-VIS is used to place products or logos into prerecorded television programs, movie scenes, and live television broadcasts.

2. **A share of advertising and e-commerce revenue.** Princeton Video Image, Inc., receives a share of the revenue generated from advertisements that use L-VIS. The percentage varies based on the arrangement.

3. **Licensing of Princeton Video Image, Inc. systems**. Another revenue source is the licensing of L-VIS to third parties. Princeton Video Image, Inc., shares in the revenue generated by its products through royalties, license fees, and/or equity participation in the licensee. Princeton Video Image, Inc., may also accept a flat fee or a fee based on revenue generated by the licensee, depending on the nature of the license.

Financial History and Projections

Princeton Video Image, Inc., completed its initial public offering (IPO) in December 1997. Allen & Company, Inc., led the offering of 4.0 million shares, resulting in proceeds to Princeton Video Image, Inc., of $28.0 million less underwriting fees. In October 1999, Princeton Video Image, Inc., completed a private placement of approximately 1.6 million shares at a purchase price of $5.50 per share, resulting in proceeds of $8.8 million less advisory fees. The proceeds from this second transaction will enable Princeton Video Image, Inc., to continue funding its growth and expansion initiatives in the field of virtual advertising.

Princeton Video Image, Inc.'s cash balance at the end of the fourth (June) quarter of fiscal 2000 was $11.6 million. We expect the company to raise an additional $20.0 million in equity financing during fiscal (June) 2001, which should be sufficient to fund operations until the company becomes cash flow positive, which we project to occur in 2003.

Recent Results

Since the company's inception in 1991, Princeton Video Image, Inc.'s operations have been focused on developing L-VIS, the core technology that enables virtual advertising and product placement. The company has recently begun to roll out the services associated with the advancement of L-VIS, and financial results reflect this stage in the company's development.

Princeton Video Image, Inc., reported total revenue of $1.2 million for the fourth (June) quarter of fiscal 2000, a 176% increase year over year. Approximately $561,400, or 48%, of net revenue was derived from licensing and royalty fees while the remaining $614,500, or 52%, of net revenue was attributable to advertising and production fees. Princeton Video Image, Inc., reported a net loss of $3.1 million, or $0.31 per share, for the fourth fiscal quarter versus a net loss of $2.9 million, or $0.35 per share, in the year-ago quarter. The narrowing loss per share is due to a 20% increase in the amount of weighted average shares outstanding.

For fiscal 2000, Princeton Video Image, Inc., reported total revenue of $3.0 million, an increase of 149.2% over fiscal 1999 revenue of $1.2 million. Revenue from licensing and royalty fees was $1.5 million, or 50% of net revenue, and represented a 192.0% increase versus the year-ago period. Advertising and production fees were $1.5 million, or 50%, of net revenue and represented a 117.0% rise over fiscal 1999. Expenses relating to field operations and support for L-VIS were $5.6 million, resulting in a negative gross margin for fiscal 2000. Product development, sales and marketing, and general and administrative (G&A) contributed an additional $11.1 million in operating expenses, resulting in a net loss of $12.5 million, or $1.33 per diluted share, compared with a net loss of $9.7 million, or $1.18 per diluted share, in fiscal 1999.

Patents and Competition

Princeton Video Image, Inc., has seven patents issued in the U.S. The company has filed counterpart patent applications for its U.S. patents in the European Patent Office and in the patent offices of other countries around the world where it may conduct business. To date, four patents have been granted by the European Patent Office. Five new patent applications are pending in the U.S. and other countries, and several more patent applications are in preparation. Some of Princeton Video Image, Inc.'s significant patents include the following.

- Princeton Video Image, Inc., has a patent for its software that recognizes basic patterns, such as flat surfaces, that are appropriate spots for advertisements. This patent expires on November 23, 2010. A similar patent relates to a pattern recognition system that uses templates and will expire on January 31, 2015.
- The company holds a patent for occlusion, which ensures that objects can pass in front of a virtual image in the background without being distorted. For instance, if a race car drives over a section of the track with a virtual image inserted on it, the car will appear to drive over the image on the track. This patent will expire on November 28, 2015.
- Another patent relates to the use of remote insertion of images that might be useful in a narrowcasting application. For instance, ads chosen based on a viewer's profile may be stored in the set-top box's memory and served individually during a program. This patent will expire on August 6, 2013.
- Princeton Video Image, Inc., has patented a process of tracking scene motion for live video insertion systems to ensure that digital images appear naturally in an active scene (see Figure 16). This patent expires on December 29, 2015.

We believe that Princeton Video Image, Inc., holds the leadership position in the video insertion technology market. Other participants include SporTVision, Inc., which focuses on sporting event enhancements; Symah Vision, a French video enhancement company; Orad/ISL, an Israeli company that creates virtual studios; and SciDel Technologies Ltd., which develops advanced video imaging systems. None of these competitors is publicly traded in the U.S., and Princeton Video Image, Inc., is currently involved in patent disputes with two of them.

To the extent that Princeton Video Image, Inc., is entering the interactive television market with iPoint, it competes with Wink Communications, Inc., which typically focus on enhancements for 30-second spot ads, while Princeton Video Image, Inc.'s products target the actual program. Further, we believe that Princeton Video Image, Inc., has a distinct competitive advantage in its network of broadcast clients. We expect the company to expand upon these relationships to generate additional revenue per client as it rolls out new services.

Figure 16
Princeton Video Image, Inc.
PATENTED TECHNOLOGY—FIRST DOWN LINE

Source: Company.

Earnings Outlook

Our fiscal 2001 revenue projection for Princeton Video Image, Inc., is $6.9 million, a 125.9% increase over fiscal 2000. We expect Princeton Video Image, Inc.'s revenue to grow more than 100% for each of the next four years, driven by increasing usage by its broadcast clients. Our revenue projection in 2005 is $140.3 million representing a CAGR of 115.1%. We expect the company's products to continue to evolve from a sports event enhancement tool to an indispensable resource for enhancing any kind of programming. Since the company's cost of goods consists primarily of fixed technology costs, we expect its gross margin to scale rapidly over the next five years, moving from a reported number of minus 95.1% in 2000 to plus 18.4% in 2001 and plus 74.2% in 2005. We expect operating margin to reach 47.0% in 2005, when we project earnings per share (EPS) of $3.12.

Valuation

We believe that Princeton Video Image, Inc.'s valuation will be driven by (1) growing usage of its products by its existing customer base; and (2) increased exposure to investors. Our 2005 EPS estimate is $3.12 (see Table 19 on page 73). The shares currently trade at 1.4 times our 2005 estimate, an 88.8% discount to the projected 2005 S&P 500 multiple of 12.2. We expect the company to grow earnings rapidly beginning in 2003, when we expect the company to turn profitable. Despite the company's rapid growth rate, we believe that a discount to the S&P 500 multiple is appropriate until the company's products gain traction in the marketplace. However, we believe that Princeton Video Image, Inc.'s shares should trade between three and four times its current multiple, as its projected earnings growth is four times that of the S&P 500. Applying an earnings multiple of 4.8 to our 2005 projected EPS, gives us our long-term target price of $15.

Table 19
Princeton Video Image, Inc.
VALUATION ANALYSIS

	Price (09/11/00)	2001E EPS	Projected Five-year growth	2005E EPS	2005E P/E	Discount to S&P 500 2004E P/E Multiple
S&P 500	$1,489.26	$69.00	12.1%	$122.15	12.2	—
Princeton Video Image, Inc.	$4.25	—	47.9%	$3.12	1.4	88.8%

Source: Gruntal & Co., L.L.C.

Management/Board of Directors

Dennis P. Wilkinson is the president and CEO. He joined the company in December 1998 after three and a half years as senior vice president, marketing and programming, at Primestar, Inc., the second-largest direct-to-home satellite TV provider. Before joining Primestar, Inc., Wilkinson was senior vice president, consumer marketing, at Home Box Office, Inc., (HBO, a unit of Time Warner, Inc.) from 1992 to 1995, where he was responsible for all consumer marketing, including brand positioning, advertising, promotion, and ethnic marketing. Wilkinson also has extensive advertising industry experience, having served as executive vice president and general manager of Young & Rubicam/Chicago, president of DDB Needham Worldwide/San Francisco, and senior vice president and deputy general manager of Foote, Cone & Belding/San Francisco. He began his career as an account executive at J. Walter Thompson Company (a unit of WPP Group PLC).

Brown F. Williams is cofounder and chairman of the board, has served as president and CEO and has been a director since July 1990. Williams has more than 25 years of experience in the development of technology products, primarily during 20 years with RCA Laboratories, Inc. (a unit of Thomson Multimedia). He has been a vice president at David Sarnoff Research Center, Inc., with responsibility for both the hardware and the software contract research businesses.

Lawrence L. Epstein has been the CFO and vice president of finance, since February 1998. Before joining the company, Epstein spent five years as CFO and vice president of finance and administration for Primestar Partners, L.P., where he was responsible for financial management and strategic and long-range planning. From 1979 to 1993, Epstein held a variety of financial management positions with a number of CBS, Inc., units, including the CBS Television Network, CBS News, and CBS-owned and -operated stations.

Eugene J. Dwyer has been the chief technology officer since January 2000. Dwyer joined Princeton Video Image, Inc., in August of 1997 and has served as director of research. He was responsible for the algorithm architecture of the current L-VIS system. Before joining Princeton Video Image, Inc., Dwyer served as a scientist at Columbia University Nevis Labs and at Bell Telephone Labs in Murray Hill, New Jersey. He was co-owner of Silhouette Technology, which provided image processing and enhancement software for the U.S. Department of Defense. He holds 13 patents for image processing and display applications.

Samuel A. McCleery was appointed vice president of business development in October 1999. Until this appointment, McCleery served as the company's vice president of marketing and sales since November 1991. Prior to November 1991, McCleery was president of a sports marketing and events company with clients that included the Reagan Foundation. From 1981 to 1989, McCleery served as the director of sports marketing for Prince Manufacturing, the world's largest marketer of tennis racquets. Prior to 1981, McCleery was a director of new business for Le Coq Sportif, a division of Adidas (France).

William A. Jarr is the company's executive director of broadcast. Previously, he had been the director of operations after joining the company in January 1996. Before joining Princeton Video Image, Inc., Jarr was the business development manager, Americas, for British Telecom Broadcast Services. Prior to that, he was director of broadcast operations for NBC News. Jarr has more than 25 years of international, network, and satellite services management, operations, and production experience, including five years as a producer/operations manager with NBC Sports.

Paul W. Slagle has been the vice president, sales and marketing, since October 1999. Prior to joining the company, Slagle served as vice president, integrated sales and marketing for ESPN Networks, where his responsibilities included creating and selling multisponsored integrated marketing packages. He also managed relationships with league partners, including the National Football League (NFL), the National Hockey League (NHL), and the National Association of Sports Cars and Racing (NASCAR). Prior to ESPN Networks, Slagle was director of national television for Wieden & Kennedy, where he was responsible for all national television buying for Subaru and Pepe jeans.

Howard J. Kennedy has served as vice president, convergence, since January 2000 and has been with the company since March 1995; he was previously a director and principal scientist. Kennedy was responsible for the technical development, evaluation, and direction of new software products and Internet products. Prior to joining Princeton Video Image, Inc., Kennedy was architect and principal engineer in the multimedia systems technology group at Intel Corporation. Prior to joining Intel Corporation in 1988, Kennedy was co-owner of Syntex Computer Systems and instrumental in the development of digital video interactive technology for clients that included Sarnoff Corporation, Dow Jones News Retrieval (a service of Dow Jones & Company, Inc.), and Educational Testing Service.

Lawrence Lucchino has been a director since October 1994 and enjoys a wide variety of connections with the professional sports industry. In addition to his prior service as a member of the board of directors of the Washington Redskins, an NFL team, Lucchino was also a member of the Major League Baseball Operations Committee. He has served as president and CEO of the ownership group of the San Diego Padres since December 1994. Prior to his service with the Padres, Lucchino was a partner at the Washington, D.C., law firm of Williams & Connolly from October 1993 to December 1994. Lucchino also served as president of the Baltimore Orioles from May 1988 to October 1993.

Jerome J. Pomerance is a member of the board and since 1991 has been the president of J.J. Pomerance & Co., Inc., a firm providing strategic international business advice for product development and applications. Prior to founding that firm, Pomerance was COO and vice chairman of Kroll Associates, Inc., a leading corporate investigation, due diligence, and crisis management firm. Before joining Kroll Associates, Inc., in 1983, he was treasurer, and later president and CEO, of a group of privately held international ophthalmic companies and a director of the Optical Manufacturers Association for 20 years.

Enrique F. Senior is a member of the board and has been a managing director of Allen & Company, Inc., since 1982 and executive vice president since 1973. Senior has also been a director of Dick Clark Productions, Inc., a publicly held company, for more than five years, and he is, or has recently been, financial advisor to corporations including the Coca-Cola Company, Columbia Tri-Star Pictures (a unit of Sony Pictures Entertainment, which is a subsidiary of Sony Corporation), and QVC, Inc. (a unit of Comcast Corporation).

Eduardo Sitt was CEO of Hilaturas de Michoacon, S.A, a Mexican textile manufacturer, from 1964 until 1993. Sitt has served as a director of Grupo Financiero BBV-Probursa, a publicly held financial corporation and parent company of Mexico's fifth largest bank (Banco Bilbao Vizcaya, S.A.), a full-service stock brokerage house (Casa de Bolsa BBV-Probursa), and several other financial firms. Sitt is the president and principal shareholder of, and the individual designated to serve on the board of directors of the company by, Presencia en Medios, S.A. de C.V., a principal shareholder of Princeton Video Image, Inc.

John B. Torkelsen is a member of the board and has been president of Princeton Venture Research, Inc., a 50-person investment banking, consulting, and venture capital firm since he founded the company in 1984. He is also president of its affiliate, PVR Securities, Inc., formed in 1987. Torkelsen is the general partner of Acorn Technology Fund, L.P., a venture capital fund specializing in early stage, high technology investing. PVR Securities, Inc., is Acorn Technology Fund, L.P.'s investment advisor.

Donald P. Garber was elected to the board of directors in October 1999. He currently serves as the Commissioner of Major League Soccer. Garber is a 15-year veteran of the NFL and has served as Senior Vice President of the NFL International, where he managed the NFL-Europe League and global television distribution, marketing, and sales.

Risks

Consumer Acceptance

There has been some concern in the press regarding potential misuse of digital image insertion technology. Princeton Video Image, Inc., is very careful not to allow its technology to be used to deceive viewers—for example, by filling an empty stadium with cheering fans. CBS, Inc., was criticized recently when it used Princeton Video Image, Inc.'s technology to cover a real NBC, Inc., logo in Times Square with a virtual CBS, Inc., logo that appeared over anchor Dan Rather's shoulder. A consumer backlash against digitally inserted advertisements would impact the demand for Princeton Video Image, Inc.'s services, and we expect the company and its clients to use discretion when placing ads or enhancements in programming, neither misrepresenting a scene nor cluttering the screen.

We believe that consumers have grown accustomed to product placements in video. Reese's Pieces candies achieved brand awareness and a sales surge after an appearance in the 1982 blockbuster movie *ET*. James Bond wears an Omega watch and uses an Ericsson phone in the movies. The plot of a *Seinfeld* episode involved Junior Mints. In terms of virtual enhancements, weather maps and music videos feature them regularly. While the Federal Communications Commission requires advertising to be disclosed to the viewer, no complaints have been filed on this subject to date.

Seasonality

If Princeton Video Image, Inc., is unable to expand the market for L-VIS beyond a limited number of live sporting events, then its revenues may become dependent upon game schedules that are affected by seasonality. We expect Princeton Video Image, Inc., to leverage relationships with broadcast clients to diversify away from sporting events and into more work such as it does on NBC, Inc.'s *Dateline* and CBS, Inc.'s *The Early Show*.

Intellectual Property Defense

Because digital images are usually inserted seamlessly into content, it may be difficult to detect an infringement of a patent that may impact the company's business. If Princeton Video Image, Inc., does discover a violation, it may need to litigate to enforce its patent rights, incurring legal expenses. Princeton Video Image, Inc., is currently in the midst of two specific lawsuits; one with Scidel Technolgies, Ltd., that was initiated by Princeton Video Image, Inc., and another initiated by SporTVision, Inc., against Princeton Video Image, Inc. Symah Vision, a French video insertion company, has claimed that Princeton Video Image, Inc., has infringed upon one of Symah Vision's patents in Europe. Symah Vision has not sued Princeton Video Image, Inc., and Princeton Video Image, Inc., is confident that the accusation is without merit. If any of Princeton Video Image, Inc.'s products were found to infringe on another firm's patent, Princeton Video Image, Inc., might be required to modify the product or pay a licensing fee to the other firm. Princeton Video Image, Inc., also derives revenue from certain unpatented proprietary technologies. Expectations of ongoing legal fees are reflected in our general and administrative expense projections.

See Tables 20-25 for Princeton Video Image, Inc.'s financial statements and our projections.

Table 20
Princeton Video Image, Inc.
REVENUE PROJECTIONS, 2000E-2005E

Fiscal year ends June 30	**2000E**	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
Broadcast Television Advertising Revenue						
Gross value of advertising developed using PVI products ($ thousands)	$10,000.0	$20,000.0	$40,000.0	$80,000.0	$160,000.0	$240,000.0
PVIs' average percentage share	13.0%	13.5%	14.5%	15.0%	15.5%	16.0%
Net advertising revenue	**$1,300.0**	**$2,700.0**	**$5,800.0**	**$12,000.0**	**$24,800.0**	**$38,400.0**
% of total revenue	*44.8%*	*39.2%*	*33.1%*	*28.6%*	*24.8%*	*27.4%*
year/year % change	*87.2%*	*107.7%*	*114.8%*	*106.9%*	*106.7%*	*54.8%*
License Fees (includes 50% royalties from international licensees)						
Number of licensing clients	5	7	9	10	11	12
Average revenue per licensee ($ thousands)	280	350	550	1000	1600	1800
Net License Fees	**$1,400.0**	**$2,450.0**	**$4,950.0**	**$10,000.0**	**$17,600.0**	**$21,600.0**
% of total revenue	*48.3%*	*35.6%*	*28.3%*	*23.8%*	*17.6%*	*15.4%*
year/year % change	*165.3%*	*75.0%*	*102.0%*	*102.0%*	*76.0%*	*22.7%*
Virtual Product Placement and Interactive Enhancements (includes iPoint)						
Number of enhancement clients	5	20	45	100	180	220
Average revenue per client ($ thousands)	40	86	150	200	320	365
Virtual enhancement revenue	**$200.0**	**$1,730.0**	**$6,750.0**	**$20,000.0**	**$57,600.0**	**$80,300.0**
% of total revenue	*6.9%*	*25.1%*	*38.6%*	*47.6%*	*57.6%*	*57.2%*
year/year % change	*NM*	*765.0%*	*290.2%*	*196.3%*	*188.0%*	*39.4%*
Total Revenue	**$2,900.0**	**$6,880.0**	**$17,500.0**	**$42,000.0**	**$100,000.0**	**$140,300.0**
year/year % change	*137.3%*	*137.2%*	*154.4%*	*140.0%*	*138.1%*	*40.3%*

NM = Not meaningful.

Source: Gruntal & Co., L.L.C.

Table 21
Princeton Video Image, Inc.
INCOME STATEMENT, 2000-2005E
($ thousands, except per share)

Fiscal year ends June 30	**2000**	**% sales**	**% change**	**2001E**	**% sales**	**% change**	**2002E**	**% sales**	**% change**	**2003E**	**% sales**	**% change**	**2004E**	**% sales**	**% change**	**2005E**	**% sales**	**% change**
Net revenue																		
License fees	$1,537.2	50.5%	191.3%	$2,412.5	35.1%	56.9%	$4,950.0	28.3%	105.2%	$10,000.0	23.8%	102.0%	$17,600.0	17.6%	76.0%	$21,600.0	15.4%	22.7%
Advertising revenue	1,508.7	49.5%	117.2%	3,072.9	44.7%	103.7%	5,800.0	33.1%	88.7%	12,000.0	28.6%	106.9%	24,800.0	24.8%	106.7%	38,400.0	27.4%	54.8%
Virtual program enhancements	—	0.0%	NM	1,394.6	20.3%	NM	6,750.0	38.6%	384.0%	20,000.0	47.6%	196.3%	57,600.0	57.6%	188.0%	80,300.0	57.2%	39.4%
Total net revenue	**$3,045.9**	**100.0%**	**149.2%**	**$6,880.0**	**100.0%**	**125.9%**	**$17,500.0**	**100.0%**	**154.4%**	**$42,000.0**	**100.0%**	**140.0%**	**$100,000.0**	**100.0%**	**138.1%**	**$140,300.0**	**100.0%**	**40.3%**
Field operations and support	$5,641.4	185.2%	27.3%	$5,611.3	81.6%	(0.5%)	$6,475.0	37.0%	15.4%	$13,230.0	31.5%	104.3%	$27,200.0	27.2%	105.6%	$36,197.4	25.8%	33.1%
Gross profit	**($2,595.5)**	**(85.2%)**	**NM**	**$1,268.7**	**18.4%**	**NM**	**$11,025.0**	**63.0%**	**769.0%**	**$28,770.0**	**68.5%**	**161.0%**	**$72,800.0**	**72.8%**	**153.0%**	**$104,102.6**	**74.2%**	**43.0%**
Product development	$2,802.3	92.0%	85.7%	$3,422.8	49.8%	22.1%	$3,850.0	22.0%	12.5%	$4,200.0	10.0%	9.1%	$5,000.0	5.0%	19.0%	$6,734.4	4.8%	34.7%
Sales and marketing	4,127.5	135.5%	57.9%	5,395.3	78.4%	30.7%	6,650.0	38.0%	23.3%	10,080.0	24.0%	51.6%	14,300.0	14.3%	41.9%	18,098.7	12.9%	26.6%
General and administrative	4,222.4	138.6%	28.1%	4,673.2	67.9%	10.7%	5,250.0	30.0%	12.3%	7,980.0	19.0%	52.0%	10,200.0	10.2%	27.8%	13,328.5	9.5%	30.7%
Operating income	**($13,747.6)**	**(451.3%)**	**NM**	**($8,799.8)**	**(127.9%)**	**NM**	**($4,725.0)**	**(27.0%)**	**NM**	**$6,510.0**	**15.5%**	**NM**	**$43,300.0**	**43.3%**	**565.1%**	**$65,941.0**	**47.0%**	**52.3%**
Interest and other income, net	$705.9	23.2%	(27.7%)	$900.0	13.1%	27.5%	$1,050.0	6.0%	16.7%	$1,500.0	3.6%	42.9%	$2,500.0	2.5%	66.7%	$3,000.0	2.1%	20.0%
Pretax income	**($13,041.6)**	**NM**	**NM**	**($11,322.6)**	**NM**	**NM**	**($3,675.0)**	**(21.0%)**	**NM**	**$8,010.0**	**19.1%**	**NM**	**$45,800.0**	**45.8%**	**471.8%**	**$68,941.0**	**49.1%**	**50.5%**
Tax rate	—	—	—	—	—	—	—	—	—	38.0%	—	—	38.0%	—	—	38.0%	—	—
Tax benefit	$597.0	19.6%	—	$477.0	6.9%	(20.1%)	$100.0	0.6%	(79.0%)	$3,043.8	7.2%	NM	$17,404.0	17.4%	471.8%	$26,197.6	18.7%	50.5%
Net income (loss)	**($12,444.6)**	**NM**	**NM**	**($10,845.6)**	**NM**	**NM**	**($3,575.0)**	**(20.4%)**	**NM**	**$4,966.2**	**11.8%**	**NM**	**$28,396.0**	**28.4%**	**471.8%**	**$42,743.4**	**30.5%**	**50.5%**
Accretion of preferred stock dividends	($44.1)	(1.4%)	0.1%	($44.1)	(0.6%)	(0.1%)	($44.1)	(0.3%)	0.1%	($44.1)	(0.1%)	—	($44.1)	—	—	($44.1)	—	—
Net income (loss) applicable to common stock	**($12,488.8)**	**NM**	**NM**	**($10,889.7)**	**NM**	**NM**	**($3,619.1)**	**(20.7%)**	**NM**	**$4,922.1**	**11.7%**	**NM**	**$28,351.9**	**28.4%**	**476.0%**	**$42,699.3**	**30.4%**	**50.6%**
EPS	**($1.33)**	**—**	**—**	**($0.88)**	**—**	**—**	**($0.27)**	**—**	**—**	**$0.36**	**—**	**—**	**$2.07**	**—**	**—**	**$3.12**	**—**	**—**
Shares outstanding	9,374.3	—	—	12,425.0	—	—	13,500.0	—	—	13,600.0	—	—	13,700.0	—	—	13,700.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 22
Princeton Video Image, Inc.
2000 QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends June 30	1Q00	% sales	% change	2Q00	% sales	% change	3Q00	% sales	% change	4Q00	% sales	% change
Net revenue												
License fees	$216.7	42.7%	222.0%	$265.1	46.4%	239.9%	$494.1	62.5%	185.6%	$561.4	47.7%	168.1%
Advertising revenue	291.3	57.3%	332.8%	306.7	53.6%	293.3%	296.2	37.5%	71.2%	614.5	52.3%	184.0%
Virtual program enhancements	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Total net revenue	**$507.9**	**100.0%**	**82.7%**	**$571.7**	**100.0%**	**248.0%**	**$790.3**	**100.0%**	**123.2%**	**$1,176.0**	**100.0%**	**176.2%**
Field operations and support	$1,243.1	244.7%	40.8%	$1,683.6	294.5%	74.7%	$1,429.9	180.9%	15.7%	$1,284.8	109.3%	(4.8%)
Gross profit	**($735.1)**	**(144.7%)**	**—**	**($1,111.8)**	**(194.5%)**	**39.1%**	**($639.7)**	**(80.9%)**	**—**	**($108.8)**	**(9.3%)**	**—**
Product development	$581.5	114.5%	31.0%	$624.1	109.2%	63.0%	$801.9	101.5%	114.3%	$794.7	67.6%	158.1%
Sales and marketing	933.6	183.8%	96.8%	1,300.9	227.5%	249.7%	936.9	118.6%	8.0%	956.1	81.3%	6.2%
General and administrative	911.2	179.4%	32.2%	947.5	165.7%	17.6%	951.9	120.5%	8.9%	1,411.8	120.1%	52.2%
Operating income	**($3,161.4)**	**NM**	**NM**	**($3,984.4)**	**NM**	**NM**	**($3,330.4)**	**NM**	**NM**	**($3,271.3)**	**NM**	**NM**
Interest and other income, net	$137.8	27.1%	(107.1%)	$185.6	32.5%	(108.8%)	$193.3	24.5%	NM	$189.2	16.1%	NM
Pretax income	**($3,023.6)**	**NM**	**NM**	**($3,798.7)**	**NM**	**NM**	**($3,137.1)**	**NM**	**NM**	**($3,082.2)**	**NM**	**NM**
Tax rate	—	—	NM	—	—	—	—	—	NM	—	—	NM
Tax benefit	—	—	NM	$597.0	—	(128.2%)	—	—	NM	—	—	NM
Net income (loss)	**($3,023.6)**	**NM**	**NM**	**($3,201.8)**	**NM**	**NM**	**($3,137.1)**	**NM**	**NM**	**($3,082.2)**	**NM**	**NM**
Accretion of preferred stock dividends	($11.0)	(2.2%)	NM	($11.0)	(1.9%)	NM	($11.0)	(1.4%)	NM	($11.1)	(0.9%)	NM
Net income (loss) applicable to common stock	**($3,034.6)**	**NM**	**NM**	**($3,212.8)**	**NM**	**NM**	**($3,148.2)**	**NM**	**NM**	**($3,093.2)**	**NM**	**NM**
EPS	**($0.37)**	—	—	**($0.34)**	—	—	**($0.32)**	—	—	**($0.31)**	—	—
Shares outstanding	8,213.5	—	—	9,556.6	—	—	9,850.4	—	—	9,876.9	—	—

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 23
Princeton Video Image, Inc.
2001E QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends June 30	1Q01E	% sales	% change	2Q01E	% sales	% change	3Q01E	% sales	% change	4Q01E	% sales	% change
Net revenue												
License fees	$495.4	40.0%	128.6%	$627.5	38.0%	136.7%	$596.5	34.0%	20.7%	$693.2	31.0%	23.5%
Advertising revenue	544.9	44.0%	87.1%	759.5	46.0%	147.7%	807.0	46.0%	172.4%	961.5	43.0%	56.5%
Virtual program enhancements	198.1	16.0%	NM	264.2	16.0%	NM	350.9	20.0%	NM	581.4	26.0%	NM
Total net revenue	**$1,238.4**	**100.0%**	**143.8%**	**$1,651.2**	**100.0%**	**188.8%**	**$1,754.4**	**100.0%**	**122.0%**	**$2,236.0**	**100.0%**	**90.1%**
Field operations and support	$1,114.6	90.0%	(10.3%)	$1,799.8	109.0%	6.9%	$1,579.0	90.0%	10.4%	$1,118.0	50.0%	(13.0%)
Gross profit	**$123.8**	**10.0%**	**(116.8%)**	**($148.6)**	**(9.0%)**	**(86.6%)**	**$175.4**	**10.0%**	**(127.4%)**	**$1,118.0**	**50.0%**	**(1127.3%)**
Product development	$990.7	80.0%	70.4%	$660.5	40.0%	5.8%	$877.2	50.0%	9.4%	$894.4	40.0%	12.6%
Sales and marketing	1,300.3	105.0%	39.3%	1,420.0	86.0%	9.2%	1,333.3	76.0%	42.3%	1,341.6	60.0%	40.3%
General and administrative	1,176.5	95.0%	29.1%	1,238.4	75.0%	30.7%	1,140.4	65.0%	19.8%	1,118.0	50.0%	(20.8%)
Operating income	**($3,343.7)**	**(270.0%)**	**5.8%**	**($3,467.5)**	**(210.0%)**	**(13.0%)**	**($3,175.5)**	**(181.0%)**	**(4.7%)**	**($2,236.0)**	**(100.0%)**	**(31.6%)**
Interest and other income, net	$150.0	12.1%	8.8%	$300.0	18.2%	61.6%	$250.0	14.2%	29.3%	$200.0	8.9%	5.7%
Pretax income	**($3,193.7)**	**(257.9%)**	**5.6%**	**($3,167.5)**	**(191.8%)**	**(16.6%)**	**($2,925.5)**	**(166.8%)**	**(6.7%)**	**($2,036.0)**	**(91.1%)**	**(33.9%)**
Tax rate	—	—	—	—	—	—	—	—	—	—	—	—
Tax benefit	—	—	—	$477.0	—	—	—	—	—	—	—	—
Net income (loss)	**($3,193.7)**	**(257.9%)**	**5.6%**	**($2,690.5)**	**(162.9%)**	**(16.0%)**	**($2,925.5)**	**(166.8%)**	**(6.7%)**	**($2,036.0)**	**(91.1%)**	**(33.9%)**
Accretion of preferred stock dividends	($11.0)	(0.9%)	—	($11.0)	(0.7%)	—	($11.0)	(0.6%)	—	($11.0)	(0.5%)	(0.6%)
Net income (loss) applicable to common stock	**($3,204.7)**	**(258.8%)**	**5.6%**	**($2,701.5)**	**(163.6%)**	**(15.9%)**	**($2,936.5)**	**(167.4%)**	**(6.7%)**	**($2,047.0)**	**(91.5%)**	**(33.8%)**
EPS	**($0.30)**	—	—	**($0.23)**	—	—	**($0.22)**	—	—	**($0.15)**	—	—
Shares outstanding	10,700.0	—	—	12,000.0	—	—	13,500.0	—	—	13,500.0	—	—

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 24
Princeton Video Image, Inc.
CASH FLOW STATEMENT, 2000-2005E
($ thousands, except per share)

Fiscal year ends June 30	**2000**	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
Cash flows from operating activities:						
Net income	($12,444.6)	($10,845.6)	($3,619.1)	$4,922.1	$28,351.9	$42,699.3
Adjustment to reconcile net loss to net cash used in operating activities:						
Amortization of unearned income	(381.8)	(385.8)	(413.1)	(453.3)	(624.5)	(835.7)
Depreciation expense	1,530.0	1,419.8	1,213.4	1,042.5	961.7	907.9
Amortization of intangibles/license rights	1,300.0	488.9	—	—	—	—
Charges associated with stock, warrant and option grants, and related party note receivables	611.9	—	—	—	—	—
Changes in operating assets and liabilities:						
Trade accounts receivable	($244.9)	($474.0)	($899.0)	($1,444.7)	($2,422.6)	($1,195.1)
Other current assets	(350.0)	(164.7)	(261.5)	(347.0)	(486.0)	(200.6)
Other assets	(429.1)	(664.4)	(1,157.6)	(1,698.1)	(2,613.0)	(1,183.8)
Accounts payable and accrued expenses	1,142.8	1,992.9	2,320.5	2,050.4	2,011.4	692.4
Unearned revenue	15.9	4.0	27.3	40.2	171.2	211.2
Miscellaneous other	(7.0)	—	—	—	—	—
Net cash used in operating activities	**($9,256.9)**	**($8,629.0)**	**($2,789.1)**	**$4,112.1**	**$25,350.1**	**$41,095.6**
Cash flows from investing activities:						
Purchases of property and equipment	($1,200.0)	($1,700.0)	($800.0)	($700.0)	($800.0)	($800.0)
Purchases of license rights	(1,200.0)	(800.0)	(600.0)	(300.0)	—	—
Increase in intangible assets	(67.5)	(67.5)	(67.5)	(67.5)	(67.5)	(67.5)
Net cash used in investing activities	**($2,467.5)**	**($2,567.5)**	**($1,467.5)**	**($1,067.5)**	**($867.5)**	**($867.5)**
Cash flows from financing activities:						
Proceeds from sales of common stock, net	$8,307.4	$20,000.0	—	—	—	—
Cash received from related party notes receivable	155.3	—	—	—	—	—
Net cash provided by financing activities	**$8,462.7**	**$20,000.0**	—	—	—	—
Net increase (decrease) in cash and cash equivalents	($3,261.6)	$8,803.5	($4,256.5)	$3,044.6	$24,482.7	$40,228.1
Cash and cash equivalents at beginning of the period	11,653.9	8,392.3	17,195.9	12,939.4	15,984.0	40,466.6
Cash and cash equivalents at end of the period	**$8,392.3**	**$17,195.9**	**$12,939.4**	**$15,984.0**	**$40,466.6**	**$80,694.8**

Source: Company and Gruntal & Co., L.L.C.

Table 25
Princeton Video Image, Inc.
BALANCE SHEET, 2000-2005E
($ thousands)

Fiscal year ends June 30	**2000**	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
ASSETS						
Current assets:						
Cash and cash equivalents	$8,392.3	$17,195.9	$12,939.4	$15,984.0	$40,466.6	$80,694.8
Restricted securities held to maturity	137.4	137.4	137.4	137.4	137.4	137.4
Trade accounts receivable	690.8	1,164.8	2,063.9	3,508.6	5,931.2	7,126.4
License rights	488.9	—	—	—	—	—
Other current assets	400.0	564.7	826.2	1,173.2	1,659.2	1,859.8
Total current assets	**$10,109.4**	**$19,062.8**	**$15,966.8**	**$20,803.1**	**$48,194.4**	**$89,818.3**
Property and equipment, net	$3,843.8	$4,263.8	$3,644.0	$3,130.5	$2,888.1	$2,726.3
Intangible assets, net	593.0	593.0	593.0	593.0	593.0	593.0
Other assets	1,210.3	1,874.8	3,032.3	4,730.4	7,343.4	8,527.2
Total assets	**$15,756.5**	**$25,794.3**	**$23,236.1**	**$29,257.1**	**$59,018.9**	**$101,664.8**
LIABILITIES AND STOCKHOLDERS' EQUITY						
Current liabilities:						
Accounts payable and accrued expenses	$4,840.3	$6,833.2	$9,153.7	$11,204.1	$13,215.5	$13,907.9
Unearned revenue	381.8	385.8	413.1	453.3	624.5	835.7
Total current liabilities	**$5,222.1**	**$7,219.0**	**$9,566.7**	**$11,657.4**	**$13,840.0**	**$14,743.5**
Unearned revenue	$964.5	$1,376.9	$2,266.3	$3,122.4	$4,178.3	$4,143.2
Other liabilities	74.3	115.1	186.2	290.5	450.9	523.6
Total liabilities	**$6,261.0**	**$8,711.0**	**$12,019.3**	**$15,070.3**	**$18,469.2**	**$19,410.3**
Stockholders' equity (including redeemable preferred stock)	**$9,495.5**	**$17,083.3**	**$11,216.8**	**$14,186.8**	**$40,549.7**	**$82,254.5**
Total liabilities and stockholders' equity	**$15,756.5**	**$25,794.3**	**$23,236.1**	**$29,257.1**	**$59,018.9**	**$101,664.8**

Source: Company and Gruntal & Co., L.L.C.

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ValueVision International, Inc.# (VVTV-$26.50)

INVESTMENT RATING

Intermediate Term (up to 6 months): **1–Outperformer** **Target Price: $40**

Common stock is expected to provide a total return that is 5 or more percentage points greater than that of the S&P 500 Index.

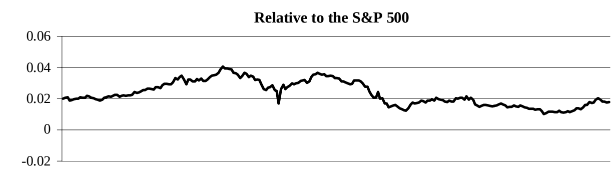
Long Term (6-18 months): **1–Outperformer** **Target Price: $50**

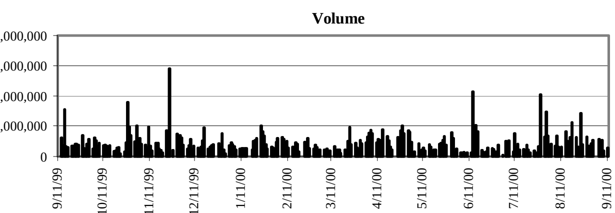
Common stock is expected to provide a total return that is at least 10 percentage points greater than that of the S&P 500 Index.

Ticker/Exchange	VVTV/NASDAQ
Price (09/11/00)	$26.50
52-Week Range	$62-$14
Current Shares Outstanding	38.6 million
Avg. Daily Trading Volume (last 20 days)	371,860
Suitability	Aggressive Risk

EPS*	2000	2001E	2002E	2003E
1Q	($0.11)	$0.07 A	$0.10	NE
2Q	$0.03	$0.08 A	$0.14	NE
3Q	($0.14)	$0.09	$0.17	NE
4Q	$0.10	$0.12	$0.22	NE
	$0.22	**$0.34**	**$0.62**	**$0.98**
P/E	NM	77.9x	42.7x	27.0x

Dividend	—
Yield	—
Five-Year Expected Revenue Growth Rate	26.8%
Common Stock Market Capitalization	$1,022 million
2001E Book Value/Share	$8.45
2001E Cash Flow/Share	$0.37
2000 ROC	NM
Total Debt/Capitalization	0
Insider Holdings	5.0%
Institutional Holdings	76.0%
End of Fiscal Year	January 31





Corporate Headquarters Minneapolis, MN

A = Actual; E = Estimate; NE = No estimate; NM = Not meaningful.

**Figures may not add due to share-count changes and rounding.*
#Gruntal & Co., L.L.C., makes a market in this security.

Investment Summary

On August 7, 2000, when the share price was $16.88, we initiated coverage on the common stock of ValueVision International, Inc., with intermediate- and long-term ratings of 1-1, Outperformer. We believe that the company's blend of commerce and media represents an integral piece of the television-based commerce (t-commerce) landscape. In our opinion, its penetration of 45% of U.S. households will deliver t-commerce, interactivity, and TV/Internet convergence to a mass audience. We expect ValueVision International, Inc., to (1) leverage its infrastructure, cable and satellite distribution, reach, and marketing expertise to generate incremental high gross margin revenue streams; and to (2) benefit from its strategic relationships with the National Broadcasting Company (NBC, Inc.). However, we believe that the recent downturn in the valuations of Internet-related companies has negatively impacted ValueVision International, Inc.'s share price despite the fact that it is a firmly profitable brick-and-mortar company. In our opinion, this has created an exceptional buying opportunity.

Key Points

- We believe that ValueVision International, Inc., is positioned to benefit from the convergence of television and e-commerce.
- ValueVision International, Inc.'s core home shopping business generates positive cash flow and continues to achieve solid growth.
- We expect new high gross margin revenue streams to fuel revenue growth and result in operating margin expansion.
- Our intermediate- and long-term target share prices are $40 and $50, respectively, based on our valuation relative to the current S&P 500 multiple.

Company Description

ValueVision International, Inc., is a direct marketing company that markets its products through television and the Internet. ValueVision's television home shopping network sells brand name and private-label consumer products. The company complements its television home shopping business with the sale of merchandise through its Web site (www.vvtv.com). Its ValueVision Interactive unit manages and develops the company's e-commerce investment strategies and portfolio. ValueVision International, Inc., is 36% owned by General Electric Company and is headquartered near Minneapolis. ValueVision International, Inc., is a profitable and financially stable, having achieved six successive quarters with revenue growth exceeding 60%. The company has no debt and $284.5 million in cash.

Product Mix

The company currently carries about $25.0 million in inventory that is stored in a distribution center at its Minneapolis headquarters. The distribution center operates substantially below full capacity, having been expanded recently to accommodate the company's growth. Primary product categories include jewelry, collectibles, personal computers, and health and beauty products. ValueVision International, Inc., also offers wine, movies, pet supplies, electronics, healthcare items, and a variety of other goods through its vendor program. Currently, jewelry represents 70%-75% of revenue. Although jewelry generates a gross margin of about 45%, ValueVision International, Inc., is steadily diversifying its product selection to broaden its demographic appeal.

The ValueVision Television Network

We believe that increased cable and satellite distribution of ValueVision International, Inc., programming has been and will continue to be an integral driver of the company's revenue growth. Currently, 35.0 million U.S. households have full- or part-time access to the company's programming, and Time Warner Cable recently committed for an additional 5.0 million to be folded in over three years. We expect the company to end fiscal (January) 2001 with 39.0 million households. Of the current total of 35.0 million, 23.0 million households can watch the company's television network 24 hours a day seven days a week. The remaining 12.0 million households have access to the company's network programming for certain hours of the day only, with other networks broadcasting on the channel during the other times. In order to quantify a television network's part-time viewers on an apples-to-apples basis with full-time viewers, the part-time household number is translated into a full-time equivalent (FTE). For example, a network with two million households that have access to the network 12 hours each day has one million FTEs. (The calculation usually weights prime-time hours more heavily to adjust for the higher sales volume then). Long term, we expect all of the company's households to be full time. The company's television network currently has 27.0 million FTEs.

The Economics of FTEs

In order to get cable and satellite companies to carry its programming, ValueVision International, Inc., enters into long-term affiliation agreements in which it pays monthly access fees and marketing support payments for its broadcast television time. ValueVision International, Inc., pays its cable and satellite affiliates a blended average of approximately $2.05 per FTE a year for carriage. The company currently generates an average of $12.31 in sales annually from each FTE. With a gross margin of approximately 38% for its TV home shopping business, ValueVision International, Inc., has average gross profit per FTE of $4.68. Subtracting the $2.05 carriage fee, ValueVision International, Inc., earns a current run-rate of $2.63, before expenses, for its 27.0 million FTEs, up from 25.0 million in January 2000 and 14.9 million in January 1999. We project that ValueVision International, Inc., will grow FTEs to 47.0 million in fiscal 2005, and we also expect revenue per FTE to rise to an average of $13.86 per year in fiscal 2005. Our projections for revenue and earnings before interest, taxes, depreciation and amortization (EBITDA) in fiscal 2005 are $900.8 million and $148.4 million, respectively.

NBC Relationship

NBC, Inc., and affiliate General Electric Equity (both units of General Electric Company) have invested $222.6 million in cash in ValueVision International, Inc., and own a 36% equity stake in the company. One of the benefits of ValueVision International, Inc.'s relationship with NBC, Inc., is that NBC, Inc., has influence with the cable and satellite companies and lobbies on ValueVision International, Inc.'s behalf to negotiate favorable affiliation deals. ValueVision International, Inc., works with NBC, Inc., and NBC Internet, Inc., which owns and operates NBC, Inc.'s Internet portal and e-commerce assets. Together, the three companies together can offer a compelling integrated suite of marketing services to their partners. ValueVision International, Inc., provides the distribution and fulfillment service, NBC, Inc., contributes on-air promotion, and NBC Internet, Inc., provides the on-line advertising and e-commerce transaction capabilities. ValueVision International, Inc., NBC, Inc., and NBC Internet, Inc., have made several investments together, providing different combinations of cash and services in exchange for equity. The most significant venture to date, in our opinion, is the creation of Ralph Lauren Media, L.L.C.

Ralph Lauren Media, L.L.C.

ValueVision International, Inc., recently formed a joint venture with the Polo Ralph Lauren Corporation, NBC, Inc., NBC Internet, Inc., and CNBC.com, to create Ralph Lauren Media, L.L.C. Ralph Lauren Media, L.L.C., plans to launch Polo.com, a fully e-commerce-enabled shopping and lifestyle content destination on the Internet, in time for the 2000 holiday shopping season. ValueVision International, Inc., owns a 12.5% stake in Ralph Lauren Media, L.L.C., and has committed to invest $50.0 million in cash in the venture. To date, ValueVision International, Inc., has issued $10.0 million in cash to Ralph Lauren Media, L.L.C. Our balance sheet and cash flow projections assume that ValueVision International, Inc., will invest an additional $20.0 million before the end of fiscal 2001 and $20.0 million during fiscal 2002 and 2003, when Ralph Lauren Media, L.L.C., is planned by its management to be cash flow positive.

The relationship with Ralph Lauren Media, L.L.C., adds a revenue stream to ValueVision International, Inc., through the fulfillment services that it will provide for Ralph Lauren Media, L.L.C. ValueVision International, Inc., is currently developing a dedicated facility to handle Ralph Lauren Media, L.L.C.'s order processing and record keeping and is also retooling one of its distribution centers to devote to Ralph Lauren Media, L.L.C., order fulfillment. ValueVision International, Inc.'s realized revenue for these services is expected to be the related expenses plus a 10% markup. The expenses will include the fixed costs to maintain the systems and distribution center and variable costs based on order flow. Since there are no cost of goods sold associated with these services, ValueVision International, Inc.'s gross margin on them is 100%. All marketing expenses and inventory carriage are the responsibility of Ralph Lauren Media, L.L.C. Our revenue projections for ValueVision International, Inc.'s contribution are very conservative in light of the difficulty of launching and scaling an e-tail business. We project that ValueVision International, Inc.'s fulfillment services for Ralph Lauren Media, L.L.C., will generate revenue of $5.5 million in fiscal 2001 and that revenue will rise to $35.2 million in fiscal 2005.

Rebranding ValueVision International, Inc.

Management believes that the company would benefit from adopting the brand name of a mass-market media or retail entity, such as NBC, Inc., to scale its business and attract blue chip vendor programming and distribution services clients. Since NBC, Inc., parent General Electric Company owns a 36% stake in ValueVision International, Inc., and there are many synergies between the two companies, ValueVision International, Inc., planned to rebrand itself as SnapTV and work closely with NBC Internet, Inc., and its flagship portal, Snap.com. However, NBC Internet, Inc., recently announced plans to phase out non-NBC brands Snap and XOOM and unify its services under the NBC Internet, Inc., brand name. Although the ValueVision International, Inc., brand is healthy and has served the company well since its inception, we believe that a new powerful household name brand would benefit ValueVision International, Inc.'s vendor program and e-commerce initiatives and serve as a potent catalyst for its share price. We think that a derivative of the NBC, Inc., brand is a strong possibility, but we also believe that a rebranding alliance with a major on-line retailer, a traditional department store, or a national specialty retailer would be well received. We expect ValueVision International, Inc., to announce its rebranding plans by the end of the third (October) fiscal quarter of 2001.

Divestiture of TV Stations and Catalog Operations

ValueVision International, Inc., once owned and maintained several full-power (30- to 50-mile radius) television broadcast stations in order to ensure distribution of its programming. Competitor Shop at Home, Inc., which has 23.9 million cable FTE households, owns and operates six broadcast stations. Because Shop at Home, Inc., lacks significant cable distribution, ownership of the stations is necessary for Shop at Home, Inc., to distribute its programming. When ValueVision International, Inc., reached a point of critical mass in its cable programming distribution, it was able to divest the stations and use the proceeds to expand its business. During calendar 1999, ValueVision International, Inc., completed the sale of its full-power broadcast TV stations for significant cash gains and has still steadily increased its FTEs. ValueVision International, Inc., now owns 11 low-power (approximately 10-mile radius) television stations. As of January 2000, 230 cable systems carried the ValueVision International Inc., home shopping network full time and 140 cable systems carried the company's programming part time. The total number of cable homes that receive the company's programming represents approximately 45% of the total number of cable and satellite subscribers in the U.S.

ValueVision International, Inc., also owned several mail order catalogs. It exited the business completely in calendar 1999 to focus on building its core business of e-commerce operations, fulfillment services, and vendor programs. Excluding the catalog division, the company's revenue in fiscal 2000 was $250.2 million. Our fiscal 2001 revenue projection of $380.0 million represents a year-over-year increase of 51.9% in continuing operations.

Internet Operations

We believe that a multichannel strategy is crucial for major retailers in the Internet age. The Internet shifts power to consumers by multiplying their choices and dramatically improving product and pricing information. In order to remain competitive, retailers must adapt to accommodate their customers' preferences. ValueVision International, Inc.'s shoppers can view merchandise and either call to order on line. Eventually, they will be able to click a button on their remote controls and order automatically, thanks to a technology partnership with Wink Communications, Inc.

ValueVision International, Inc., extends much of its programming through Internet Webcasts on its Web site, enabling customers to view a deeper selection of merchandise than can be shown on the TV at one time. Webcasts are streaming video programming that Internet users can access on their personal computers. Customers can search and browse products, access in-depth information, and make purchases on line. The coordinated effort between the TV network and the Web site adds a flexibility to home shopping that is not possible with one-way TV transmission alone.

Unlike stand-alone E-tailers that build their businesses from ground zero, ValueVision International, Inc., began its e-commerce operations with a fully developed distribution and fulfillment infrastructure to support its TV operations. It has nationwide brand recognition, a large customer base, and more than a decade of experience in merchandising, fulfillment, and customer service. Also, having a TV network 24 hours a day seven days a week enables the company to promote its Web site at no incremental cost. The company does not sell 30-second advertising spots to outside advertisers, so there is virtually no opportunity cost for ValueVision International, Inc., to use the time between programs to generate traffic to its Web site. ValueVision International, Inc.'s Internet operations also enable the company to reach the younger, more affluent and technology-savvy audience. The Internet also enables ValueVision International, Inc., to experiment with alternative selling methods such as auctions. Further, the Internet removes the limitation of the fixed number of households with cable systems that carry the company's products. We project ValueVision International, Inc.'s fiscal 2001 Internet revenue to be $19.2 million, rising to $113.4 million in fiscal 2005. The company's Internet operations are currently cash flow positive.

Vendor Program

ValueVision International, Inc., has launched a vendor programming service to sell time slots to other merchants so that they can present commerce offers through televised content. For example, *The Best of Wine Show*, coproduced with on-line wine retailer Wine.com, is an entertaining and informative one-hour program featuring Wine.com products. In addition to the average $50,000 fee per hour (in a range of $40,000-$60,000), ValueVision International, Inc., receives 5% of sales generated through the programming. This programming service provides a unique, innovative, and cost-effective method for E-tailers to add new channels of distribution and reach a wider audience. ValueVision International, Inc.'s reach and fulfillment capabilities are very attractive to companies. It typically costs hundreds of thousands of dollars to produce and air a 30-second commercial, making the vendor program an inexpensive way to educate consumers and raise brand awareness. The flat fee includes use of ValueVision International, Inc.'s in-house production studio; outside, or on-location production costs must be paid by the vendor.

Higher Gross Profits per Hour

We believe that the expansion of the vendor program will be a significant source of the gross margin expansion that we have projected for ValueVision International, Inc. During ValueVision International, Inc.'s average prime-time hour (when vendor programs are usually aired), a vendor program generates gross profits on TV-based sales in a range of $20,000-$25,000. Because the $50,000 vendor program fee carries no cost of goods, it translates into straight gross profit, double the average during that time. The related expenses for production, selling, and administrative are slightly higher than regular programming in the vendor program's early stages. We believe that as ValueVision International, Inc., increases its reach through FTE growth, the company will be able to command increasing hourly fees. We also expect ValueVision International, Inc., to benefit from the varied audience that the vendor programs have begun to attract. Some cannibalization of ValueVision International, Inc., merchandise sales take place during the vendor hours, and we have adjusted our model accordingly. We project vendor-programming revenue to be $10.6 million in fiscal 2001, and climbing to $100.6 million in fiscal 2005, driven by more hours per week sold and rising hourly fees. We expect ValueVision International, Inc., to sell 30 hours per week by fiscal 2005.

Current vendor partners include Wine.com, Inc., Roxy.com, Inc., Petopia.com, Inc., BigStar Entertainment, Inc., IdeaForest.com, Inc., and Selfcare.com (Medical Self-Care, Inc.). All of these companies are pure Internet retailers and some have partnerships with traditional retailers. Each of the vendor program agreements involved a cash investment by ValueVision International, Inc., for a minority equity stake in the vendor. In light of the recent market climate for pure-play business-to-consumer Internet companies, we are very conservative in our outlook for the value of these investments. We expect ValueVision International, Inc., to expand the vendor program going forward; however, we believe that the company will focus on larger, more established, and financially stable companies. In our opinion, the vendor program would appeal to companies such as Home Depot, Inc., Barnes & Noble, Inc., and Sharper Image Corporation, which have product categories that lend themselves to creative programming ideas.

Earnings Outlook

ValueVision International, Inc.'s core home shopping business is healthy and growing. We expect revenue growth to be driven by FTE expansion and improvements in revenue per FTE. Our projections for television network revenue are $344.8 million in fiscal 2001 growing to $651.5 in fiscal 2005. We project that ValueVision International, Inc.'s total revenue will be supplemented by its Internet operations, its fulfillment services, and its vendor program, which we project to grow at substantially higher rates than the core home shopping business. We also project that the company will expand gross margins and operating margins as it leverages its infrastructure and outgrows its fixed costs. We project total revenue of $380.0 million in fiscal 2001 growing at a five-year compound annual growth rate (CAGR) of 26.8% to $900.8 million in fiscal 2005. We expect the gross margin to expand to 46.0% in fiscal 2005 from 40.4% in fiscal 2001. We look for earnings before interest, taxes, depreciation, and amortization (EBITDA) margin expansion to 16.5% in fiscal 2005 versus 5.9% in fiscal 2001. Our earnings-per-share (EPS) estimates are $0.34 in fiscal 2001 and $0.62 in fiscal 2002, rising to $1.86 in fiscal 2005.

Financial History

ValueVision International, Inc., completed its initial public offering (IPO) in November 1993. Gerard Klauer Mattison & Company, Inc., led the offering of 4.0 million shares, resulting in proceeds to ValueVision International, Inc., of $52.5 million less underwriting fees. Insider holdings are approximately 5% and institutional holdings are about 76%, including General Electric Equity's 36% stake. ValueVision International, Inc.'s cash balance at the end of the second (July) fiscal quarter was $284.5 million. The company is currently profitable and carries no debt on its balance sheet.

Recent Results

For the second (July) quarter of fiscal (January) 2001, the company reported total revenue of $86.0 million, a 48% year-over-year increase. Excluding the divestiture of ValueVision International, Inc.'s catalog business, the company reported a 65% year-over-year increase in net sales from its television and Internet operations. Internet sales for the quarter rose 2749% year over year. Net income for the quarter was $3.2 million, or $0.07 per diluted share, compared with net income of $979,000, or $0.03 per diluted share, a year before.

ValueVision International, Inc., reported total revenue of $274.9 million in fiscal 2000, a 22.1% increase over fiscal 1999. Of that total, more than $250.0 million in sales can be attributed to revenue from the company's television home shopping and companion Internet Web site businesses, representing 90.9% of net sales. This growth in home shopping sales is due primarily to an increase in the number of FTE households that receive the company's home shopping programming. Also fueling the increase was a greater number of households purchasing items that already receive programming and an overall rise in the company's average order size. The gross margin was 38.7% in fiscal 2000, a slight decline year over year due to a change in the company's merchandise mix. Earnings were $0.22 per diluted share excluding gains from the sale of assets.

Valuation

The catalysts that we look for to drive ValueVision International, Inc.'s valuation are increased FTEs and higher sales per FTE. Further, as the company's new high-margin businesses become a more meaningful component of revenue, we believe that margin expansion will also result in share price appreciation. Our 2004 EPS estimate is $1.86. The shares currently trade at a price-to-earnings (P/E) multiple of 14.2 to our 2004 estimate, a 3.1% premium to the projected 2004 S&P 500 multiple of 13.8, despite the company's projected 35.8% 2004 earnings growth rate (see Table 26). We believe that ValueVision International, Inc.'s shares should trading at a significant premium to the S&P 500 multiple on 2004 earnings. We believe that a $50 long-term target price is appropriate, representing a multiple on 2004 EPS that is approximately double that of the S&P 500.

Management/Board of Directors

Gene McCaffery joined the company in March 1998 and was named CEO in June 1998 and president and chairman in February 1999. McCaffery spent 14 years at Montgomery Ward & Company, most recently as senior executive vice president of merchandising marketing, strategic planning, and credit services. From 1994 to 1996, he served as vice chairman of the Signature Group, one of the nation's largest direct marketing companies. From March 1996 to March 1998, McCaffery served as CEO and managing partner of Marketing Advocates, a celebrity-driven product and service development company. He served as vice chairman of Marketing Advocates from August 1995 to March 1996. McCaffery is also a director of NetRadio Corporation.

Steve Jackel joined the company as president of TV Home Shopping Operations in August 1999. From 1995 to 1999, Jackel served as president and COO of Florida-based Concord Camera Corporation. From 1990 to 1994, he was president of California-based McCrory Corporation and chairman and CEO of McCrory Stores, a retail mass merchandiser. His extensive experience in the retail field includes being founder and president of a consulting corporation that provided services to a wide variety of leading retailers.

Roy Seinfeld joined the company as senior vice president of programming sales. Seinfeld is a seasoned network sales executive who was most recently vice president of network ad sales for FOX Sports Net, where he was responsible for network ad sales for FOX Sports Net's 22 regional sports networks covering more than 70.0 million homes in the U.S. Seinfeld brings a decade of experience in managing multimillion-dollar client relationships and has extensive relationships in broadcasting and advertising sales.

Table 26
ValueVision International, Inc.
VALUATION ANALYSIS

	Price (09/11/00)	2000E EPS	Projected Five-year growth	2004E EPS	2004E P/E	Premium to S&P 500 2004E P/E Multiple
S&P 500	$1,489.26	$60.85	12.1%	$107.72	13.8	—
ValueVision International, Inc.	$26.50	—	35.8%	$1.86	14.2	3.1%

Source: Gruntal & Co., L.L.C.

Richard Barnes joined the company as senior vice president and CFO in November 1999. From 1996 to November 1999, Barnes was a key financial executive with Bell Canada in Toronto, serving as senior vice president, operations, and financial management and, as a group vice president of finance, planning, and strategy. Previously, Barnes was vice president and controller at the Pillsbury Company (a unit of Diageo PLC). His previous business experience was principally in the consumer products industry, where he held CFO and/or other key financial, development, and strategic management positions with Bristol-Myers Squibb Company and related companies and with Procter & Gamble, Inc.

Nathan Fagre joined the company in May 2000 as senior vice president and general counsel. As chief lawyer and legal department head of Occidental Oil and Gas Corporation, Fagre was responsible for all domestic and international legal activities and was a member of the company's executive committee. Prior to joining Occidental Oil and Gas Corporation in 1995, he practiced for seven years at Gibson, Dunn & Crutcher in Washington D.C., specializing in mergers and acquisitions, securities transactions, joint ventures, private placements, and financial institutions.

Marshall S. Geller has been a director since May 1993 and was vice chairman of the board of directors from August 1994 until July 1999. Geller is currently chairman, CEO, and founding partner of Geller & Friend Capital Partners, Inc., an investment banking firm. He has additional investment and merchant banking experience, having worked as a senior managing partner and founder of Golenberg and Geller, Inc., as vice chairman of Gruntal & Company, and as a managing partner at Bear Stearns & Company, Inc. Geller also serves on the boards of directors of Ballantyne of Omaha, Inc., Cabletel Communications Corporation, Hexcel Corporation, and Strouds, Inc.

Robert J. Korkowski has been a director since May 1993. From 1989 to his retirement in 1996, Korkowski was senior vice president of finance and a director of Opus Corporation, a privately held real estate developer and construction company. Previously, Korkowski was vice president and CFO of National Computer Systems, Inc., and an executive vice president and CFO of G. Heileman Brewing Company (a unit of the Stroh's Companies, Inc.).

Paul D. Toseti has been a director since August 1996 and a partner in the Los Angeles office of the law firm Latham & Watkins since 1989. Tosetti has been associated with Latham & Watkins since 1982 and is chairman of that firm's mergers and acquisitions group and a member of its corporate department.

Mark W. Begor has been a director since October 1999 and the executive vice president and CFO of NBC, Inc., since April 1998. He is responsible for NBC, Inc.'s global finance, accounting, tax, and information technology activities. Begor began his career in 1980 with General Electric Company where he held various financial positions. From August 1995 to March 1998, he served as General Electric Company's manager of investor communications and was appointed its corporate officer in December 1996. Begor is a member of the board of directors of NBC Internet, Inc.

John L. Flannery, Jr., has been a director since July 1999 and the managing director of the media/consumer group of General Electric Equity (a unit of General Electric Company) since August 1999. Previously, Flannery served as General Electric Equity's managing director for Latin America and a president of General Electric Capital Argentina/Chile (also a unit of General Electric Company). From 1994 until December 1996, he was senior vice president and manager of domestic equity for General Electric Equity. Flannery also serves on the boards of directors of Translate, Inc., Pensare, Inc., PKS Retail Networks, Consumer Financial Network, and Autobytel, Europe, L.L.C.

Risks

Investments

ValueVision International, Inc., has invested $3.0-$10.0 million in cash in its vendor partners, which include Self-Care.com (Medical Selfcare, Inc.), ROXY.com, Inc., Wine.com, Inc., Petopia.com, Inc., BigStar Entertainment, Inc., and IdeaForest.com, Inc. ValueVision International, Inc., also holds equity stakes in Telocity, Inc., a provider of digital subscriber lines (DSL) for high-speed telephone-based Internet connection, and NetRadio Corporation, an on-line music site. Our model incorporates a very conservative outlook on the future value of these investments. ValueVision International, Inc., has also committed to invest another $40.0 million in Ralph Lauren Media, L.L.C., which was valued at $400.0 million, giving ValueVision International, Inc., a 12.5% stake. The publicly traded investments are marked to market quarterly on the balance sheet. The private companies are recorded on the balance sheet at ValueVision International, Inc.'s cost. The gains or losses would only impact ValueVision International, Inc.'s income statement if it sold the equity stake or if the partner declared bankruptcy. As of March 2000, ValueVision International, Inc.'s investments were carried on the company's balance sheet at an aggregate value of $61.7 million. We do not expect most of these E-tailers to survive long term as stand-alone companies; however, we believe that they are more likely to be acquired than to declare bankruptcy. While we acknowledge that there is risk related to the company's Internet investments, we believe that the risk has been fully discounted in ValueVision International, Inc.'s current share price. Further, the company has a substantial cash balance and positive cash flow and is positioned to make occasional aggressive investments without jeopardizing its operating resources.

Cable Carriage

ValueVision International, Inc., programming is currently carried in a small number of Comcast Corporation markets. It may be difficult for ValueVision International, Inc., to increase its carriage on the Comcast Corporation cable network because Comcast Corporation owns competitor QVC, Inc. However, once ValueVision International, Inc., reaches saturation in terms of household penetration, we believe that the company will be able to export its core television business model abroad, as competitor QVC, Inc., has done successfully.

See Tables 27-32 for ValueVision International, Inc.'s financial statements and our projections.

Table 27
ValueVision International, Inc.
REVENUE PROJECTIONS, 2001E-2005E

Fiscal year ends January 31	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
TV-based retail sales:					
Homes passed (thousands)	36,000	41,000	46,000	50,000	53,000
Full-time equivalents (FTEs, thousands)	28,000	33,000	39,000	43,000	47,000
FTE growth	45.8%	17.9%	18.2%	10.3%	9.3%
Total customers active (net of churn, thousands)	525	680.625	884.8125	1043.85188	1187.7335
Average transaction	$205.00	$198.00	$194.00	$192.00	$188.00
Average number of transactions per year	3.3	3.3	3.3	3.28	3.3
Revenue per FTE	$12.35	$12.43	$13.14	$13.69	$13.86
Revenue per customer	$676.50	$653.40	$640.20	$629.76	$620.40
Adjustment for cannibalization by vendor program	($9,334.0)	($34,476.0)	($54,080.0)	($68,900.0)	($85,363.2)
TV revenue (thousands)	**$345,828.5**	**$410,244.4**	**$512,377.0**	**$588,476.2**	**$651,506.7**
% of total revenue	*91.0%*	*82.7%*	*78.0%*	*74.8%*	*72.3%*
year/year % change	*NM*	*18.6%*	*24.9%*	*14.9%*	*10.7%*
Internet-based sales:					
Customer base	75.0	135.0	229.5	310.0	360.0
Average transation	$180.00	$178.00	$177.00	$176.00	$175.00
Transactions per year (thousands)	1.4	1.5	1.6	1.7	1.8
Revenue per customer	255.60	267.00	283.20	299.20	315.00
Internet revenue (thousands)	**$19,170.0**	**$36,045.0**	**$64,994.4**	**$92,752.0**	**$113,400.0**
% of total revenue	*5.0%*	*7.3%*	*9.9%*	*11.8%*	*12.6%*
year/year % change	*NM*	*88.0%*	*80.3%*	*42.7%*	*22.3%*
Vendor program:					
Hours sold per week	4	13	20	25	30
Fee per hour (thousands)	$50.0	$50.0	$52.0	$57.3	$62.7
ValueVision International, Inc.'s 5% revenue share (thousands)	$186.7	$676.0	$1,040.0	$1,300.0	$1,580.8
Vendor services revenue (thousands)	**$9,520.7**	**$34,476.0**	**$55,120.0**	**$75,833.3**	**$100,644.3**
% of total revenue	*2.5%*	*6.9%*	*8.4%*	*9.6%*	*11.2%*
year/year % change	*NM*	*262.1%*	*59.9%*	*37.6%*	*32.7%*
Fulfillment services (Ralph Lauren Media, L.L.C):					
Projected fulfillment expenses (thousands)	$5,000.0	$14,000.0	$22,000.0	$27,000.0	$32,000.0
ValueVision International, Inc.'s cost plus 10% fee (thousands)	5500	15400	24200	29700	35200
Fulfillment service revenue (thousands)	**$5,500.0**	**$15,400.0**	**$24,200.0**	**$29,700.0**	**$35,200.0**
% of total revenue	*1.4%*	*3.1%*	*3.7%*	*3.8%*	*3.9%*
year/year % change	*NM*	*180.0%*	*57.1%*	*22.7%*	*18.5%*
Total Revenue	**$380,019.2**	**$496,165.4**	**$656,691.4**	**$786,761.5**	**$900,750.9**
year/year % change	*38.2%*	*30.6%*	*32.4%*	*19.8%*	*14.5%*

NM = Not meaningful.

Source: Gruntal & Co., L.L.C.

Table 28
ValueVision International, Inc.
INCOME STATEMENT, 2000-2005E
($ thousands, except per share)

Fiscal year ends January 31	2000*	% sales	% change	2001E	% sales	% change	2002E	% sales	% change	2003E	% sales	% change	2004E	% sales	% change	2005E	% sales	% change
Total net revenue	$274,927.0	—	22.1%	$381,330.8	—	38.7%	$496,165.4	—	30.1%	$656,691.4	—	32.4%	$786,761.5	—	19.8%	$900,750.9	—	14.5%
Total cost of revenue	168,400.0	61.3%	23.0%	228,812.6	60.0%	35.9%	277,842.7	56.0%	21.4%	359,660.1	54.8%	29.4%	424,587.5	54.0%	18.1%	476,736.9	52.9%	12.3%
Gross profit	**$106,527.0**	**38.7%**	**20.8%**	**$152,518.3**	**40.0%**	**43.2%**	**$218,322.7**	**44.0%**	**43.1%**	**$297,031.3**	**45.2%**	**36.1%**	**$362,174.0**	**46.0%**	**21.9%**	**$424,014.0**	**47.1%**	**17.1%**
Operating expenses:																		
Distribution and selling	$86,134.0	31.3%	11.5%	$114,821.1	30.1%	33.3%	$144,845.6	29.2%	26.1%	$190,440.5	29.0%	31.5%	$220,293.2	28.0%	15.7%	$243,202.8	27.0%	10.4%
General and administrative	11,431.0	4.2%	(0.1%)	15,539.8	4.1%	35.9%	22,342.3	4.5%	43.8%	26,267.7	4.0%	17.6%	29,896.9	3.8%	13.8%	32,427.0	3.6%	8.5%
Total operating expenses	**$97,565.0**	**35.5%**	**10.0%**	**$130,360.9**	**34.2%**	**33.6%**	**$167,187.9**	**33.7%**	**28.3%**	**$216,708.1**	**33.0%**	**29.6%**	**$250,190.2**	**31.8%**	**15.5%**	**$275,629.8**	**30.6%**	**10.2%**
Earnings before interest, taxes, depreciation, and amortization	**$8,962.0**	**3.3%**	**NM**	**$22,157.4**	**5.8%**	**147.2%**	**$51,134.8**	**10.3%**	**130.8%**	**$80,323.1**	**12.2%**	**57.1%**	**$111,983.8**	**14.2%**	**39.4%**	**$148,384.2**	**16.5%**	**32.5%**
Other income (expense):																		
Depreciation and amortization	($4,966.0)	(1.8%)	NM	($6,396.3)	(1.7%)	NM	($9,117.4)	(1.8%)	NM	($9,854.3)	(1.5%)	NM	($9,707.9)	(1.2%)	NM	($9,678.5)	(1.1%)	NM
Interest income	10,129.0	3.7%	55.9%	14,087.0	3.7%	39.1%	12,500.0	2.5%	(11.3%)	13,000.0	2.0%	—	15,500.0	2.0%	—	19,800.0	2.2%	—
Minority interest and other, net	(50.0)	—	NM	(2,653.0)	(0.7%)	5206.0%	(3,000.0)	(0.6%)	NM	(2,000.0)	(0.3%)	—	1,000.0	0.1%	—	3,000.0	0.3%	—
Pretax income	**$14,075.0**	**5.1%**	**311.8%**	**$27,065.3**	**7.1%**	**92.3%**	**$51,517.4**	**10.4%**	**90.3%**	**$81,468.8**	**12.4%**	**58.1%**	**$118,776.0**	**15.1%**	**45.8%**	**$161,505.7**	**17.9%**	**36.0%**
Tax rate	39.0%	—	—	37.3%	—	—	39.0%	—	—	39.0%	—	—	39.0%	—	—	39.0%	—	—
Provision for income taxes	$5,489.3	2.0%	NM	$10,188.3	2.7%	85.6%	$20,091.8	4.0%	97.2%	$31,772.8	4.8%	58.1%	$46,322.6	5.9%	45.8%	$62,987.2	7.0%	36.0%
Net income	**$8,585.8**	**3.1%**	**296.9%**	**$16,877.0**	**4.4%**	**96.6%**	**$31,425.6**	**6.3%**	**86.2%**	**$49,696.0**	**7.6%**	**58.1%**	**$72,453.3**	**9.2%**	**45.8%**	**$98,518.5**	**10.9%**	**36.0%**
Accretion of redeemable preferred stock	($207.0)	NM	—	($276.0)	NM	—	($276.0)	NM	—	($276.0)	NM	—	($276.0)	NM	—	($276.0)	NM	—
Net income available to common shareholders	**$8,792.8**	**3.2%**	**289.6%**	**$16,601.0**	**4.4%**	**88.8%**	**$31,149.6**	**6.3%**	**87.6%**	**$49,972.0**	**7.6%**	**60.4%**	**$72,729.3**	**9.2%**	**45.5%**	**$98,794.5**	**11.0%**	**35.8%**
Basic EPS	**$0.27**	—	—	**$0.43**	—	—	**$0.81**	—	—	**$1.25**	—	—	**$1.77**	—	—	**$2.41**	—	—
Shares outstanding	32,438.6	—	—	38,452.0	—	—	38,413.9	—	—	40,000.0	—	—	41,000.0	—	—	41,000.0	—	—
Diluted EPS	**$0.22**	—	—	**$0.35**	—	—	**$0.62**	—	—	**$0.98**	—	—	**$1.40**	—	—	**$1.86**	—	—
Shares outstanding (diluted)	40,028.4	—	—	47,446.3	—	—	49,750.0	—	—	51,000.0	—	—	52,000.0	—	—	53,000.0	—	—

**Includes discontinued operations and excludes one-time gains from sale of assets.*

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 29
ValueVision International, Inc.
2001E QUARTERLY INCOME STATMENT
($ thousands, except per share)

Fiscal year ends January 31	1Q01	% sales	% change	2Q01	% sales	% change	3Q01E	% sales	% change	4Q01E	% sales	% change
Total net revenue	$81,001.0	—	52.4%	$83,632.7	—	44.5%	$94,821.6	—	23.8%	$119,831.2	—	37.2%
Total cost of revenue	49,277.0	60.8%	60.7%	51,434.1	61.5%	45.5%	55,281.0	58.3%	20.3%	70,173.2	58.6%	24.4%
Gross profit	**$31,724.0**	**39.2%**	**41.1%**	**$32,198.6**	**38.5%**	**43.0%**	**$39,540.6**	**41.7%**	**29.2%**	**$49,658.1**	**41.4%**	**60.6%**
Operating expenses:												
Distribution and selling	$25,422.0	31.4%	39.4%	$25,006.2	29.9%	37.7%	$28,825.8	30.4%	15.9%	$36,009.3	30.1%	44.8%
General and administrative	3,470.0	4.3%	26.0%	3,345.3	4.0%	22.2%	4,077.3	4.3%	21.2%	4,793.2	4.0%	86.2%
Total operating expenses	**$28,892.0**	**35.7%**	**37.7%**	**$28,351.5**	**33.9%**	**35.7%**	**$32,903.1**	**34.7%**	**16.6%**	**$40,802.5**	**34.1%**	**48.6%**
Earnings before interest, taxes, depreciation, and amortization	**$2,832.0**	**3.5%**	**89.7%**	**$3,847.1**	**4.6%**	**138.2%**	**$6,637.5**	**7.0%**	**178.9%**	**$8,855.5**	**7.4%**	**154.9%**
Other income (expense):												
Depreciation and amortization	($1,327.0)	(1.6%)	NM	($1,599.1)	(1.9%)	NM	($1,800.0)	(1.9%)	NM	($1,800.0)	(1.5%)	NM
Interest income	3,773.0	4.7%	540.6%	3,500.0	4.2%	113.7%	3,300.0	3.5%	354.5%	3,300.0	2.8%	(21.6%)
Minority interest and other, net	(17.0)	—	NM	(600.0)	(0.7%)	4185.7%	(1,000.0)	(1.1%)	NM	(1,200.0)	(1.0%)	NM
Pretax income	**$5,261.0**	**6.5%**	**475.6%**	**$5,148.0**	**6.2%**	**166.0%**	**$7,137.5**	**7.5%**	**NM**	**$9,155.5**	**7.6%**	**42.3%**
Tax rate	38.7%	—	NM	39.0%	—	NM	39.0%	—	NM	39.0%	—	NM
Provision for income taxes	$2,036.0	2.5%	(50.0%)	$2,007.7	2.4%	194.8%	$2,783.6	2.9%	(74.7%)	$3,570.7	3.0%	112.7%
Net income	**$3,225.0**	**4.0%**	**(202.1%)**	**$3,140.3**	**3.8%**	**150.4%**	**$4,353.9**	**4.6%**	**(170.0%)**	**$5,584.9**	**4.7%**	**17.4%**
Accretion of redeemable preferred stock	($69.0)	NM	NM	($69.0)	NM	NM	($69.0)	NM	NM	($69.0)	NM	NM
Net income available to common shareholders	**$3,156.0**	**3.9%**	**(199.9%)**	**$3,071.3**	**3.7%**	**159.2%**	**$4,284.9**	**4.5%**	**(168.2%)**	**$5,515.9**	**4.6%**	**17.7%**
Basic EPS	**$0.08**	—	—	**$0.08**	—	—	**$0.11**	—	—	**$0.14**	—	—
Shares outstanding	38,413.9	—	—	38,413.9	—	—	38,413.9	—	—	38,413.9	—	—
Diluted EPS	**$0.07**	—	—	**$0.06**	—	—	**$0.09**	—	—	**$0.12**	—	—
Shares outstanding (diluted)	47,753.0	—	—	47,753.0	—	—	47,753.0	—	—	47,753.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 30
ValueVision International, Inc.
2002E QUARTERLY INCOME STATMENT
($ thousands, except per share)

Fiscal year ends January 31	**1Q02E**	**% sales**	**% change**	**2Q02E**	**% sales**	**% change**	**3Q02E**	**% sales**	**% change**	**4Q02E**	**% sales**	**% change**
Total net revenue	$104,194.7	—	28.6%	$114,118.0	—	33.2%	$129,003.0	—	36.0%	$148,849.6	—	24.2%
Total cost of revenue	59,599.4	57.2%	20.9%	64,134.3	56.2%	19.4%	72,241.7	56.0%	30.2%	81,867.3	55.0%	16.4%
Gross profit	**$44,595.3**	**42.8%**	**40.6%**	**$49,983.7**	**43.8%**	**56.4%**	**$56,761.3**	**44.0%**	**44.2%**	**$66,982.3**	**45.0%**	**35.3%**
Operating expenses:												
Distribution and selling	$32,092.0	30.8%	26.2%	$33,664.8	29.5%	37.0%	$37,410.9	29.0%	29.8%	$41,677.9	28.0%	15.7%
General and administrative	4,272.0	4.1%	23.1%	5,249.4	4.6%	40.9%	5,676.1	4.4%	40.8%	7,144.8	4.8%	65.6%
Total operating expenses	**$36,364.0**	**34.9%**	**25.9%**	**$38,914.3**	**34.1%**	**37.6%**	**$43,087.0**	**33.4%**	**31.1%**	**$48,822.7**	**32.8%**	**21.1%**
Earnings before interest, taxes, depreciation, and amortization	**$8,231.4**	**7.9%**	**190.7%**	**$11,069.4**	**9.7%**	**202.2%**	**$13,674.3**	**10.6%**	**110.5%**	**$18,159.7**	**12.2%**	**98.1%**
Other income (expense):												
Depreciation and amortization	($2,279.4)	(2.2%)	NM	($2,279.4)	(2.0%)	NM	($2,279.4)	(1.8%)	NM	($2,279.4)	(1.5%)	NM
Interest income	3,200.0	3.1%	(15.2%)	3,150.0	2.8%	(15.2%)	3,100.0	2.4%	(6.1%)	3,050.0	2.0%	(7.6%)
Minority interest and other, net	(750.0)	(0.7%)	NM	(750.0)	(0.7%)	NM	(750.0)	(0.6%)	NM	(750.0)	(0.5%)	NM
Pretax income	**$8,402.0**	**8.1%**	**59.7%**	**$11,190.1**	**9.8%**	**109.5%**	**$13,745.0**	**10.7%**	**96.5%**	**$18,180.3**	**12.2%**	**92.0%**
Tax rate	39.0%	—	NM	39.0%	—	NM	39.0%	—	NM	39.0%	—	NM
Provision for income taxes	$3,276.8	3.1%	60.9%	$4,364.1	3.8%	152.0%	$5,360.5	4.2%	96.5%	$7,090.3	4.8%	92.0%
Net income	**$5,125.2**	**4.9%**	**58.9%**	**$6,826.0**	**6.0%**	**89.1%**	**$8,384.4**	**6.5%**	**96.5%**	**$11,090.0**	**7.5%**	**92.0%**
Accretion of redeemable preferred stock	($69.0)	NM	NM	($69.0)	NM	NM	($69.0)	NM	NM	($69.0)	NM	NM
Net income available to common shareholders	**$5,056.2**	**4.9%**	**60.2%**	**$6,757.0**	**5.9%**	**90.8%**	**$8,315.4**	**6.4%**	**98.1%**	**$11,021.0**	**7.4%**	**93.1%**
Basic EPS	**$0.13**	—	—	**$0.18**	—	—	**$0.22**	—	—	**$0.29**	—	—
Shares outstanding	38,413.9	—	—	38,413.9	—	—	38,413.9	—	—	38,413.9	—	—
Diluted EPS	**$0.10**	—	—	**$0.14**	—	—	**$0.17**	—	—	**$0.22**	—	—
Shares outstanding (diluted)	49,000.0	—	—	49,500.0	—	—	50,000.0	—	—	50,500.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 31
ValueVision International, Inc.
CASH FLOW STATEMENT, 2000-2005E
($ thousands)

Fiscal year ends January 31	**2000**	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
Cash flows from operating activities:						
Net income	$29,330.0	$16,601.0	$31,149.6	$49,972.0	$72,729.3	$98,794.5
Adjustment to reconcile net loss to net cash used in operating activities:						
Depreciation and amortization	4,966.0	6,396.3	9,117.4	9,854.3	9,707.9	9,678.5
Deferred taxes	(55.0)	28.2	1,383.0	1,791.2	1,720.6	1,464.5
Gain on sale of broadcast stations	(33,230.0)	—	—	—	—	—
Gain on sale of property and investments	(2,347.0)	—	—	—	—	—
Write-down of investments	250.0	—	—	—	—	—
Unrealized loss (gain) on trading securities	890.0	—	—	—	—	—
Changes in operating assets and liabilities, net of effect of divestitures:						
Accounts receivable, net	($22,836.0)	($13,758.8)	($12,741.2)	($13,939.4)	($8,491.9)	($5,461.5)
Inventories, net	(7,515.0)	(6,394.1)	(5,921.2)	(6,478.0)	(3,946.5)	(2,538.1)
Prepaid expenses and other	(1,646.0)	(1,575.1)	(1,458.7)	(1,595.8)	(972.2)	(625.3)
Accounts payable and accrued liabilities	21,927.0	10,158.1	10,750.7	14,069.8	10,843.0	9,188.3
Income taxes payable (receivable), net	8,797.0	6,896.8	4,616.5	2,735.2	1,503.8	1,196.0
Net cash generated by operating activities	**($1,469.0)**	**$18,352.3**	**$36,896.1**	**$56,409.2**	**$83,094.1**	**$111,696.9**
Cash flows from investing activities:						
Property and equipment additions, net of retirements	($4,036.0)	($20,000.0)	($10,000.0)	($4,500.0)	($4,000.0)	($4,000.0)
Proceeds from sale of broadcast stations	38,130.0	—	—	—	—	—
Proceeds from sale of investments and property	12,403.0	—	—	—	—	—
Purchase of short-term investments	(202,107.0)	—	—	—	—	—
Proceeds from sale of short-term investments	46,884.0	104,200.0	—	—	—	—
Payment for investments and other assets	(28,607.0)	(49,000.0)	(20,000.0)	(10,000.0)	—	—
Proceeds from notes receivable	1,436.0	—	—	—	—	—
Net cash used in investing activities	**($135,897.0)**	**$35,200.0**	**($30,000.0)**	**($14,500.0)**	**($4,000.0)**	**($4,000.0)**
Cash flows from financing activities:						
Proceeds from issuance of Series A preferred stock, net	$41,415.0	—	—	—	—	—
Proceeds from exercise of stock options and warrants	190,063.0	—	—	—	—	—
Payment of long-term obligations	(155.0)	—	—	—	—	—
Net cash provided by financing activities	**$231,323.0**	—	—	—	—	—
Net increase (decrease) in cash and cash equivalents	$93,957.0	$53,552.3	$6,896.1	$41,909.2	$79,094.1	$107,696.9
Cash and cash equivalents at beginning of the period	44,264.0	138,221.0	191,773.3	198,669.4	240,578.6	319,672.7
Cash and cash equivalents at end of the period	**$138,221.0**	**$191,773.3**	**$198,669.4**	**$240,578.6**	**$319,672.7**	**$427,369.6**

Source: Company and Gruntal & Co., L.L.C.

Table 32
ValueVision International, Inc.
BALANCE SHEET, 2000-2005E
($ thousands)

Fiscal year ends January 31	**3 ME 04/30/00**	**2001E**	**2002E**	**2003E**	**2004E**	**2005E**
ASSETS						
Current assets:						
Cash and cash equivalents	$232,312.0	$191,773.3	$198,669.4	$240,578.6	$319,672.7	$427,369.6
Short-term investments	52,222.0	52,222.0	52,222.0	52,222.0	52,222.0	52,222.0
Accounts receivable, net	45,308.0	59,066.8	71,808.0	85,747.3	94,239.2	99,700.8
Inventories, net	21,056.0	27,450.1	33,371.3	39,849.4	43,795.8	46,334.0
Prepaid expenses and other	5,187.0	6,762.1	8,220.8	9,816.6	10,788.8	11,414.1
Income taxes receivable	7,601.0	5,700.8	3,420.5	1,539.2	307.8	0.0
Deferred income taxes	1,950.0	1,124.5	1,551.3	2,029.4	2,686.0	3,218.0
Total current assets	**$365,636.0**	**$344,099.6**	**$369,263.2**	**$431,782.5**	**$523,712.4**	**$640,258.3**
Property and equipment, net	$16,582.0	$29,949.2	$30,831.8	$25,477.5	$19,769.6	$14,091.1
Federal Communications Commission licenses, net	122.0	122.0	122.0	122.0	122.0	122.0
Cable distribution and marketing agreement, net	6,221.0	5,528.0	4,835.0	4,142.0	3,449.0	2,756.0
Montgomery Ward operating agreement and licenses, net	1,630.0	1,480.0	1,280.0	1,080.0	880.0	680.0
Investments and other assets	61,705.0	91,705.0	111,705.0	121,705.0	121,705.0	121,705.0
Deferred income taxes	2,249.0	3,102.7	4,058.8	5,372.0	6,436.0	7,368.5
Total assets	**$454,145.0**	**$475,986.5**	**$522,095.8**	**$589,680.9**	**$676,074.0**	**$786,980.9**
LIABILITIES AND STOCKHOLDERS' EQUITY						
Current liabilities:						
Accounts payable	$33,451.0	$43,609.1	$54,359.8	$68,429.6	$79,272.6	$88,460.9
Accrued liabilities	16,635.0	21,686.6	27,032.8	34,029.7	39,421.8	43,991.1
Total current liabilities	**$50,086.0**	**$65,295.7**	**$81,392.6**	**$102,459.2**	**$118,694.4**	**$132,452.0**
Other liabilities	—	—	—	—	—	—
Total liabilities	**$50,086.0**	**$65,295.7**	**$81,392.6**	**$102,459.2**	**$118,694.4**	**$132,452.0**
Stockholders' equity (including redeemable preferred stock)	**$404,059.0**	**$410,690.8**	**$440,703.2**	**$487,221.7**	**$557,379.6**	**$654,528.9**
Total liabilities and stockholders' equity	**$454,145.0**	**$475,986.5**	**$522,095.8**	**$589,680.9**	**$676,074.0**	**$786,980.9**

Source: Company and Gruntal & Co., L.L.C.

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Wink Communications, Inc.# (WINK-$13.25)

INVESTMENT RATING

Intermediate Term (up to 6 months): **2–Market Performer** **Target Price: $16.50**

Common stock is expected to provide a total return that is within 4 percentage points +/- that of the S&P 500 Index.

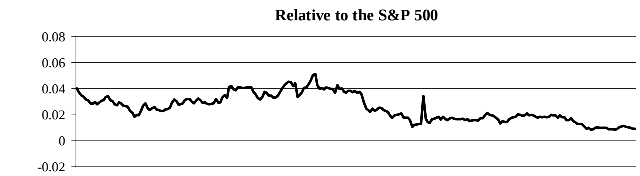
Long Term (6-18 months): **1–Outperformer** **Target Price: $33.00**

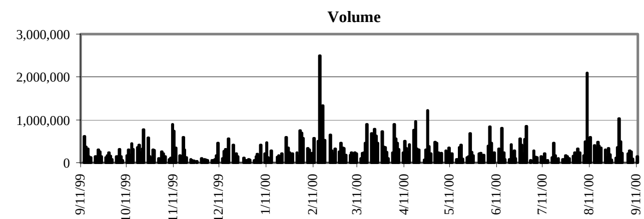
Common stock is expected to provide a total return that is at least 10 percentage points greater than that of the S&P 500 Index.

Ticker/Exchange	WINK/NASDAQ
Price (09/11/00)	$13.25
52-Week Range	$75-$12
Current Shares Outstanding	30.8 million
Avg. Daily Trading Volume (last 20 days)	358,935
Suitability	Aggressive Risk

EPS*	1999	2000E		2001E	2002E
1Q	($0.55)	($0.18)	A	($0.23)	NE
2Q	($0.37)	($0.21)	A	($0.24)	NE
3Q	($0.24)	($0.33)		($0.24)	NE
4Q	($0.23)	($0.38)		($0.24)	NE
	($1.06)	**($1.10)**		**($0.95)**	**($0.39)**
P/E	NM	NM		NM	NM

Dividend	—
Yield	—
Five-Year Expected Revenue Growth Rate	159.2%
Common Stock Market Capitalization	$408 million
2000E Book Value/Share	$3.93
2000E Cash Flow/Share	($1.11)
1999 ROC	NM
Total Debt/Capitalization	0
Insider Holdings	51.0%
Institutional Holdings	27.5%
End of Fiscal Year	December 31





Corporate Headquarters	Alameda, CA

A = Actual; E = Estimate; NE = No estimate; NM = Not meaningful.

**Numbers may not add due to share-count changes and rounding.*
#Gruntal & Co., L.L.C., makes a market in this security.

Investment Summary

On August 17, 2000, when the share price was $14.44, we initiated coverage on the common stock of Wink Communications, Inc., with intermediate- and long-term investment ratings of 2, Market Performer, and, 1, Outperformer, respectively. The company has accomplished a number of business and infrastructure milestones in the rollout of its TV-based e-commerce service, and we believe that, long term, Wink Communications, Inc., is well positioned to maintain its leadership position in the interactive television (ITV) services market. In the intermediate term, however, we are concerned that there will be pressure on pricing, and therefore the company's shares, as market entrants such as RespondTV, Inc., and CommerceTV Corporation introduce competing services. We believe that current investor expectations regarding Wink Communications, Inc.'s transaction fees, revenue-sharing arrangements, and revenue several years out may be too optimistic.

Key Points

- An early leader in ITV, Wink Communications, Inc., has a solid network of partners, including broadcasters, cable and satellite providers, advertisers, and set-top box manufacturers.

- The company successfully deployed its service in 17 digital cable markets and has signed major distribution agreements with the two largest satellite providers. Consumer usage rates have been encouraging, and advertisers are signing up for the company's service at a record pace.

- Our intermediate-term investment opinion and target price reflect our concerns regarding share price volatility and the possibility of changing expectations about the company's model. Long term, our outlook for ITV and Wink Communications, Inc., is positive. Our intermediate-term and long-term target prices are $16.50 and $33.00, respectively.

Company Description

Wink Communications, Inc.'s enhanced broadcasting services provide an end-to-end solution for data-enhancing TV programs and advertisements. The service is free to consumers and does not require a personal computer (PC) or connection to the Internet. To date, its service has been deployed in more than 300,000 U.S. households. The company's system captures interactive responses from viewers at a server operated by the cable or satellite TV provider, aggregates the data, and passes the responses on to the appropriate advertiser or merchant for fulfillment. Wink Communications, Inc., was founded in 1994 and is headquartered in Alameda, California.

Products and Technologies

The Wink Service

Wink Communications, Inc., enables consumers to interact directly with their televisions. When a commercial or program is Wink-enhanced, an "i" icon appears on the screen. The Wink service presents viewers with opportunities to request information about a product or service, obtain coupons and product samples, and conduct transactions with simple remote control clicks. A viewer watching a Wink-enabled program can retrieve detailed program-related information including news, sports scores, weather reports, and interactive on-screen trivia games. See Figure 17 for a step-by-step description of how the service works.

Products

Wink Communications, Inc.'s, system is very easy and inexpensive for broadcasters, advertisers, and cable and satellite providers to implement and maintain. The system enables Wink Communications, Inc., to aggregate information about viewer behavior and preferences and, using that information, to build profiles for use in targeted marketing while protecting the privacy of viewers. Wink Communications, Inc., offers a complete suite of tools to design and deliver interactive enhancements.

- Wink Studio enables nontechnical designers to use templates to create interactive programming and advertising applications.
- Wink Broadcast Server allows Wink Communications, Inc., to coordinate with station management equipment to determine the appropriate timing and delivery of the company's interactive enhancements.
- Wink Client Software is used to create enhanced television applications and to capture viewer responses to company applications.
- Wink Response Server retrieves and aggregates viewer response data from televisions and set-top boxes.
- Wink Response Network packages and distributes data collected by the Wink Response Server to advertisers, programmers, broadcasters, and merchants.
- Wink Interactive Marketplace provides a place where viewers can purchase merchandise from Wink Communications, Inc.'s retail partners through on-screen shops.

Figure 18 (on page 99) shows how these technologies are integrated to create Wink Communications, Inc.'s end-to-end television-based (t-commerce) system.

Revenue Streams

Wink Communications, Inc., has multiple revenue streams. The company currently earns flat-rate advertising fees and engineering service fees related to software installation and post-installation customer support. As its systems are deployed, we expect Wink Communications, Inc., to charge advertisers and merchants a fee for each transaction that is facilitated by a company enhancement. This performance-based revenue enables the company to participate in the revenue it generates for its partners. Examples of a transaction include either an information request or an actual order to purchase items. The company also earns monthly subscription licensing fees for the Wink Engine, Wink Studio, and Wink Broadcast Server software.

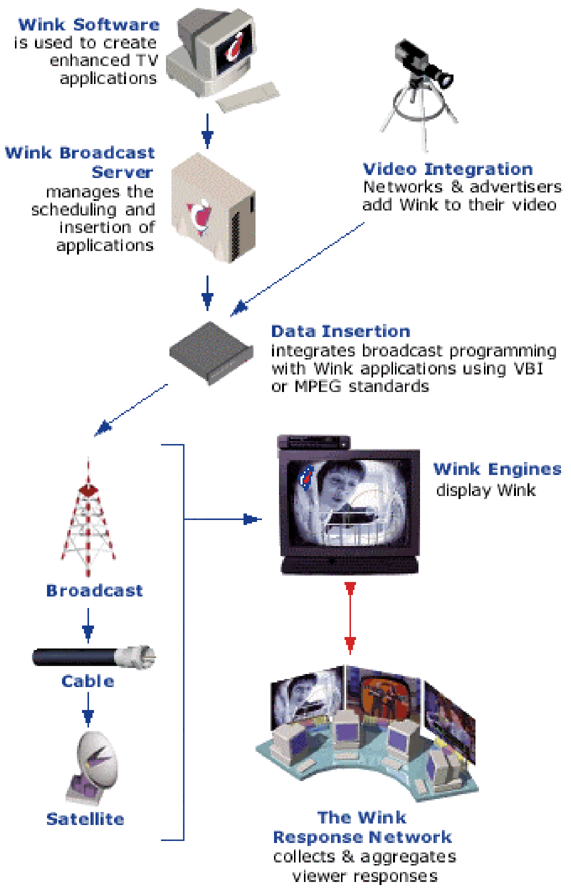
Advertisers that use Wink Communications, Inc., to enhance their ads are expected to pay the company a fee for each request for information (RFI). An RFI is completed when a viewer responds positively to an offer of a brochure, a coupon, or a free sample of a product (see Figure 19 on page 99). Wink Communications, Inc., shares that revenue with the direct broadcast satellite (DBS) providers and multiple system operators (MSOs).

Figure 17
Wink Communications, Inc.
VIEWER INTERACTION WITH WINK SERVICE

Step 1: Viewer watches television show and Wink icon appears in upper left corner.	Step 2: Viewer interacts with the program using a remote control.	Step 3: Viewer receives on-screen acknowledgement of request or transaction.	Step 4: Viewer receives product or information requested directly from the advertiser.	Step 5: Wink provides advertisers and programmers with detailed reports on viewers' behavior.

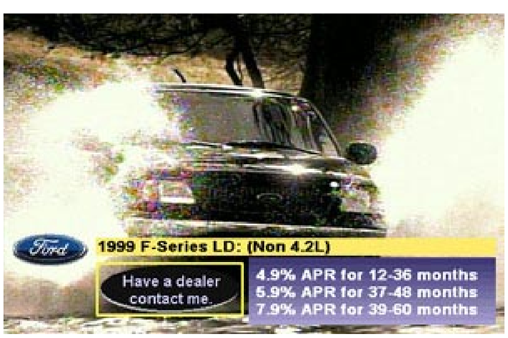
Source: Company and Gruntal & Co., L.L.C.

Figure 18
Wink Communications, Inc.
T-COMMERCE SYSTEM



Source: Company.

Figure 19
Wink Communications, Inc.
SCREEN SHOT OF WINK-ENHANCED COMMERCIAL



Source: Company.

For each purchase completed through Wink Communications, Inc., we expect the company to receive 12% of the purchase price, with a $2 floor and a $6 ceiling. The current average is approximately $3.50 (see Figure 20).

Figure 20
Wink Communications, Inc.
SCREEN SHOT OF COMMERCIAL MERCHANDISE OFFER

Source: Company.

We expect Wink Communications, Inc.'s revenue mix to shift toward performance-based revenue streams as the company increases its customer base and promotes usage. Wink Communications, Inc., also gathers response data and produces consumer behavior reports that are valuable to advertisers. Advertisers use the information to identify the most effective marketing messages and eliminate ineffective ads, thereby increasing the return on their advertising investment.

Revenue growth drivers include the number of company-enabled households, the amount of company-enabled content, and consumer usage rates. The number of clicks per average household depends on a variety of factors, including (1) the number of advertisers; (2) the number of program or commercial enhancements, called creatives; (3) the number of airings; (4) the network that the impression airs on; and (5) the average rating of the network. Our revenue model, Table 36 (on page 106), details our assumptions about these metrics.

Revenue Model

Our revenue model attempts to identify and project the trends of every variable that will impact Wink Communications, Inc.'s revenue growth. The two primary categories of revenue, in our opinion, are performance-based revenue and licensing and reporting revenue.

Performance-Based Revenue

Performance-based revenue includes RFI and t-commerce revenue and is driven by

1. the deployment of Wink creatives by cable and satellite operators;
2. the development of Wink-enhanced advertising and programming;
3. consumer usage; and
4. the pricing of transactions.

We have built a framework of TV viewing behavior to put Wink Communications, Inc.'s market opportunity in perspective. In lines 1-6 of our revenue model, we estimate the total number of 30-second TV commercials (Wink- and non-Wink-enabled) that are aired in Wink-enabled households per year. We assume that 30 commercials air per hour every day on each channel available to viewers. Then we estimate the percentage of those commercials that are Wink enhanced based on the number of advertisers that use Wink, the number of spots each advertiser creates, and how often the ads air (lines 8-13). To estimate how many of the aired ads are actually viewed (number of impressions) we evaluate the number of households in which Wink is deployed, how much television each household watches, and what percentage of viewers pay attention during commercial breaks (lines 14-19).

Deployment, or the number of households with access to Wink-enhanced programming, depends on the pace of distribution deals that Wink Communications, Inc., signs with cable, satellite, and broadcast companies. Our revenue projections use average annual levels of deployment for each year; we expect the company to end each year with deployment levels higher than the average. We expect the average household deployment to increase to 20.0 million in 2004 from 1.0 million in 2000 (line 14).

Wink Communications, Inc.'s revenue growth also depends on its acceptance by broadcasters and advertisers. We believe that the company's average number of advertising partners will grow to 100 in 2004 from 15 in 2000 (line 8) and its broadcast partners will increase to 40 in 2004 from 25 in 2000 (line 27). As advertisers Wink-enhance more commercials (line 12) and as broadcasters Wink-enhance more programming (line 31), the probability that viewers will view and respond to Wink offers should increase. We have projected the number of Wink ad impressions (line 21) and the number of t-commerce offers (lines 29 and 31) viewed in Wink households, taking into consideration the households' level of exposure to Wink-enhanced ads and content as well as the higher-than-average ratings of many of the company's broadcast partners (line 32).

We believe that the rates of consumer response to Wink-enhanced messages will have a very significant impact on the company's revenue. Although we are highly optimistic about the prospects for ITV, we have built very conservative expectations of consumer usage into our model because, despite the rapid growth of Internet usage and e-commerce, response rates to advertising messages decline steadily over time. We believe that ITV will be subject to the same forces of consumer behavior as these services become fully entrenched in TV programming and their initial novelty diminishes. Wink Communications, Inc., currently achieves a rate of clicks per impression of approximately 1.3%. We project that the rate will decline to 0.85% by 2004 (line 22). The take rate on click-throughs of ad impressions, or the acceptance rate of viewed offers for free information, coupons, or product samples, currently runs above 40%. We have projected this rate to average 40% and remain flat through 2004, although it may rise as offers become more targeted and relevant to the consumer (line 23). Regarding t-commerce offers, we also project the rate to decline to 0.45% in 2004 from 0.55% in 2000 (line 33). We expect the purchase rates on t-commerce offers to increase gradually, to 6.4% in 2004 from 5.0% in 2000, as viewers become more likely to click offers of genuine interest (line 34).

We expect performance-based revenue, relatively low in 2000, to rise dramatically as Wink services are rolled out. Our projections begin with $0.4 million in 2000 and increase to $180.2 million in 2004, with RFI revenue representing 86.4% of performance-based revenue and t-commerce transaction revenue contributing the remaining 13.6% (line 39). We project that performance-based revenue will account for 96.2% of total revenue by 2004.

Licensing and Reporting Revenue

Licensing and reporting revenue (line 40) is a function of the number of clients that the company signs to license its tools and subscribe to its data reports (lines 41 and 44). We have projected relatively flat fees for licensing and reports (lines 42 and 45), with overall growth driven by increases in the number of license and report clients. Our projections link the growth of this client base to increases in Wink Communications, Inc.'s advertisers and broadcast partners. Our expectations of pricing are conservative, reflecting our anticipation of a competitive marketplace for software solutions and data profiles. We expect these revenue streams to represent 20.7% of total revenue in 2001 and to grow more slowly than performance-based revenue to $7.2 million in 2004, or 3.8% of total revenue (line 47).

Partners and Customers

In order to increase its market penetration, Wink Communications, Inc., must enter strategic partnerships with cable and satellite companies, broadcasters, set-top box and digital television manufacturers, and set-top box operating system developers. Wink Communications, Inc., has broadcast network partners, interoperability with Liberate Technologies, Inc., and Microsoft Corporation, and, most importantly, deployment deals that are rolling out with WebTV Networks, Inc., DirecTV, Inc., Time Warner Cable, Insight Communications Co., Inc., and Charter Communications, Inc. The Wink service has been, or is expected to be, integrated into set-top boxes from Sony Corporation, Pioneer Corporation, and Thomson Multimedia's RCA unit.

A number of key strategic and financial investors have invested in Wink Communications, Inc., including set-top box and television manufacturers such as General Instrument (a unit of Motorola, Inc.), Scientific-Atlanta, Inc., Toshiba Corporation, Microsoft Corporation, General Electric Capital Corporation (a unit of General Electric Company), Vulcan Ventures, Inc., (controlled by Microsoft Corporation cofounder Paul Allen), and Hughes Electronics Corporation, the parent of DirecTV, Inc. All of Wink Communications, Inc.'s relationships are nonexclusive and do not preclude relationships with their partners' competitors. Wink Communications, Inc.'s partners/customers in each key category include the following.

- **Broadcast Companies.** Broadcast relationships are extremely important, as broadcasters have direct access to the largest segment of the public. Broadcasters that are prepared to offer Wink-enhanced commercials can command a higher cost per thousand impressions (CPM) from advertisers. Wink Communications, Inc., also enables broadcasters to participate in t-commerce. The National Broadcasting Company, Inc.'s (NBC, Inc., a unit of General Electric Company) *The Tonight Show with Jay Leno* features Wink-powered guest profiles that incorporate on-screen offers of merchandise, such as a musical guest's current CD, that can be purchased with a few remote control clicks. The shop-on-TV content is currently available to 200,000 TV viewers. Broadcast partners include the American Broadcasting Company, Inc., (ABC, Inc., a unit of the Walt Disney Company), NBC, Inc., CBS Worldwide, Inc. (a subsidiary of Viacom, Inc.), and FOX Entertainment Group (a subsidiary of News Corporation Ltd.).

- **Cable Networks.** Wink Communications, Inc., has relationships with Cable News Network (CNN, a unit of Time Warner, Inc.); ESPN Network (and ESPN2); Home Box Office, Inc. (HBO, a unit of Time Warner, Inc.); VH1 Network (a unit of MTV Networks, a subsidiary of Viacom, Inc.); E! Entertainment; CNBC; Nick at Nite (Nickelodeon Networks, a unit of Viacom, Inc.); ShowTime Networks, Inc. (a unit of Viacom, Inc.); The Weather Channel; Lifetime Networks; TBS Superstation, Inc., TNT, and TNN (all three of which are units of Time Warner, Inc.); Headline News; USA Networks, Inc.; ZDTV, Inc.; the Learning Channel; the Discovery Channel; Oxygen Media, Inc., SciFi Channel (a unit of USA Networks, Inc.); the Food Network and Home and Garden Television (both units of The E.W. Scripps Company); Court TV; ValueVision International, Inc.; and Z Music Television.

- **Cable Operators.** Wink Communications, Inc., needs to partner with cable companies for their delivery mechanism and reach. However, individual cable operators are geographically limited, making them inadequate for achieving true scale. Wink Communications, Inc., has cable relationships with, among others, Time Warner Cable; Charter Communications, Inc., and its subsidiary Bresnan Communications; Cox Communications, Inc.; Comcast Corporation; TCI, Inc., (now part of AT&T Corporation); Century Communications (a subsidiary of Adelphia Communications Corporation); InterMedia; Jones Intercable; and Insight Communications, Co., Inc.

- **Direct Broadcast Satellite Operators.** DBS operators have less penetration than cable, but they are nationwide and highly scalable. Wink Communications, Inc., has a partnership with DirecTV, Inc., which expects to deploy approximately 4.0 million Wink-enabled set-top boxes by January 2002. Wink Communications, Inc., also signed a deal recently with DBS operator EchoStar Communications Corporation to launch Wink-enhanced broadcasting in up to 4.0 million OpenTV-enabled set-top box homes by the summer of 2003. OpenTV is a leading developer of software that runs on set-top boxes.

- **Advertisers.** Advertisers must push to add interactivity to their commercials and be educated about the value of the response data that Wink Communications, Inc., offers. Advertisers developing Wink-enhanced commercials include Wells Fargo & Company, General Electric Company, Charles Schwab Corporation, Ford Motor Company, Levi Strauss & Company, General Motors Corporation, Universal Pictures (a unit of Seagram Company, Ltd.), Clorox Company, Goodyear Tire & Rubber Company, Pfizer, Inc., Kraft Foods, Inc., (a subsidiary of Philip Morris Companies, Inc.), the Walt Disney Company, DaimlerChrysler AG, Unilever (joint venture of Unilever NV and Unilever PLC), Honda Motor Company, Ltd., and Paramount Pictures Corporation.

- **Manufacturers and Platform Providers.** Wink Communications, Inc., must be compatible with next-generation set-top boxes and the operating systems that run them. Set-top box manufacturers use Wink compatibility as a selling tool to encourage cable operators to distribute their products. Wink Communications, Inc.'s development partners include Microsoft Corporation, Toshiba Corporation, General Instrument (a unit of Motorola, Inc.), Victory Company of Japan (JVC), Pioneer Corporation, Panasonic, Scientific-Atlanta, Inc., Liberate Technologies, Inc., PowerTV, Inc., Source Media, Inc., and Canal+ U.S. Technologies.

Satellite Opportunity

Following a number of announcements regarding distribution commitments with established DBS providers, Wink Communications, Inc.'s enhanced broadcasting capabilities are steadily being adopted by the satellite industry. The company recently announced a significant agreement with EchoStar Communications Corporation to deploy Wink functionality in as many as 4.0 million households by 2003. Further, Wink Communications, Inc., announced integration agreements with Sony Corporation, Philips Electronics, Samsung, Thomson Multimedia, and Hughes Network Systems to integrate its interactive technology and services for each company's DirecTV Systems receivers. With these two agreements, Wink Communications, Inc., gains access to 13.0 million DBS subscribers out of a possible 14.3 million. According to *Business Week*, digital satellite subscribers are expected to grow nearly 75% to approximately 25.0 million by 2005.

Marketing

While Wink Communications, Inc., advertises its services to raise consumer awareness and promote usage, the company presents itself as a business service rather than a consumer brand. The company works with its partners to market its service as a premium to their customers. Wink Communications, Inc., contributes marketing dollars to its partners, which promote the Wink service through mentions in their print ads, billboards, bill stuffers, and direct mailings. Wink Communications, Inc., also plans to incentivize viewers to register and input their credit card information to facilitate impulse transactions.

Market Opportunity

Internet shopping is clearly growing. Research firm Gartner Group, Inc., projects that in 2000, U.S. consumers will generate $29.3 billion in business-to-consumer e-commerce. However, offline purchases influenced by research conducted on the Internet are expected to exceed on-line purchases, totaling a projected $235.0 billion in 2000 and rising to more than $632.0 billion by 2005. According to Jupiter Communications, Inc., more than 68% of Internet shoppers said that they researched products on line and then either purchased them at bricks-and-mortar stores, or ordered them by phone. We believe that this confirms consumer demand for RFIs, which is one of Wink Communications, Inc.'s primary services.

Consumers have proven their comfort with television as a shopping vehicle. The Direct Marketing Association estimates approximately $91.0 billion of goods and services were purchased through direct response television programming and advertising in 1998 and predicts that this amount will grow to approximately $127.0 billion by 2002. Wink Communications, Inc., makes requesting information and conducting transactions virtually effortless with minimal intrusion on the programming. There is currently an installed base of 10.0 million set-top boxes that are capable transmitting Wink-enhanced broadcasts, and the company plans to continue expanding distribution. Forrester Research, Inc., estimates that ITV could generate $11.0 billion in advertising and $7.0 billion in t-commerce by 2004.

Recent Results

In second-quarter 2000, Wink Communications, Inc., generated revenue of $636,000, a 126% year-over-year increase. The revenue growth was driven by greater deployment of Wink-enabled set-top boxes. The net loss for the second quarter was $6.3 million, or $0.21 per share, compared to a net loss of $3.7 million, or $0.37 per share, for second-quarter 1999. During second-quarter 2000, the average number of clicks per household each month was 5.14 for digital households and 1.73 for analog households. On a weekly basis, 56% of digital households reported using the Wink service at least once versus 30% of the analog households. More than 42% of households that clicked to view an RFI offer responded positively when presented with a free sample or coupon. Approximately 32% of the households that viewed an offer for a catalog or brochure took advantage of the offer.

In the second quarter, 12 advertisers ran 77 unique national Wink-enhanced ads. The total number of ad impressions delivered to households was more than one million compared with approximately 172,000 in the first quarter. In absolute numbers, there were approximately 8,200 RFIs compared with 3,529 in the first quarter. There were 1,184 airings of special coupons and samples, up 40% from the prior quarter. The total number of hours of Wink-enhanced broadcasting was 1,314, a sequential rise of 12%. These results illustrate the company's progress in rolling out the service to households, persuading broadcasters and advertisers to embrace the medium, and driving consumer usage.

In 1999, revenue was $1.6 million, up 210% from 1998. License fees were $1.1 million, or 68% of total net revenue, while service revenue was $511,000, or 32% of net revenue. Net losses were $18.2 million versus $14.0 million in 1998. Contributing to the higher loss were a 61% increase in research and development, a 40% increase in sales and marketing, and a 90% rise in general and administrative costs.

Financial History and Projections

Wink Communications, Inc., completed its initial public offering (IPO) in August 1999, raising net proceeds of $77.3 million at a price of $16.00 per share. The managing underwriters of the offering were Donaldson, Lufkin & Jenrette Securities Corporation, Deutsche Bank Securities Inc., and Bear, Stearns & Company Inc. At the end of second-quarter 2000, Wink Communications, Inc., had cash, cash equivalents, and short-term investments of $136.5 million, or $4.47 per share. We expect the company's cash resources to fund operations until the company becomes cash flow positive, which we project will occur in 2002.

Earnings Outlook

We expect Wink Communications, Inc.'s revenue growth to be driven by RFI fees, which we expect to contribute most of the company's revenue by 2004. RFIs are free to consumers, improve advertisers' return on investment, and generate revenue for the company's cable and satellite partners. We believe that there is very little friction to slow RFI growth once the Wink service is adequately deployed. We project that Wink Communications, Inc.'s total revenue will grow at a five-year compound annual growth rate of 159.2% to $187.3 million in 2004. We expect Wink Communications, Inc., to become cash flow positive in 2002 and profitable in 2003. Our loss-per-share estimates for 2000, 2001, and 2002 are $1.10, $0.95, and $0.39, respectively; our earnings-per-share (EPS) estimates for 2003 and 2004 are $0.49 and $1.08, respectively.

The pricing of RFIs and t-commerce transaction fees are important variables in our revenue outlook. RFIs are currently approximately $1.60 each, and transaction fees average about $3.50. We believe that pricing pressure in an increasingly competitive market will drive these fees down; we project RFI fees of $1.00 and t-commerce fees of $2.50 in 2004. Because we expect RFI revenue to represent the most significant revenue stream, we evaluated the company's revenue and earnings outlook with a more conservative and a more aggressive RFI scenario. Holding other expenses constant relative to revenue (unless fixed dollar amounts), we tested our model with a $0.50 RFI fee and a $1.50 RFI fee (see Table 33). A $0.50 RFI results in revenue of $109.5 million and EPS of $0.60 in 2004. A $1.50 RFI generates revenue of $265.2 million and EPS of $1.57 in 2004. Our current $1.00 RFI estimate results in revenue of $187.3 million and EPS of $1.08 in 2004.

Table 33
Wink Communications, Inc.
RFI FEES: ALTERNATIVE SCENARIOS

RFI Fee	2004E Revenue	2004E EPS
$0.50	$109.5 million	$0.60
$1.00	**$187.3 million**	**$1.08**
$1.50	$265.2 million	$1.57

Source: Gruntal & Co., L.L.C.

To incentivize cable and satellite providers to deploy its services, Wink Communications, Inc., has granted some of them warrants and minimum revenue guarantees, which we believe was an effective method of jump-starting the company's expansion. However, we believe that the cable and satellite providers' primary incentive to deploy the Wink service is the revenue-sharing agreements on RFI and t-commerce transaction fees. Advertisers pay these fees to Wink Communications, Inc., which records them as revenue, keeps 90%, and redirects an average of 10% to the appropriate cable or satellite provider. The revenue share amounts are reflected in Wink Communications, Inc.'s sales and marketing line on its income statement. We believe that Wink Communications, Inc., capitalized on its early-mover advantage in the ITV market to negotiate low revenue-share requirements. We expect the market to become significantly more competitive as new entrants introduce broadcast and advertising enhancements. Further, we expect the cable and satellite providers to demand an increasing share of the revenue generated in their systems.

Our earnings model assumes that the revenue share allocated to its cable and satellite partners will increase to 45% of performance-based revenue by 2004. Our EPS estimate of $1.08 in 2004 assumes that approximately 50% of the company's revenue will be directed to cable and satellite providers through revenue-sharing agreements and marketing contributions to support the continued rollout of the Wink service. To illustrate the impact on earnings of the revenue-share percentage, we held all other expenses equal and evaluated EPS using different revenue-share assumptions. A 55% revenue-share requirement would result in EPS of $0.52, while a 35% requirement results in EPS of $1.65. We believe that our assumption of 45% is appropriate, and we note the possibility of an upside surprise if the company succeeds in negotiating this rate in its favor. Table 34 illustrates the potential effect of several different revenue-share percentages.

Table 34
Wink Communications, Inc.
REVENUE-SHARE PERCENTAGE: ALTERNATIVE SCENARIOS

Revenue Share	2004E EPS
25%	$2.22
35%	1.65
45%	**1.08**
55%	0.52
65%	(0.05)

Source: Gruntal & Co., L.L.C.

Valuation

Our intermediate-term target price of $16.50 assumes that Wink Communications, Inc.'s shares will appreciate at a slightly higher rate than the S&P 500 over the next six months. In the long term, we expect Wink Communications, Inc.'s share price to respond positively to certain catalysts, including (1) agreements with broadcasters and cable and satellite operators to roll out its products; and (2) increasing digital set-top box penetration. Our 2004 EPS estimate for Wink Communications, Inc., is $1.08, including tax-loss carryforwards. On a fully taxed basis, our 2004 EPS estimate is $0.67. The shares currently trade at 19.8 times our fully taxed 2004 EPS estimate, a 43.0% premium to the

Table 35
Wink Communications, Inc.
VALUATION ANALYSIS

	Price (09/11/00)	2000E EPS	Projected Five-year growth	2004E EPS*	2004E P/E	Premium to S&P 500 2004E P/E Multiple
S&P 500	$1,489.26	$60.85	12.1%	$107.72	13.8	—
Wink Communications, Inc.	$13.25	—	118.6%	$0.67	19.8	43.0%

**On a fully taxed basis.*

Source: Gruntal & Co., L.L.C.

2004 S&P 500 multiple of 13.8. Our projected earnings growth rate in 2004 is 118.6%, approximately ten times the projected growth rate of the S&P 500's 2004 earnings (see Table 35 on page 103). Despite projected growth of ten times the S&P 500, we believe that Wink Communications, Inc., merits a price-to-earnings (P/E) multiple three to four times that of the S&P 500 until the company's products gain traction in the marketplace. Applying such a multiple gives us our long-term target price of $33.

Management/Board of Directors

Maggie Wilderotter has served as CEO, president, and director since January 1997. Before coming to Wink Communications, Inc., she was the executive vice president of national operations and CEO of the aviation communications division of AT&T Wireless Group. Prior to AT&T Wireless Group, she was senior vice president of McCaw Cellular Communications (a unit of AT&T Wireless Group) from 1991 to 1995 and regional president of the California/Nevada/Hawaii region. Wilderotter spent the preceding 12 years in the cable industry. She also serves on the boards of directors of Airborne Express (a unit of Airborne Freight Corporation), Allied Riser Communications Corporation, American Tower Corporation, Electric Lightwave, Inc., Gaylord Entertainment Company, Holy Cross College, California Cable Television Association, California Chamber of Commerce, and Women in Cable Foundation. She is also on the Dean's Advisory Board at University of California, Davis.

Brian P. Dougherty has served as chairman and chief technology officer since cofounding Wink Communications, Inc., in October 1994. He also served as CEO from inception until December 1996. Prior to cofounding Wink Communications, Inc., Dougherty founded Geoworks Corporation, a software developer, in 1983 and served as its CEO from 1983 to 1993 and chairman from 1983 to 1997. He is currently a director of Neomagic Corporation and Geoworks Corporation

Chris Callero has served as COO since March 2000. Prior to joining the company, he served as group executive vice president of integrated eCommerce at Bank of America Corporation His career spanned more than 27 years, during which time he managed key operating units such as interactive banking, consumer lending, automatic teller machines, small business, investment services, and insurance services. From 1987 to 1989, Callero worked with Bankers Trust Company (now Deutsche Bank Alex Brown) as a division head within the cash management business group.

Howard L. Schrott has served as senior vice president and CFO since May 1999. From 1991 to 1999, he was executive vice president and CFO of Emmis Communications Corporation Previously, Schrott was a vice president in the communications lending group at First Union National Bank (a unit of First Union Corporation) and served as chief operating and executive officer for a group of radio stations. Schrott also practiced law for two years, concentrating on cases before the Federal Communications Commission (FCC) and general business relating to broadcasting and media.

Jeffrey H. Coats has served as a director since June 1997. Since April 1996, Coats has served as managing director of General Electric Capital Equity Group (a unit of General Electric Company) and was previously a managing director of General Electric Capital Corporate Finance Group (also a unit of General Electric Company). Prior to these two positions, Coats served as president of Maverick Capital Equity Partners and as a managing director with Veritas Capital, Inc. He is the chairman of the board of the Hastings Group and a director of Krauses' Furniture, Inc., autobytel.com, Inc., ValueVision International, Inc., and the Museum Company, Inc.

Bruce W. Dunlevie has served as a director since March 1996. In May 1995, Dunlevie founded Benchmark Capital L.L.C., a venture capital firm, of which he is currently a managing member. Since October 1989, he has served as a general partner of Merrill, Pickard, Anderson & Eyre, a venture capital firm. Dunlevie is a director of Genesys Telecommunications Laboratories, Rambus Inc., and several private companies.

Michael Fuchs has served as a director since June 1998. Since November 1995, he has been an independent consultant to the cable television industry. Fuchs was chairman and CEO of Home Box Office, Inc., from October 1984 to November 1995, and chairman and CEO of Warner Music Group (a unit of Time Warner, Inc.) from May 1995 to November 1995. Fuchs is a director of Marvel Entertainment Group, Inc. (a subsidiary of Marvel Enterprises), autobytel.com, Inc., and Imax Corporation.

Philip Handy has served as a director since June 1997. Handy is a private investor currently in partnership with Equity Group Investments. Handy was managing director of EGI Corporate Investments, a diversified management and investment business from June 1997 until December 1998. Previously, he was partner of Winter Park Capital Company, a private investment firm, from June 1980 until May 1997. Handy is a director of Anixter International, Inc., Chart House Enterprises, Inc., Transmedia Network, Inc., and Davel Communications, Inc.

William T. Schleyer has served as a director since January 1998. He is currently chairman of the Open Cable Initiative. Schleyer has been an advisor to U.S. West, Inc. (part of Qwest Communications International, Inc.), president and COO of MediaOne Group, and was previously president and COO of Continental Cablevision, Inc. Schleyer serves on the board of directors and executive committee of Cable Television Laboratories, Inc., and on the boards of directors of Rogers Communications, Inc., and Antec Corporation.

Hidetaka (Hank) Yamamoto has served as a director since February 1995. Yamamoto has been employed by Toshiba Corporation since 1966, most recently as a general manager of Toshiba Corporation's Information and Industrial Systems Company.

Risks

Our growth projections depend on (1) the continued rollout of the Wink service by cable and satellite partners, and (2) the installation of the set-top boxes needed to use the company's enhancements. Bottlenecks in the production and deployment of set-top boxes could limit or delay Wink Communications, Inc.'s expansion.

The success of the Wink service also depends on its acceptance by consumers as well as the competitive environment and its impact on pricing. We have addressed the risks associated with the level of consumer usage, as well as pricing and revenue-sharing requirements, with a model that we believe is sufficiently conservative.

See Tables 36-41 for Wink Communications, Inc.'s financial statements and our projections.

Table 36
Wink Communications, Inc.
REVENUE PROJECTIONS, 2000E-2004E

Fiscal year ends December 31	2000E	2001E	2002E	2003E	2004E
1 ***General TV commercial metrics:***					
2 30-second spots per hour per channel	30	30	30	30	30
3 30-second spots per day per channel	720	720	720	720	720
4 30-second spots per year per channel	262,800	262,800	262,800	262,800	262,800
5 Number of channels available to average Wink household	57	60	62	64	66
6 Total number of 30-second spots aired in Wink households per year	**14,979,600**	**15,768,000**	**16,293,600**	**16,819,200**	**17,344,800**
7 Wink performance-based revenue:					
8 Number of Wink advertisers	15	40	70	85	100
9 Average Wink-enhanced ads per advertiser	5	7	8	8	8
10 Total Wink-enhanced ads	75	280	560	680	800
11 Number of airings per ad per year	25	120	150	200	225
12 Total number of Wink-enhanced spots aired per year	**1,875**	**33,600**	**84,000**	**136,000**	**180,000**
13 Percentage of commercials aired that are Wink-enhanced	**0.013%**	**0.213%**	**0.516%**	**0.809%**	**1.038%**
14 Average number of Wink-enabled households (millions)	1.0	4.0	8.0	15.0	20.0
15 Average hours of television watched per day per household	7.5	7.5	7.4	7.4	7.3
16 30-second spots per hour	30	30	30	30	30
17 % of viewers that watch during the commercial break	0.60	0.59	0.58	0.57	0.56
18 Number of commercials viewed by each household per year	49,275	48,454	46,997	46,187	44,764
19 Total commercials viewed by all Wink-enabled households per year (millions)	49,275	193,815	375,979	692,807	895,272
20 Adjustment factor*	4.36	4.55	4.67	4.80	4.93
21 Total Wink impressions (commercials viewed that are Wink-enhanced, millions)	**26.9**	**1,877.3**	**9,056.7**	**26,889.8**	**45,785.6**
22 Rate of clicks per impression	1.3%	1.1%	1.0%	0.9%	0.9%
23 Take rate on clicks	40.0%	40.0%	40.0%	40.0%	40.0%
24 Total RFIs	0.14	8.26	34.42	96.80	155.67
25 Fee per RFI	$1.60	$1.50	$1.35	$1.15	$1.00
26 RFI revenue (millions)	**$0.2**	**$12.4**	**$46.5**	**$111.3**	**$155.7**
year/year growth	—	*NM*	*275.0%*	*139.6%*	*39.8%*
% of total revenue	*8.8%*	*59.2%*	*75.5%*	*81.6%*	*83.1%*
27 Wink broadcast partners	25	30	33	37	40
28 Hours of Wink-enhanced television programming per week per broadcast partner	24	30	32	34	36
29 Total hours of Wink-enhanced television programming per year	31,200	46,800	54,912	65,416	74,880
30 % of Wink-enhanced programming out of all available programming	6.2%	8.9%	10.1%	11.7%	13.0%
31 T-commerce offers per hour of programming	1.0	1.0	1.0	1.0	1.0
32 Probability that household sees offer, adjusted for ratings* (chance that a household is watching a given channel at a given time)	2.39%	2.37%	2.32%	2.31%	2.27%
33 Click-through rate on offers	0.55%	0.53%	0.51%	0.48%	0.45%
34 Purchase rate per click-through	5.0%	5.5%	6.0%	6.2%	6.4%
35 Total number of transactions per household	0.061	0.323	0.390	0.450	0.490
36 Total number of transactions	0.1	1.3	3.1	6.8	9.8
37 Average fee per transaction	$3.50	$3.25	$3.00	$2.75	$2.50
38 T-commerce revenue (millions)	**$0.2**	**$4.2**	**$9.4**	**$18.6**	**$24.5**
year/year growth	—	*NM*	*123.2%*	*98.2%*	*31.9%*
% of total revenue	*8.5%*	*20.1%*	*15.2%*	*13.6%*	*13.1%*
39 TOTAL PERFORMANCE-BASED REVENUE (millions)	**$0.4**	**$16.6**	**$55.8**	**$129.9**	**$180.2**
year/year growth	—	*NM*	*236.6%*	*132.7%*	*38.7%*
% of total revenue	*17.3%*	*79.3%*	*90.7%*	*95.2%*	*96.2%*
40 *License and reporting revenue:*					
41 Licensing clients	21	35	45	55	65
42 Average contract (millions)	$0.10	$0.09	$0.09	$0.08	$0.08
43 Licensing revenue (millions)	**$2.10**	**$3.15**	**$3.83**	**$4.40**	**$4.88**
year/year growth	—	*50.0%*	*21.4%*	*15.0%*	*10.8%*
% of total revenue	*82.7%*	*15.1%*	*6.2%*	*3.2%*	*2.6%*
44 Report clients	—	24.8	40.6	46.8	50.0
45 Average report fee per quarter (millions)	—	$0.012	$0.012	$0.012	$0.012
46 Reporting revenue (millions)	**—**	**$1.19**	**$1.91**	**$2.15**	**$2.30**
year/year growth	—	—	*60.3%*	*12.7%*	*7.0%*
% of total revenue	—	*5.7%*	*3.1%*	*1.6%*	*1.2%*
47 TOTAL LICENSING AND REPORTING REVENUE (millions)	**$2.10**	**$4.34**	**$5.73**	**$6.55**	**$7.18**
year/year growth	*NM*	*106.7%*	*32.1%*	*14.3%*	*9.5%*
% of total revenue	*82.7%*	*20.7%*	*9.3%*	*4.8%*	*3.8%*
48 TOTAL REVENUE (millions)	**$2.54**	**$20.93**	**$61.57**	**$136.44**	**$187.33**
year/year growth	*58.6%*	*724.4%*	*194.2%*	*121.6%*	*37.3%*

Note: Variables are annual averages for the purpose of estimating year-over-year growth. Given our growth assumptions, year-end numbers are likely to be higher than annual averages.
**Since Wink Communications, Inc., partners with highly rated networks, we use a ratings-based adjustment factor to more accurately reflect the chance of a Wink-enhanced ad being viewed.*
The adjustment factor weights the probability of viewing a commercial toward the six highest-rated networks, all of which we expect Wink Communications, Inc., to partner with.
NM = Not meaningful.
Source: Gruntal & Co., L.L.C.

Table 37
Wink Communications, Inc.
INCOME STATEMENT, 1999-2004E
($ thousands, except per share)

Fiscal year ends December 31	1999	% sales	% change	2000E	% sales	% change	2001E	% sales	% change	2002E	% sales	% change	2003E	% sales	% change	2004E	% sales	% change
Net revenue:																		
Total net revenue	$1,601.0	—	209.7%	$2,538.7	—	58.6%	$20,929.0	—	724.4%	$61,565.0	—	194.2%	$136,444.5	—	121.6%	$187,334.8	—	37.3%
Total cost of revenue	319.0	19.9%	(37.8%)	411.6	16.2%	29.0%	2,090.8	10.0%	407.9%	6,156.5	10.0%	194.5%	12,280.0	9.0%	99.5%	14,986.8	8.0%	22.0%
Gross profit	**$1,282.0**	**80.1%**	**NM**	**$2,127.1**	**83.8%**	**65.9%**	**$18,838.2**	**$0.9**	**785.6%**	**$55,408.5**	**90.0%**	**194.1%**	**$124,164.5**	**91.0%**	**124.1%**	**$172,348.0**	**92.0%**	**38.8%**
Operating expenses:																		
Research and development	$10,281.0	642.2%	61.4%	$18,023.0	709.9%	75.3%	$25,000.0	119.5%	38.7%	$29,000.0	47.1%	16.0%	$33,000.0	30.0%	13.8%	$37,000.0	19.8%	12.1%
Sales and marketing	7,069.0	441.5%	39.6%	12,806.0	504.4%	81.2%	16,147.1	77.2%	26.1%	30,470.4	49.5%	88.7%	67,069.7	49.2%	120.1%	92,821.9	49.5%	38.4%
General and administrative	4,552.0	284.3%	90.3%	6,498.0	256.0%	42.8%	8,500.0	40.6%	30.8%	10,000.0	16.2%	17.6%	12,000.0	8.8%	20.0%	14,000.0	7.5%	16.7%
Stock-based costs and expenses	2,952.0	184.4%	238.1%	4,786.0	188.5%	62.1%	5,500.0	0.0%	0.0%	4,000.0	0.0%	0.0%	2,500.0	0.0%	0.0%	2,500.0	0.0%	0.0%
Total operating expenses	**$21,902.0**	**NM**	**49.0%**	**$42,113.0**	**NM**	**92.3%**	**$55,147.1**	**263.5%**	**31.0%**	**$73,470.4**	**119.3%**	**33.2%**	**$114,569.7**	**84.0%**	**55.9%**	**$146,321.9**	**78.1%**	**27.7%**
Operating income	**($23,572.0)**	**NM**	**NM**	**($39,985.9)**	**NM**	**NM**	**($36,309.0)**	**(173.5%)**	**NM**	**($18,061.9)**	**(29.3%)**	**NM**	**$9,594.8**	**7.0%**	**NM**	**$26,026.1**	**13.9%**	**171.3%**
Interest income, net	$5,348.0	NM	NM	$6,476.0	255.1%	NM	$6,950.0	33.2%	NM	$5,904.9	9.6%	NM	$5,924.9	4.3%	NM	$8,258.5	4.4%	39.4%
Pretax income	**($18,224.0)**	**NM**	**NM**	**($33,509.9)**	**NM**	**NM**	**($29,359.0)**	**(140.3%)**	**NM**	**($12,156.9)**	**(19.7%)**	**NM**	**$15,519.7**	**11.4%**	**NM**	**$34,284.6**	**18.3%**	**120.9%**
Tax rate	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income	**($18,224.0)**	**NM**	**NM**	**($33,509.9)**	**NM**	**NM**	**($29,359.0)**	**(140.3%)**	**NM**	**($12,156.9)**	**(19.7%)**	**NM**	**$15,519.7**	**11.4%**	**NM**	**$34,284.6**	**18.3%**	**120.9%**
EPS	**($1.06)**	**—**	**—**	**($1.10)**	**—**	**—**	**($0.95)**	**—**	**—**	**($0.39)**	**—**	**—**	**$0.49**	**—**	**—**	**$1.08**	**—**	**—**
Shares outstanding (diluted)	17,150.0	—	—	30,341.3	—	—	30,875.0	—	—	31,000.0	—	—	31,775.0	—	—	31,775.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 38
Wink Communications, Inc.
2000E QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends December 31	**1Q00**	**% sales**	**% change**	**2Q00**	**% sales**	**% change**	**3Q00E**	**% sales**	**% change**	**4Q00E**	**% sales**	**% change**
Net revenue:												
Total net revenue	$526.0	—	55.2%	$636.0	—	126.3%	$660.1	—	40.7%	$716.6	—	40.0%
Total cost of revenue	50.0	9.5%	(44.4%)	121.0	19.0%	5.2%	118.8	18.0%	18.8%	121.8	17.0%	770.2%
Gross profit	**$476.0**	**90.5%**	**91.2%**	**$515.0**	**81.0%**	**210.2%**	**$541.2**	**82.0%**	**46.7%**	**$594.8**	**83.0%**	**19.4%**
Operating expenses:												
Research and development	$3,773.0	717.3%	95.4%	$4,050.0	636.8%	90.2%	$5,000.0	757.5%	87.1%	$5,200.0	725.6%	46.5%
Sales and marketing	2,028.0	385.6%	79.9%	2,278.0	358.2%	88.6%	3,800.0	575.7%	53.0%	4,700.0	655.8%	108.8%
General and administrative	1,169.0	222.2%	38.0%	1,529.0	240.4%	59.1%	1,700.0	257.6%	43.6%	2,100.0	293.0%	34.6%
Stock-based costs and expenses	643.0	0.0%	0.0%	943.0	779.3%	5.2%	1,600.0	0.0%	0.0%	1,600.0	0.0%	0.0%
Total operating expenses	**$7,613.0**	**NM**	**27.7%**	**$8,800.0**	**NM**	**69.4%**	**$12,100.0**	**NM**	**90.9%**	**$13,600.0**	**NM**	**84.8%**
Operating income	**($7,137.0)**	**NM**	**NM**	**($8,285.0)**	**NM**	**NM**	**($11,558.8)**	**NM**	**NM**	**($13,005.2)**	**NM**	**NM**
Interest income, net	$1,673.0	318.1%	NM	$1,953.0	307.1%	NM	$1,350.0	204.5%	NM	$1,500.0	209.3%	NM
Pretax income	**($5,464.0)**	**NM**	**NM**	**($6,332.0)**	**NM**	**NM**	**($10,208.8)**	**NM**	**NM**	**($11,505.2)**	**NM**	**NM**
Tax rate	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income	**($5,464.0)**	**NM**	**NM**	**($6,332.0)**	**NM**	**NM**	**($10,208.8)**	**NM**	**NM**	**($11,505.2)**	**NM**	**NM**
EPS	**($0.18)**	**—**	**—**	**($0.21)**	**—**	**—**	**($0.33)**	**—**	**—**	**($0.38)**	**—**	**—**
Shares outstanding	29,919.0	—	—	30,482.0	—	—	30,482.0	—	—	30,482.0	—	—

NM = Not meaningful.
Source: Company and Gruntal & Co., L.L.C.

Table 39
Wink Communications, Inc.
2001E QUARTERLY INCOME STATEMENT
($ thousands, except per share)

Fiscal year ends December 31	**1Q01E**	**% sales**	**% change**	**2Q01E**	**% sales**	**% change**	**3Q01E**	**% sales**	**% change**	**4Q01E**	**% sales**	**% change**
Net revenue:												
Total net revenue	$2,511.5	—	377.5%	$3,348.6	—	426.5%	$6,488.0	—	882.9%	$8,580.9	—	NM
Total cost of revenue	301.4	12.0%	502.8%	368.4	11.0%	204.4%	648.8	10.0%	446.1%	772.3	9.0%	533.9%
Gross profit	**$2,210.1**	**88.0%**	**364.3%**	**$2,980.3**	**89.0%**	**478.7%**	**$5,839.2**	**90.0%**	**978.8%**	**$7,808.6**	**91.0%**	**NM**
Operating expenses:												
Research and development	$5,900.0	234.9%	56.4%	$6,100.0	182.2%	50.6%	$6,400.0	98.6%	28.0%	$6,600.0	76.9%	26.9%
Sales and marketing	1,937.7	77.2%	(4.5%)	2,583.5	77.2%	13.4%	5,005.6	77.2%	31.7%	6,620.3	77.2%	40.9%
General and administrative	1,800.0	71.7%	54.0%	2,000.0	59.7%	30.8%	2,200.0	33.9%	29.4%	2,500.0	29.1%	19.0%
Stock-based costs and expenses	1,375.0	0.0%	0.0%	1,375.0	0.0%	0.0%	1,375.0	0.0%	0.0%	1,375.0	0.0%	0.0%
Total operating expenses	**$11,012.7**	**438.5%**	**44.7%**	**$12,058.5**	**360.1%**	**37.0%**	**$14,980.6**	**230.9%**	**23.8%**	**$17,095.3**	**199.2%**	**25.7%**
Operating income	**($8,802.6)**	**NM**	**NM**	**($9,078.3)**	**NM**	**NM**	**($9,141.4)**	**NM**	**NM**	**($9,286.7)**	**NM**	**NM**
Interest income, net	$1,700.0	67.7%	N.M	$1,725.0	51.5%	N.M	$1,750.0	27.0%	N.M	$1,775.0	20.7%	N.M
Pretax income	**($7,102.6)**	**NM**	**N.M**	**($7,353.3)**	**NM**	**NM**	**($7,391.4)**	**NM**	**N.M**	**($7,511.7)**	**NM**	**N.M**
Tax rate	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Taxes	—	—	NM	—	—	NM	—	—	NM	—	—	NM
Net income	**($7,102.6)**	**NM**	**NM**	**($7,353.3)**	**NM**	**NM**	**($7,391.4)**	**NM**	**NM**	**($7,511.7)**	**NM**	**NM**
EPS	**($0.23)**	**—**	**—**	**($0.24)**	**—**	**—**	**($0.24)**	**—**	**—**	**($0.24)**	**—**	**—**
Shares outstanding	30,600.0	—	—	30,800.0	—	—	31,000.0	—	—	31,100.0	—	—

NM = Not meaningful.

Source: Company and Gruntal & Co., L.L.C.

Table 40
Wink Communications, Inc.
CASH FLOW STATEMENT, 2000-2004E
($ thousands)

Fiscal year ends December 31	**3 ME 03/31/00**	**2000E**	**2001E**	**2002E**	**2003E**	**2004E**
Cash flows from operating activities:						
Net income	($5,474.0)	($33,509.9)	($29,359.0)	($12,156.9)	$15,519.7	$34,284.6
Adjustment to reconcile net loss to net cash used in operating activities:						
Depreciation and amortization	327.0	1,057.3	1,281.4	1,262.3	1,168.6	1,081.3
Stock-based costs and expenses	653.0	653.0	653.0	653.0	653.0	653.0
Net loss of equity investment	5.0	5.0	—	—	—	—
Changes in operating assets and liabilities:						
Accounts receivable	29.0	(92.5)	(1,898.8)	(2,168.0)	(2,544.7)	(1,207.4)
Prepaid expenses and other current assets	38.0	(510.8)	(4,387.7)	(3,305.8)	(3,076.0)	(984.1)
Other assets	—	—	—	—	—	—
Accounts payable	(921.0)	(651.8)	4,109.3	4,292.9	4,777.7	2,177.9
Accrued expenses	(378.0)	151.0	8,075.6	8,436.4	9,389.1	4,280.0
Deferred revenue	(163.0)	107.8	4,134.4	4,319.1	4,806.8	2,191.2
Net cash used in operating activities	**($5,884.0)**	**($32,791.0)**	**($17,391.8)**	**$1,332.9**	**$30,694.2**	**$42,476.4**
Cash flows from investing activities:						
Net (purchases) proceeds of short-term investments	($318.0)	—	—	—	—	—
Purchase of nonpublic equity securities	(1,400.0)	—	—	—	—	—
Property and equipment purchases	(964.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)
Net cash used in investing activities	**($2,682.0)**	**($1,000.0)**	**($1,000.0)**	**($1,000.0)**	**($1,000.0)**	**($1,000.0)**
Cash flows from financing activities:						
Proceeds from common stock issuances	$1,509.0	$1,509.0	—	—	—	—
Warrant redemption	—	—	—	—	9,200.0	—
Proceeds from stockholder note receivable	250.0	250.0	—	—	—	—
Principal payments on capital lease obligations	(110.0)	(360.0)	—	—	—	—
Net cash provided by financing activities	**$1,649.0**	**$1,399.0**	**—**	**—**	**$9,200.0**	**—**
Net increase (decrease) in cash and cash equivalents	($6,917.0)	($32,392.0)	($18,391.8)	$332.9	$38,894.2	$41,476.4
Cash and cash equivalents at beginning of period	58,032.0	58,032.0	25,640.0	7,248.3	7,581.2	46,475.4
Cash and cash equivalents at end of period	**$51,115.0**	**$25,640.0**	**$7,248.3**	**$7,581.2**	**$46,475.4**	**$87,951.8**
Cash, cash equivalents, and highly liquid short-term securities at end of period	**$142,600.0**	**$116,807.0**	**$98,415.3**	**$98,748.2**	**$137,642.4**	**$179,118.8**

Source: Company and Gruntal & Co., L.L.C.

Table 41
Wink Communications, Inc.
BALANCE SHEET, 2000-2004E
($ thousands)

Fiscal year ends December 31	**3 ME 03/31/00**	**2000E**	**2001E**	**2002E**	**2003E**	**2004E**
ASSETS						
Current assets:						
Cash and cash equivalents	$51,115.0	$25,640.0	$7,248.3	$7,581.2	$46,475.4	$87,951.8
Short-term investments	91,485.0	91,167.0	91,167.0	91,167.0	91,167.0	91,167.0
Accounts receivable, net	461.0	582.5	2,481.3	4,649.4	7,194.0	8,401.5
Prepaid expenses and other current assets	1,874.0	2,422.8	6,810.5	10,116.3	13,192.3	14,176.4
Total current assets	**$144,935.0**	**$119,812.3**	**$107,707.1**	**$113,513.8**	**$158,028.7**	**$201,696.7**
Property and equipment, net	$3,175.0	$3,848.0	$3,790.7	$3,509.3	$3,247.0	$3,078.4
Other assets	3,065.0	3,065.0	3,065.0	3,065.0	3,065.0	3,065.0
Total assets	**$151,175.0**	**$126,725.3**	**$114,562.8**	**$120,088.2**	**$164,340.8**	**$207,840.1**
LIABILITIES AND STOCKHOLDERS' EQUITY						
Current liabilities:						
Accounts payable	$1,149.0	$1,418.2	$5,527.5	$9,820.4	$14,598.2	$16,776.0
Accrued expenses	2,258.0	2,787.0	10,862.6	19,299.0	28,688.1	32,968.1
Deferred revenue, net	1,156.0	1,426.8	5,561.2	9,880.3	14,687.1	16,878.2
Current portion of capital lease obligations	255.0	—	—	—	—	—
Total current liabilities	**$4,818.0**	**$5,632.0**	**$21,951.3**	**$38,999.7**	**$57,973.3**	**$66,622.4**
Total liabilities	**$4,818.0**	**$5,632.0**	**$21,951.3**	**$38,999.7**	**$57,973.3**	**$66,622.4**
Stockholders' equity	**$146,357.0**	**$121,093.3**	**$92,611.5**	**$81,088.5**	**$106,367.4**	**$141,217.7**
Total liabilities and stockholders' equity	**$151,175.0**	**$126,725.3**	**$114,562.8**	**$120,088.2**	**$164,340.8**	**$207,840.1**

Source: Company and Gruntal & Co., L.L.C.

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III. Interactive Television/T-Commerce Company Profiles

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The following section identifies numerous key participants in the T-Commerce Enablers/Broadcast Services segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

T-Commerce Enablers/Broadcast Services

Public Companies

	Ticker	Price (9/11/00)	52-Week Range High	52-Week Range Low	Shares (mil)	Market Cap (mil)	Calendar 1999 Revenue (mil)	Calendar 2000E Revenue (mil)	2000E/1999 Rev. Growth	2000E Rev. Multiple	Profitable?
ACTV, Inc.	IATV	$16.31	$51.75	$10.63	49.6	$809.1	$2.1	$5.2	147.6%	155.6	No
Princeton Video Image, Inc.	PVII	4.25	14.50	3.88	9.9	42.1	1.2	4.7	285.2%	9.0	No
SeaChange International, Inc.	SEAC	29.31	76.00	8.66	21.5	630.2	85.2	—	—	—	Yes
Source Media Inc.	SRCM	5.31	21.94	3.50	16.2	86.1	21.0	50.0	138.4%	1.7	No
Wink Communications, Inc.	WINK	13.25	75.00	11.63	30.8	408.1	1.6	2.5	56.3%	163.2	No

Reports on ACTV, Inc., Princeton Video Image, Inc., and Wink Communications, Inc., can be found on pages 53, 67, and 97, respectively.

Private Companies

Better TV Technologies, Ltd.
Commerce.TV Corporation
ExtendMedia, Inc.
FutureTV, Inc.
ICTV, Inc.
Mixed Signals Technologies, Inc.
PowerTV, Inc.
RespondTV, Inc.
Spiderdance, Inc.
SporTVision, Inc.

Better TV Technologies Ltd.

http://www.btv.co.il
11 Tuval Street
Ramat-Gan 52522, Israel
Telephone: 972-3-5754032
Fax: 972-3-5755688

COMPANY DESCRIPTION

Better TV Technologies Ltd. is a privately held company that provides an interface that aggregates the disparate interactive services being rolled out today. The software enables cable and satellite providers to profile their subscribers' television viewing habits and create incremental revenue streams through targeted advertising and t-commerce opportunities. Based upon these profiles, the company is capable of offering suggestions for additional relevant programming that is being televised at that very moment. The service is available through a software download at the cable head-end, so no special hardware is required. In addition, the service is capable of being ported to both the Internet and wireless devices.

REVENUE MODEL

Better TV Technologies Ltd. primarily generates revenue from multiple system operators (MSOs) based upon a subscription model. The company earns a per-subscriber fee from major cable and other pipeline providers. In addition, the company may participate in revenue sharing with MSOs related to t-commerce opportunities presented in the company's service.

FINANCIAL HIGHLIGHTS

Better TV Technologies Ltd. raised $1.0 million in a private round of financing and has secured an additional $1.0 million in a round of financing expected to close by the end of September 2000. The company is actively seeking investors to participate in a new round of financing in which the company plans to raise $4.0 million. The company expects to be profitable within two years of wide-scale deployment.

PARTNERS

Better TV Technologies Ltd. recently signed a letter of intent with Mindport MCT, a subsidiary of MIH Limited, which owns a 46% stake in OpenTV Corporation. The letter of intent pertains to original equipment manufacturing (OEM) and joint marketing and development agreements. The company also has an OEM agreement in place with Orca Computers, a developer of high-end interactive systems. Further, the company has established relationships with Oracle Corporation and a number of other international companies operating within in the interactive television marketplace.

MANAGEMENT

Ori Shapira is the founder and CEO of Better TV Technologies Ltd. Shapira is an experienced product and development manager. Prior to founding the company, Shapira was the head of the development team at EduNet, of the Geo Interactive Group, and at the Israel Defense Forces' educational development center. The Geo Interactive Group focuses on the creation of multimedia rich applications, and EduNet focuses on the development of educational software Web applications.

Commerce.TV Corporation

http://www.commerce-tv.com
325 Wood Road
Braintree, MA 02184
Telephone: (781) 320-4000
Fax: (781) 326-9110

COMPANY DESCRIPTION

Commerce.TV Corporation is a privately held company focused on providing solutions to facilitate t-commerce and interactive advertising. Commerce.TV Corporation's solution enables cable and satellite subscribers to use their remote controls to purchase products from programs and advertisements and to request additional product or service information. An important feature of the service is the company's ability to perform local content insertion through its database, which gives the company the capability to target offerings at the local level. Commerce.TV Corporation's software is embedded in the set-top box, and viewers' entries are automatically recorded and sent to the appropriate merchant for fulfillment. In addition, Commerce.TV Corporation's solutions are supported by existing set-top boxes, so the company can offer its services to cable operators immediately. Commerce.TV Corporation expects to deploy its service in fourth-quarter 2000.

REVENUE MODEL

Commerce.TV Corporation derives revenue from transaction fees for e-commerce purchases and requests for additional product and service information on either a flat-fee or percentage basis depending on the contract. The company also generates revenue from transaction processing relating to its database profiling. In this instance, Commerce.TV Corporation receives a percentage of sales from the fulfillment company for transactions driven by its database. The company shares in this revenue steam with its multiple system operator (MSO) partners.

FINANCIAL HIGHLIGHTS

On May 8, 2000, Commerce.TV Corporation received $19.0 million, with strategic investments from OpenTV Corporation and Insight Communications Company, Inc., among others. On January 31, 2000, the company completed an $11.8-million initial round of financing led by Westfield Capital Management Company, Inc., Private Equity Finance, New England Partners, Keene Partners, and the company's founders.

NEW INITIATIVES

The company recently announced an agreement to deploy the Commerce.TV Corporation solution in some Midwestern markets where Insight Communications Company, Inc., operates, beginning in Rockford, Illinois. In addition, the company established a partnership with OpenTV Corporation in March 2000 that will enable the integration of Commerce.TV Corporation's solution with OpenTV Corporation's interactive software platform.

PARTNERS

Commerce.TV Corporation's success depends on its ability to leverage partnerships with MSOs, programmers, advertisers and electronic merchants and retailers. Currently, the company has relationships with OpenTV Corporation, Insight Communications Company, Inc., and Concero, Inc. (formerly PSW Technologies). In addition, Commerce.TV Corporation has partnered with Scientific-Atlanta, Inc., and the Motorola, Inc.'s Broadband Communications Sector unit to add its interactive functionality to the two companies' respective set-top boxes.

MANAGEMENT

Matthew W. Kay, president and CEO, cofounded Commerce.TV Corporation with Jeffrey Laughlin, Matthew Laughlin, and Colin Campbell in November 1998. Prior to founding Commerce.TV Corporation, Kay was senior vice president of finance and operations and cofounder at Open Development Corporation. Kay has extensive experience in the customization and implementation of order processing systems and both the cable and interactive television industries.

ExtendMedia, Inc.

http://www.extend.com
190 Liberty Street
Toronto, Ontario M6K 3L5, Canada
Telephone: (888) 824-6840
Fax: (416) 535-1201

COMPANY DESCRIPTION

ExtendMedia, Inc., is a privately held interactive television (ITV) production company that develops enhanced television content, creating additional revenue streams for producers and broadcasters. The company develops Internet sites that are related to specific content within television broadcasts and include customization features, targeted advertising services and e-commerce offers. The company creates cross-media content through its proprietary broadcast publishing technologies and Internet tools.

REVENUE MODEL

There are currently three components to ExtendMedia, Inc.'s revenue streams. The company (1) generates fees for the production and development of interactive content; (2) receives transactional fees, or commissions, for sales of goods and services that are tied directly to the interactive content that the company creates; and (3) derives revenue from advertising and sponsorships.

FINANCIAL HIGHLIGHTS

For fiscal 1999, ExtendMedia, Inc., reported total revenue of $8.7 million and achieved a gross margin of 33%. The company also reported a net loss of $9.4 million, or $0.34 per share, compared with a net loss of $3.1 million, or $0.16 per share, for fiscal 1998. The widening of ExtendMedia, Inc.'s net loss can be attributed to a rise in marketing and selling expenditures as well as a significant increase in general and administrative expenses.

NEW INITIATIVES

In April 2000, ExtendMedia, Inc., announced a partnership with Wink Communications, Inc., to develop Wink-enhanced applications for television that will enable ExtendMedia, Inc., to offer its production and broadcasting customers more choices when producing interactive content. At the 2000 National Cable Television Association convention, ExtendMedia, Inc., announced a strategic alliance with ViziWorx, Inc. The two companies will comarket each other's ITV capabilities.

PARTNERS

ExtendMedia, Inc., has formed relationships with large technology companies including Apple Computer, Inc., Intel Corporation, Liberate Technologies, Inc., Microsoft Corporation, Netscape Communications, Inc. (a unit of America Online, Inc.), Norpak Corporation, Open Market, Inc., Oracle Corporation, RealNetworks, Inc., RespondTV, Inc., Silicon Graphics, Inc., Sun Microsystems, Inc., WebTV Networks, Inc., and Wink Communications, Inc.

Extend Media, Inc., has also partnered with a number of content providers including Alliance Atlantis Communications, Inc., Back Alley Productions, CTVSportsnet.com, Lifetime Network, Shaftsbury Films, Inc., and New Line Cinema, as well as several distribution partners, such as At Home Corporation, the Public Broadcasting Service, MediaOne Group (part of AT&T Corporation), Odeon Films, and Sympatico.

In addition to key North American institutional investors, Alliance Atlantis Communications, Bell Canada Enterprises, Inc., and MWI & Partners have also made significant strategic investments in ExtendMedia, Inc.

MANAGEMENT

Keith Kocho is the founder, CEO, and a director of ExtendMedia, Inc. Kocho focuses on new product vision, strategic industry partnerships, and capitalization for the company. In 1991, Kocho started ExtendMedia, Inc. (formerly Digital Renaissance), and has more than nine years of experience in digital media technology management.

FutureTV, Inc.

http://www.futuretv.com
100 Gloucester Place
London, W1H 30A, United Kingdom
Telephone: +44 (0) 207 563 9860
Fax: +44 (0) 207 563 9870

COMPANY DESCRIPTION

FutureTV, Inc., is a London-based privately held company that develops interactive technologies that are designed to support a wide range of personalized television applications. The FutureTV system operates uses a number of software and hardware components that enable the delivery of audio and video on demand, targeted advertising, and Internet and e-commerce functionality.

REVENUE MODEL

FutureTV, Inc., derives product revenue from sales of its software and hardware components. The company also participates in a share of the revenue generated from the interactive applications that its system facilitates, such as personalized advertising and e-commerce.

FINANCIAL HIGHLIGHTS

Initial funding was made available by the company's founders and by Eden Capital Limited, a venture capital firm in London. FutureTV, Inc., is in the process of raising money through a second round of financing.

NEW INITIATIVES

On April 10, 2000, FutureTV, Inc., announced the acquisition of e-media.com Ltd. e-media.com Ltd. will become responsible for sourcing all media content for FutureTV, Inc., and its subsidiaries in Europe, North America, and Asia. Earlier in 2000, FutureTV, Inc., opened a northern European office and entered an operational agreement with ONO (formerly Cableuropa), Spain's leading provider of broadband services and a subsidiary of Callahan Associates International, L.L.C. The company is also engaged in digital subscriber line trials with Eircom PLC in Ireland and recently announced an agreement with Kingston Interactive Television to provide content for Kingston Interactive Television's video-on-demand service.

PARTNERS

FutureTV, Inc., is working with a variety of technology companies, telephone companies, cable and private network operators, and system design and integration specialists to enhance the delivery of broadband multimedia content and applications. For content development, FutureTV, Inc., is partnering with broadcasters, music companies, movie studios, and game publishers. The company has also established licensing arrangements with Carlton International, Landmark Travel Channel, Sports World Media Group PLC, and Dreamworks SKG, among others.

MANAGEMENT

Ricky Rand is the principal founder, CEO and head of technology of FutureTV, Inc. Rand developed FutureTV, Inc., for almost five years prior to Eden Capital's investment in August 1999. He began work with Acorn Computer Group PLC, working in the technical and market development areas for the U.S. and the Far East. During the 1980s, Rand founded NBM Systems Design in Hong Kong, which developed technology to improve stock trading terminals using digital telephone lines.

ICTV, Inc.

http://www.ictv.com
14600 Winchester Boulevard
Los Gatos, CA 95032
Telephone: (408) 364-9200
Fax: (408) 364-9302

COMPANY DESCRIPTION

ICTV, Inc., is a privately held company that provides products to enable cable operators to generate incremental revenue streams by extending the functionality of cable set-top boxes. The company provides switching and processing equipment and a software-based interactive TV browser that cable operators can deploy to offer high-speed broadband interactive and enhanced TV applications to their subscribers. Because the software resides in the cable companies' head-end equipment, cable operators can offer services such as Internet TV, e-mail, and other interactive television (ITV) applications in existing set-top boxes rather than waiting for new enhanced set-top boxes to reach the market. This network-based software approach enables multiple system operators (MSOs) to enter the market at a lower cost, procure scalable hardware, and provide ease of maintenance and usage to their customers. The consumer activates the service by using either a keyboard or a remote control, and the applications include enhanced communications, shopping, games, and information resources.

REVENUE MODEL

ICTV, Inc.'s revenue is primarily generated through system sales and support, with recurring revenue resulting from ongoing upgrades. The company targets its products to cable operators. The company does not participate with the network operators in a share of the revenue derived from interactive applications.

FINANCIAL HIGHLIGHTS

On June 21, 2000, ICTV, Inc., announced that it had received $87.0 million in funding led by Shaw Communications, Inc., and Liberty Digital, Inc. Additional investors include ACTV, Inc., Adelphia Communications Corporation, Motorola, Inc., OpenTV Corporation, Gemstar-TV Guide International, Inc., Cox Communications, Inc., and Lauder Partners. Cox Communications, Inc., and Lauder Partners were both early-stage investors in the company. ICTV, Inc., plans to use the proceeds to fund international expansion and product development.

NEW INITIATIVES

In June 2000, ICTV, Inc., signed an agreement with Motorola, Inc.'s Broadband Communications Sector unit which will integrate ICTV, Inc.'s ITV browser into its set-top boxes. Also, the company has an agreement with ACTV, Inc., that will enable ACTV, Inc.'s HyperTV enhanced television product to use ICTV, Inc.'s digital platform. In addition, ICTV, Inc., recently announced an integration agreement with Gemstar-TV Guide International, Inc., which will enable set-top boxes to offer new functionality, creating additional revenue streams for cable service providers. Further, ICTV, Inc., has announced plans to expand internationally through an agreement with Modi Entertainment Network, a corporation that oversees a large number of entertainment businesses in India.

PARTNERS

ICTV, Inc., has partnered with a number of MSOs and interactive technology companies, including ACTV, Inc., Adelphia Communications Corporation, Liberty Digital, Inc., Motorola, Inc., OpenTV Corporation, Shaw Communications, Inc., Gemstar-TV Guide International, Inc., Cox Communications, Inc., Lauder Partners, International Business Machines Corporation, Scientific-Atlanta, Inc., and Sarnoff Corporation.

MANAGEMENT

Robert B. Clasen serves as chairman and CEO of ICTV, Inc. One of the cable industry's most respected leaders, Clasen has served in a variety of senior positions in the television and telecommunications industry. Former president of Comcast Corporation, he directed acquisitions and operations, managing assets of $1.0 billion. Clasen has extensive experience in the field of communications, including cable, satellite, and digital technologies, and has held positions with Rogers Communications, Inc., McCaw Cellular Communications, Inc. (now part of AT&T Corporation), Broadband Innovations, Inc., Vivid Technologies, Inc., and ComStream Corporation

Mixed Signals Technologies, Inc.

http://www.mixedsignals.com
8671 Hayden Place
Culver City, CA 90232
Telephone: (310) 838-4353
Fax: (310) 838-4354

COMPANY DESCRIPTION

Mixed Signals Technologies, Inc., a privately held provider of interactive television (ITV) hardware and software, is focused on delivering applications and production services to the ITV industry. The company has developed a broadcast encoder, a direct response system, and other tools to add interactivity to television programs. Together, these technologies enable content creators, broadcasters, and advertisers to participate in incremental revenue streams generated through targeted marketing, e-commerce, and subscription fees based on expanded service offerings.

The company encoded episodes of game shows *Jeopardy!* and *Wheel of Fortune* for the 1999-2000 season. With properly enabled set-top boxes, viewers could play along with the television shows in real time, competing against the actual contestants. In addition, the company has created a number of interactive capabilities for Sony Corporation's The Game Show Network and Lifetime Television's newest game show, *Who Knows You Best?*

REVENUE MODEL

Currently, Mixed Signals Technologies, Inc., generates a substantial portion of its revenue from the in-house production of interactive applications and through license fees generated by its proprietary software and hardware. The company expects to generate an increasing portion of its revenue through transaction fees from other businesses and advertisers for the facilitation of e-commerce transactions and requests for additional information.

PARTNERS

The company's technologies have been embraced by a number of content creators such as *3's A Crowd*, the Emmy Awards show, *Inquizition*, *Jeopardy!*, the Tournament of Roses Parade, and *Wheel of Fortune*. The company has formed important distribution relationships with major networks and programmers such as the National Broadcasting Company, Inc. (NBC, Inc.), MSNBC (a joint venture between Microsoft Corporation and NBC, Inc.), USA Networks, Inc., the Public Broadcasting System, the Game Show Network, Home and Garden Television (a division of the E.W. Scripps Company), and the Weather Channel. The company has also formed relationships with ITV platform providers such as Liberate Technologies, Inc., Microsoft Corporation, Sony Corporation, Columbia Tristar Television, EchoStar Communications Corporation, Viacom, Inc., Walt Disney Imagineering, Oxygen Media, Inc., and Rainbow Media.

MANAGEMENT

Alexandria Thompson, president and CEO of Mixed Signals Technologies, Inc., founded the company in 1997. Early in her career, Thompson worked in the film and television industry, creating custom physical, optical, and digital effects for film, TV, and the developing multimedia industry. Before founding the company, Thompson worked on other projects relating to video and new Internet technologies for Power Computing (a unit of Apple Computer, Inc.).

PowerTV, Inc.

http://www.powerTV.com
20833 Stevens Creek Boulevard, Suite 100
Cupertino, CA 95014
Telephone: (408) 777-7560
Fax: (408) 777-0176

COMPANY DESCRIPTION

PowerTV, Inc., focuses on the development of software for two-way digital cable networks. Its core product and service offerings enable a range of interactive applications and services including e-commerce, video on demand, personalized advertising, e-mail, Webcasting, and Web browsing. The company is 80% owned by Scientific-Atlanta, Inc., and functions as an independent subsidiary. As of June 2000, PowerTV, Inc., had shipped more than 2.9 million units of its operating system and more than 2.0 million units of its middleware hypertext markup language (HTML) solution.

REVENUE MODEL

Most of PowerTV, Inc.'s revenue is generated through software licensing and royalty fees as well as maintenance/upgrade fees. The company derives additional revenue from set-top box manufacturers that pay the company to port its software to their respective platforms and from third-party application developers to facilitate the use of PowerTV Inc.'s middleware platforms. In addition, PowerTV, Inc., earns support fees under agreements with original equipment manufacturers (OEMs) and multiple system operators (MSOs).

FINANCIAL HIGHLIGHTS

Currently, Scientific-Atlanta, Inc., is PowerTV, Inc.'s only major outside investor. The company has announced that it is pursuing other alternatives to realizing value, including adding strategic investors and/or an initial public offering.

NEW INITIATIVES

On July 12, 2000, PowerTV, Inc., announced that it had completed its merger with PRASARA Technologies Inc. The combined entity will offer more robust software solutions enabling interactive television (ITV) applications to run on any broadband network.

PARTNERS

PowerTV, Inc., has formed a number of relationships with established set-top box manufacturers, such as Scientific-Atlanta, Inc., Toshiba Corporation, Pioneer Corporation, Nokia Corporation, Pace Micro Technology PLC, and Sagem S.A. PowerTV, Inc., also licenses its proprietary technologies to other hardware manufacturers under terms similar to those of its arrangement with Sun Microsystems, Inc., to incorporate Sun Microsystems Inc.'s Personal Java technology into PowerTV, Inc., software. PowerTV, Inc., has also partnered with Time Warner, Inc., and NTL, Inc., to provide its operating system and middleware for the two companies' respective ITV rollouts.

MANAGEMENT

Steve Necessary is the CEO of PowerTV, Inc. Previously, Necessary had been corporate vice president and vice president of marketing at Scientific-Atlanta, Inc. He also spent several years at ANTEC Corporation, where his final position was president of the products group. Earlier, he was a team manager for Procter & Gamble Company.

RespondTV, Inc.

http://www.respondtv.com
1083 Mission Street
San Francisco, CA 94103
Telephone: (415) 522-5260
Fax: (415) 522-5266

COMPANY DESCRIPTION

RespondTV, Inc., is a privately held company that provides software that facilitates the delivery of targeted, personalized e-commerce and direct response initiatives. In addition, the company offers a range of technology services, including hosting, serving, and reporting capabilities. Content enhancements such as interactive advertising campaigns are developed and then inserted into the video stream. Data are exchanged between the viewer and RespondTV through the set-top box. Programmers, advertisers, and network operators are able to track the results of a campaign through the RespondTV servers. Viewers benefit from an enhanced experience; programmers and advertisers can generate incremental revenue streams.

REVENUE MODEL

RespondTV, Inc., generates revenue from services for advertisers, programmers, and cable and satellite operators that it bundles with its standard datacasting service. The company sells its unbranded services to networks and programmers, which then resell to their respective advertisers the ability to enhance advertisements and conduct interactive One to One marketing and e-commerce. RespondTV, Inc., receives cost per thousand impressions-based fees for serving enhancements plus additional fees for leads or transactions that the company sends to the advertiser. RespondTV, Inc.'s multiple system operator (MSO) partners receive a share of this revenue stream.

FINANCIAL HIGHLIGHTS

On May 9, 2000, RespondTV, Inc., received $21.5 million in equity investments from a group of financial and strategic partners including General Electric Capital Corporation (a unit of General Electric Company), AT&T Corporation, Comcast Interactive Capital (a unit of Comcast Corporation), Showtime Networks, Inc. (a unit of Viacom, Inc.), Tribune Ventures (a unit of Tribune Company), and United Television. On July 26, 2000, Liberty Digital, Inc., joined these Series C investors by investing an additional $7.5 million, bringing the total amount raised to $29.0 million. Previously, the company had received investments from venture capital firms Sequoia Partners and Integrity Partners.

NEW INITIATIVES

In the first half of 2000, RespondTV, Inc., aired 3,000 hours of in-program enhancements and 500 hours of commercials, resulting in a 23% completion rate for enhanced offers. Also, RespondTV, Inc., recently announced that AT&T Corporation's broadband division will use the company's infrastructure to offer subscribers various interactive television applications with the upcoming deployment of the cable operator's advanced digital set-top boxes. The company recently unveiled its plans for international expansion throughout Europe with the establishment of its international headquarters in London.

RespondTV, Inc., recently acquired interactive television services company AccelerateTV, Inc., which provides multiple system operators (MSOs), direct broadcast satellite (DBS) operators, and content providers with the interface and infrastructure necessary to deliver interactive services and conduct secure transactions. AccelerateTV, Inc., is capable of delivering its turnkey application-hosting system across a number of set-top box platforms and multiple cable systems and is designed so that network operators can offer their subscribers interactive content, advertising, and t-commerce opportunities. AccelerateTV, Inc.'s Web site is www.acceleratetv.com.

PARTNERS

RespondTV, Inc., has partnership deals with programmers, advertisers, and platform developers. With respect to advertising, the company has aired enhancements for the Ad Council, American Airlines, Inc., (a subsidiary of AMR Corporation), the Allstate Corporation, CDNow, Inc., the Coca-Cola Company, Domino's Pizza, Condenet's Epicurious.com, E-LOAN, Inc., Ford Motor Company, Goodyear Tire & Rubber Company, HotJobs.com, Ltd., Nissan Motor Company, Ltd., Ralston Purina, Sears, Roebuck & Company, and 1-800-Flowers.com, Inc.

RespondTV, Inc., also has formed programming relationships with Showtime Networks, Inc.; Bloomberg Television; Home and Garden Television Network, the Food Network, and the do it yourself network (all three units of the E.W. Scripps Company); Chris-Craft's KBHK station (a United Paramount Network affiliate and a division of Viacom, Inc.); and Tribune Company.

The company also has multiple distribution relationships with cable and satellite operators as well as broadcasters and their local affiliates. In addition, RespondTV, Inc., works closely with standards-based middleware from companies such as Liberate Technologies, Inc., Microsoft Corporation, and PowerTV, Inc.

MANAGEMENT

David Kaiser is the CEO of RespondTV, Inc. Before working at RespondTV, Inc., Kaiser was an executive facilitating product development, mergers, acquisitions, technology licensing, and strategic relationships at innovative technology companies such as Macromind, Macromedia, Inc., Kaleida, NaviSoft, and America Online, Inc.

SeaChange International, Inc.

http://www.seachange.com
6695 Millcreek Drive, Unit 1
Mississauga, Ontario L5N 5R8
Telephone: (800) 661-7274

Ticker: SEAC **Price: $29.31** **52-Week Range: $76.00-$8.66** **Market Capitalization: $630.2 million**

COMPANY DESCRIPTION

SeaChange International, Inc., is a Canadian company that creates products focused on the distribution of digital technologies for cable and markets them to broadcast television operators and telecommunications and other new media companies. Together, the company's software and hardware facilitate the distribution of digital content, including advertisements, news updates, movies, and other video programming. The company's SPOT System encodes analog video forms such as commercials and news updates, stores them in digital libraries, and inserts them automatically into television network streams. The company currently serves more than 50,000 interactive television users worldwide.

REVENUE MODEL

SeaChange International, Inc., generates revenue primarily through its system sales. The company also recognizes revenue from software installation and training and from technical support and routine maintenance. In addition, the company derives a small portion of its revenue from content fees, mainly from the distribution of video-on-demand services. International sales account for nearly 25% of the company's total revenue stream.

FINANCIAL HIGHLIGHTS

For the year ended December 31, 1999, SeaChange International, Inc., reported total revenue of $85.2 million, up 17% from 1998. The company reported net income of $497,000, or $0.02 per diluted share, in fiscal 1999 versus a net loss of $4.6 million, or $0.24 per diluted share, in 1998.

NEW INITIATIVES

In June 2000, SeaChange International, Inc., made significant progress in extending its video-on-demand services through a distribution agreement with Time Warner Cable for the latter's digital cable subscribers in Austin, Texas. The company is also partnering with Cox Communications, Inc., to digitally insert local advertisements in target markets, beginning with Phoenix. Also, the company announced an initiative with Gemstar-TV Guide International, Inc., to integrate the company's servers with TV Guide, Inc.'s electronic program guides (EPGs). The company has also partnered with Microsoft Corporation's Windows Media Technologies to introduce a more effective video-streaming solution to the broadcast networks. Further, a partnership with Intertainer, Inc., will enable SeaChange International, Inc., to offer Intertainer Inc.'s Entertainment on Demand service to cable subscribers using Motorola, Inc.'s advanced digital set-top box.

PARTNERS

SeaChange International, Inc., has partnered with many technology companies, including Berkeley Software Design, BorderWare Technologies Inc., CheckPoint Software Technologies, Ltd., Cisco Systems, Inc., Cryptocard, Cacheflow, Inc., Foundry Networks, Inc., Juniper Networks, Inc., Lucent Technologies, Paradyne Networks, Inc., Radware/RND Networks, Inc., Secure Computing Corporation, Shiva Corporation, 3Com Corporation, and V-One Corporation.

MANAGEMENT

William C. Styslinger, III, is a founder of SeaChange International, Inc., and has been president and CEO since 1993. He has also served as chairman of the board since January 1995. Prior to forming the company in 1993, Styslinger had been employed at Digital Equipment Corporation since March 1978, most recently as manager of the cable television business unit from October 1991 to May 1993.

Source Media Inc.

http://www.srcm.com
5400 LBJ Freeway Suite 680
Dallas, Texas 75240
Telephone: (972) 701-5400
Fax: (972) 701-5454

Ticker: SRCM **Price: $5.31** **52-Week Range: $21.94-$3.50** **Market Capitalization: $86.1 million**

COMPANY DESCRIPTION

Source Media Inc. provides streaming media content and advertising services through print media, radio, telephone, the Internet, and digital cable television. The company also owns a 50% interest in SourceSuite L.L.C. through a joint venture with Insight Communications Company, Inc. Through this interactive television (ITV) business, the company offers a comprehensive array of digital applications including electronic program guides (EPGs), TV-based Internet access, e-mail, and local content and community features.

REVENUE MODEL

Source Media Inc. generates most of its revenue through the sale of advertising and also receives revenue from system management and information services. The company's ITV business should generate meaningful revenue once its services are deployed on a wider scale.

FINANCIAL HIGHLIGHTS

Source Media Inc. reported revenue of $19.1 million for 1999, a slight decrease from 1998 due in part to a decline in advertising sales. In second-quarter 2000, the company reported a year-over-year increase in revenue of 5% to $4.6 million from $4.4 million, due largely to a rise in new product revenue related to streaming audio sales and Internet advertising. The company's net loss for second-quarter 2000 was $5.4 million, or $0.33 per share, versus a net loss of $13.8 million, or $1.03 per share, in second-quarter 1999.

NEW INITIATIVES

In July 2000, Source Media Inc. announced that its EPG and local content and community features were available in over 25,000 homes nationwide, with distribution through Insight Communications Company, Inc.'s cable systems in Rockford, Illinois, in Columbus, Ohio, and in Evansville, Indiana. In addition, Source Media Inc. recently announced a partnership with J-Phone Group, a Japanese wireless carrier, which should enable Source Media Inc. to develop various wireless applications for Japan, including an English-language content service.

PARTNERS

Source Media Inc. has an extensive relationship with Insight Communications Company, Inc. (a 50% owner of SourceSuite L.L.C.—the company's ITV joint venture). The two companies have partnered to offer Source Media Inc.'s suite of interactive services as Insight Communications Company, Inc., continues to roll out its digital cable services. Source Media Inc. has also partnered with Motorola, Inc.'s Broadband Communications Sector unit and Scientific-Atlanta, Inc., to integrate a full range of interactive functions into the two companies' digital set-top boxes. Other significant partnerships in the ITV space include OpenTV Corporation, Wink Communications, Inc., DIVA Systems Corporation, Sony Corporation, and United Video Satellite Group (a unit of Gemstar-TV Guide International, Inc.).

MANAGEMENT

Stephen W. Palley joined Source Media Inc. as CEO in April 1999. Prior to Source Media Inc., Palley was COO of King World Productions, Inc., from 1986 to 1996. During his tenure there, he oversaw a significant expansion of the company, and revenue grew to $660.0 million from $146.0 million. Palley had served King World Productions, Inc., previously as general counsel.

Spiderdance, Inc.

http://www.spiderdance.com
100 Market Street
Venice, CA 90291
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Fax: (310) 448-3401

COMPANY DESCRIPTION

Spiderdance, Inc., is a privately held company that provides the infrastructure that enables the integration of interactive content with on-air broadcasts, transforming ordinary television into an interactive experience. In order for viewers to experience this synchronized-to-broadcast system, they simply need a television and a personal computer in the same room; no special software or hardware is needed. Viewers can interact with programming by participating in interactive game shows and dynamic opinion polling or by reviewing real-time statistics during sporting events. Spiderdance, Inc.'s system enables programmers to offer their viewers one-to-one marketing and e-commerce opportunities through interactive commercials and advertisements.

REVENUE MODEL

Spiderdance, Inc., earns revenues based upon an application service provider model, in which the company receives production and hosting fees for the development and hosting of convergence content for television broadcasters. Second, the company shares the revenue generated by the on-line component of the show with the broadcaster.

FINANCIAL HIGHLIGHTS

On August 2, 2000, Spiderdance, Inc., received a $3.0-million line of debt financing from Comdisco Ventures (the investment vehicle of Comdisco, Inc.) to be used for equipment financing and working capital. On April 5, 2000, Spiderdance, Inc., had announced the reception of financing totaling $6.0 million from Macromedia, Inc., and Sierra Ventures.

NEW INITIATIVES

Last year, Spiderdance, Inc., along with its partner MTV Networks (a unit of Viacom, Inc.), launched *webRIOT*, a music trivia game show that enables users at home to play along with the contestants on television. The show has been highly successful, creating more than 600,000 game downloads and three million games played in the first four months of production. Its success prompted MTV Networks to sign an agreement to produce another 65 episodes for next season.

PARTNERS

Spiderdance, Inc., has announced an agreement with Macromedia, Inc., to develop convergence products based on Macromedia, Inc.'s flagship Internet technologies such as Shockwave and Flash. Spiderdance, Inc., is deploying these technologies now for its upcoming *History IQ* on-line/on-air TV show with the History Channel (to be launched sometime in the Fall of 2000), and for an upcoming on-line/on-air show, based on the existing TV show *Inquizition*, with Sony Corporation's the Game Show Network. Also, Spiderdance, Inc., has partnered with Discreet (a division of Autodesk, Inc.), a Canadian-based company that will work with Spiderdance, Inc., to develop systems and software for enhanced visual effects and real-time three-dimensional animation. Further, the company has partnered with TeleCruz Technologies, Inc., to codevelop interactive content and differentiated programming for television shows.

MANAGEMENT

Steven Hoffman is the CEO of Spiderdance, Inc. He came to the company with an extensive background in both television and Internet development. Prior to founding Spiderdance, Inc., Hoffman consulted for R/GA Interactive, a New York design firm, and LavaMind, a software development company. Hoffman also generated concepts and plans for interactive games at SEGA Enterprises, Ltd., and was the manager of development at Fries Entertainment, where his clients included the American Broadcast Company, Inc., the National Broadcasting Company, Inc., and CBS Worldwide, Inc.

SporTVision, Inc.

http://www.sportvision.com
1450 Broadway, 31st Floor
New York, NY 10018
Telephone: (212) 764-0873
Fax: (212) 764-0876

COMPANY DESCRIPTION

SporTVision, Inc., is a privately held company that develops enhancements for sports television and the Internet. The company creates a number of programming applications that enrich the viewing experience, while offering broadcasters, advertisers, and network programmers a way to differentiate themselves and generate additional revenue streams. SporTVision, Inc., has created enhancements for baseball, football, hockey, basketball, auto racing, and a variety of extreme sports such as skiing and skateboarding.

REVENUE MODEL

SporTVision, Inc., generates revenue in the form of license fees from television networks in exchange for providing enhancements within programming. Also, SporTVision, Inc., derives revenue from selling its enhancement features directly to advertisers for appearances on broadcast television and syndicated content on the Internet. Consulting fees account for a small portion of SporTVision, Inc.'s total revenue stream.

FINANCIAL HIGHLIGHTS

In July 1999, SporTVision, Inc., received $9.3 million from a number of strategic investors, including Bay Partners, Intel Corporation, Orion Partners, Prudential Securities, Prospect Street Ventures, RRE Ventures, Shamrock, Sterling Equities, and Williams Communications Group, Inc. In April 2000, the company received a follow-on round of financing of $13.0 million in April 2000 from Prospect Street Ventures, Orion Partners, and American International Group, Inc. ACTV, Inc., recently made an investment in SporTVision, Inc.'s current round of Series C financing, in which the company plans to raise an additional $17.0-$27.0 million.

NEW INITIATIVES

On July 13, 2000, SporTVision, Inc., announced a strategic alliance with ACTV, Inc., to develop enhancements linking television and Internet coverage of sporting events. The partnership will use ACTV, Inc.'s patented HyperTV technology platform and SporTVision, Inc.'s production and design expertise. That same month, SporTVision, Inc., successfully debuted its home-run measurement system in Major League Baseball's Home-Run Derby contest during the All-Star game. In addition, SporTVision, Inc., announced that it had completed its acquisition of Coach's Edge, Inc., a developer of enhanced computer animation technology for Internet and sports broadcasting use. The company has also made several additional announcements relating to the increased adoption of its sports enhancements technologies. Recent initiatives include enhancements for the U.S. Open golf tournament, the National Basketball Association (NBA) Slam-Dunk Contest, and the IronMan triathlon in Australia.

PARTNERS

The company has formed alliances with a variety of sports and entertainment companies, including the NBA, the National Football League, the National Hockey League, ESPN Networks, World Triathlon Corporation, IronMan Properties, the American Broadcast Company, Inc., ACTV, Inc., Turner Sports, Chyron Corporation, MSG Network, the New York Mets, and Sony Corporation.

MANAGEMENT

Bill Squadron is the CEO of SporTVision, Inc., and oversees the company's financial, legal, marketing, administrative, and intellectual property components. Previously, Squadron served as senior vice president, strategic planning, for News Corporation, Ltd. From 1990 to 1993, he was the commissioner of New York City's department of telecommunications and energy. Before that, he specialized in communications law as a partner at the law firm of Morrison & Forrester.

The following section identifies numerous key participants in the Set-Top Box Operating Systems/Platforms segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Set-Top Box Operating Systems/Platforms

Public Companies

	Ticker	Price (9/11/00)	52-Week Range High	52-Week Range Low	Shares (mil)	Market Cap (mil)	Calendar 1999 Revenue (mil)	Calendar 2000E Revenue (mil)	2000E/1999 Rev. Growth	2000E Rev. Multiple	Profitable?
Liberate Technologies, Inc.	LBRT	$32.13	$148.50	$14.19	90.1	$2,894.5	$28.0	$45.0	60.6%	64.3	No
Microsoft Corporation	MSFT	68.81	119.94	60.38	5,262.4	362,118.9	22,956.0	24,260.3	5.7%	14.9	Yes
NDS Group PLC	NNDS	78.38	104.88	26.00	52.4	4,106.9	216.0	—	—	—	—
OpenTV Corporation	OPTV	55.05	245.75	35.13	27.1	1,491.8	26.0	54.9	111.2%	27.2	No

Private Companies

MetaTV, Inc.
Rachis Corporation

Liberate Technologies, Inc.

http://www.liberate.com
2 Circle Star Way
San Carlos, CA 94070
Telephone: (650) 701-4000
Fax: (650) 631-4600

Ticker: LBRT **Price: $32.13** **52-Week Range: $148.50-$14.19** **Market Capitalization: $2,894.5 million**

COMPANY DESCRIPTION

Liberate Technologies, Inc., provides a software platform for a variety of information appliances, including set-top boxes, game consoles, and personal digital assistants. Network operators, cable and satellite television operators, and Internet service providers that incorporate Liberate Technologies, Inc.'s unique software platform can offer their customers a host of Internet-enhanced services. As a result of Liberate Technologies, Inc.'s software, incremental revenue streams are created through real-time interactive broadcasts, impulse purchases, and home shopping. The software was developed around an open standards-based model that maximizes both ease of use and content delivery.

REVENUE MODEL

Liberate Technologies, Inc., primarily generates revenue by licensing its server and client products. The company also (1) provides consulting, engineering and training services to network operators and information appliance manufacturers; and (2) collects maintenance fees for technology upgrades and technical support.

FINANCIAL HIGHLIGHTS

For fiscal (May) 2000, Liberate Technologies, Inc., reported total revenue of $28.0 million, up 62% from fiscal 1999. The company's net loss climbed 87% to $80.8 million, or $1.14 per share, from $43.3 million, or $0.52 per share. Among the original investors in Liberate Technologies, Inc., are Netscape Communications, Inc., Oracle Corporation, Sony Corporation, Acer, Inc., SEGA Enterprises, Ltd., Nintendo Company, Ltd., and NEC Corporation.

In 1999, 11 other companies made strategic investments in Liberate Technologies, Inc. They were Comcast Corporation, Cox Communications, Inc., General Instrument, Hambrecht & Quist (a unit of Chase Manhattan Corporation), Lucent Technologies, Inc., Marubeni Corporation, MediaOne Ventures (the investment arm of MediaOne Group), Rogers Communications, Inc., Shaw Communications, Inc., Sun Microsystems, Inc., and Wind River Systems, Inc.

NEW INITIATIVES

On July 17, 2000, Cisco Systems, Inc., invested $100.0 million in Liberate Technologies, Inc., giving Cisco Systems, Inc., a 3.9% stake in the company. The two companies plan to work together to cosell and comarket open-standard Internet protocol (IP)-based solutions for interactive television (ITV). In addition, AOL TV chose Liberate Technologies, Inc., to provide the software for AOL TV's service enabling America Online, Inc., to offer e-mail, chat, instant messaging, and enhanced TV programming. Liberate Technologies, Inc., also recently partnered with ONO (managed by Callahan Associates International) to provide Spain with digital cable interactive services.

In June 2000, Liberate Technologies, Inc., acquired privately held MoreCom, Inc., an ITV infrastructure provider. Also, Liberate Technologies, Inc., recently made announcements that both DIVA Systems Corporation and ACTV, Inc., are planning to integrate their technologies into Liberate Technologies, Inc.'s TV platform software. As part of its agreement with DIVA Systems Corporation, Liberate Technologies, Inc., made a $4.0 million strategic investment in the company. Further, Liberate Technologies, Inc., announced plans to incorporate NDS Group's personal video recording technologies into Liberate Technologies, Inc.-enabled set-top boxes.

PARTNERS

Liberate Technologies, Inc., has formed partnerships with a number of technology companies to integrate its interactive software platform. These partners include Acer, Inc., ACTV, Inc., Broadcom Corporation, Canon, Inc., Canadian Satellite Communications, Inc., Cisco Systems, Inc., DIVA Systems, At Home Corporation, Fujitsu, Ltd., Motorola, Inc.'s Broadband Communications Sector unit, Hughes Network Systems, International Business Machines Corporation, Inktomi Corporation, National Semiconductor Corporation, NDS Group PLC, NEC Corporation, Next Level Communications, Inc., Pegasus Communications Corporation, Philips Electronics Company, RealNetworks, Inc., RespondTV, Inc., Scientific-Atlanta, Inc., SeaChange International, Inc., Sun Microsystems, Inc., Talk City, Inc., TiVo, Inc., Two Way TV, Ltd., United Pan-Europe Communications NV, and Wink Communications, Inc.

On August 7, 2000, the company partnered with Adforce, L.L.C. (a CMGI, Inc., company), to offer cable providers various ITV advertising solutions. On August 9, 2000, Liberate Technologies, Inc., also made a strategic investment of $3.0 million in Everypath, Inc., a leading application service provider. The two will work together to develop solutions that will increase the availability of Web-based information and content on television. Following these two announcements, Liberate Technologies, Inc., revealed a strategic relationship with Nagravision, the digital television and broadband Internet unit of the Kudelski Group, in which the two companies developed an enhanced interface that will enable cable operators to more efficiently roll out interactive services using Liberate Technologies, Inc.'s platform and Nagravision's conditional access systems.

PATENTS

Liberate Technologies, Inc., has been awarded two patents and has 17 patent applications pending in the U.S. Patent & Trademark Office relating to its proprietary ITV software.

MANAGEMENT

Mitchell Kertzman is president and CEO of Liberate Technologies, Inc., and serves on the board of directors. Before joining the company, Kertzman was chairman of the board of Sybase, Inc; previously, he founded and was CEO of PowerSoft, Inc. Kertzman is currently a director of CNET Networks, Inc., Interconnect Systems, Inc., Chordiant Software, Inc., and Extensity, Inc.

MetaTV, Inc.

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Fax: (415) 289-8910

COMPANY DESCRIPTION

MetaTV, Inc., is a privately held company that facilitates the viewing of Web content on a television set. Its software automatically pulls the most relevant pieces of a Web site together and optimizes them to be viewed from a distance. The company offers a software platform for set-top boxes that facilitates t-commerce transactions and advertising enhancements as well as community and customization features. In addition to running on Internet TV set-top boxes, its platform can be adapted by other broadband devices such as personal computers and other Internet appliances. Further, MetaTV, Inc., provides engineering and integration services and consulting.

REVENUE MODEL

MetaTV, Inc., primarily generates revenue from licensing its proprietary interactive applications software to content providers and network operators that pay licensing fees per set-top box. The company does not currently participate in a share of revenue generated from impulse purchases but may do so in the future depending on contractual arrangements with content providers. MetaTV, Inc., currently recognizes a proportionately small amount of transactional revenue as a result of its back-end database, which it processes but does not own. According to an August 10th article published in *The Wall Street Journal*, MetaTV, Inc., expects to be profitable by the second half of 2001.

FINANCIAL HIGHLIGHTS

In February 2000, Liberty Digital, Inc., invested $5.0 million in MetaTV, Inc., and Sony Corporation, an investment that gives it a minority interest in the company. In May 2000, MetaTV, Inc., successfully completed a round of financing totaling $11.0 million, with Redpoint Ventures making an $8.0 million investment. Additional investors were Rosewood Venture Group and business leaders from the telecommunications, entertainment, and Internet industries.

NEW INITIATIVES

In addition to the company's announcement concerning financing, MetaTV, Inc., recently announced additions to its board of directors, including William Esrey, chairman and CEO of Sprint Corporation, and other respected Internet and venture capital leaders. MetaTV, Inc., also announced its affiliation with the Microsoft TV content developer program, in which MetaTV, Inc., will work with content developers to create an enhanced experience for television viewers.

PARTNERS

MetaTV, Inc., has partnered with interactive television pioneers such as Microsoft Corporation and Liberate Technologies, Inc. Further, the company is continually looking to expand its product and service offerings by developing strategic relationships with large network operators and other technology companies.

MANAGEMENT

Ranjit Sahota is the CEO and founder of MetaTV, Inc. Sahota brings more than 14 years of innovative software design and implementation experience with application platform technology and frameworks for large-scale mission-critical enterprise and Internet applications. Previously, he was chief architect at Sterling Software and responsible for Sterling Software's product architecture and overall technical vision.

Microsoft Corporation

http://www.webtv.com
http://www.microsoft.com/tv
http://www.xbox.com
One Microsoft Way
Redmond, WA 98052
Telephone: (425) 882-8080

Ticker: MSFT **Price: $68.81** **52-Week Range: $119.94-$60.38** **Market Capitalization: $362,118.9 million**

COMPANY DESCRIPTION

Microsoft Corporation has several initiatives focused on bringing interactive and Internet functionality to television. In 1997, Microsoft Corporation acquired WebTV Networks, Inc., an on-line service that enables subscribers to access the Internet, e-mail, and chat through their televisions by using a WebTV-enabled set-top box. The company has also introduced products and services that extend beyond simple Internet access and offer a range of interactive features such as personalization, targeted advertising, and enhanced programming. The company has a subscriber base of more than one million users. Microsoft Corporation recently announced plans to integrate WebTV Networks, Inc.'s products and services with Microsoft Corporation's interactive television (ITV) group.

Microsoft Corporation has also developed Microsoft TV, a software platform for network operators to offer subscribers a number of enhanced applications and to create additional revenue streams. The applications include personalized television, video on demand, interactive programming, targeted One to One marketing, and Internet-on-television functionality (including e-mail, chat, and instant messaging). The Microsoft TV platform is capable of running on both today's digital set-top boxes and next-generation advanced digital set-top boxes; however, the company recently confirmed delays in its completion. The company currently has orders from various cable operators to integrate its software into 15.0 million set-top boxes.

In fourth-quarter 2000, Microsoft Corporation plans to introduce interactive features for game shows, sports and entertainment programming, and advertising. The service, labeled UltimateTV, is an extension of its WebTV service. The service will operate utilizing the Microsoft Windows CE platform.

REVENUE MODEL

The company's WebTV Networks, Inc., unit generates revenue from monthly subscription fees, advertising, and licensing from set-top box manufacturers and cable operators. The UltimateTV service will generate revenue based on subscription fees. The Microsoft TV platform will generate revenue from license fees relating to its server and client products.

NEW INITIATIVES

In June 2000, Microsoft Corporation announced an alliance with DirecTV, Inc., and Thomson Multimedia to create a new direct broadcast satellite system that integrates DirecTV programming, digital video recording, ITV and Internet access. At the International Broadcasting Convention 2000, Microsoft Corporation announced a number of initiatives pertaining to its interactive software platform. These included the expansion of its Content Developer Program to include countries across Europe; the strengthening of its relationships with NDS Group PLC and Philips Electronics Company; and the outline for plans to deliver enhanced television applications to the personal computer with its new software called Microsoft TV Technologies.

On March 10, 2000, Microsoft Corporation outlined its plans for the launch of Xbox, a game console with high-speed Internet access and e-commerce capabilities. The product will launch during the second half of 2001. According to executives at Microsoft Corporation, the company plans to spend $500.0 million on the launch—the most money spent on a product launch in the company's history. In June 2000, Microsoft Corporation announced the acquisition of Bungie Software Products, which will develop content for the Xbox platform.

PARTNERS

WebTV Networks, Inc.

Microsoft Corporation's WebTV Networks, Inc., unit has formed Internet service provider relationships with Concentric Network Corporation (a unit of NextLink Communications, Inc.), UUNet Technologies, Inc. (a unit of WorldCom, Inc.), PSINet, Inc., Ziplink, Inc., and SBC Communications, Inc.

The company has also formed manufacturing and distribution relationships with Sony Corporation, Philips Electronics Company, EchoStar Communications Corporation, Mitsibushi Corporation, Samsung Electronics Company, Ltd, Matsushita Electrical Industrial Company, Pace Micro Technology PLC, and Thomson Multimedia. In addition, significant technology relationships include Hewlett-Packard Company and Canon, Inc.

In early September 2000, WebTV Networks, Inc., partnered with CBS Worldwide, Inc. (CBS, Inc.), to create over 500 hours of interactive programming for dramas, comedies, movies, and sports programming for the CBS, Inc., 2000-2001 season. WebTV Networks, Inc., has partnered with a number of other content providers, including Big Ticket Television, Columbia Tristar, Discovery Channel, E! Entertainment Television, the Home Box Office, Inc. (a unit of Time Warner, Inc.), Home & Garden Television, the Learning Channel, MacNeil/Lehrer Productions, MSNBC (a joint venture of Microsoft Corporation and the National Broadcasting Company, Inc.), NBC News, NBC Sports, and the Weather Channel.

Microsoft TV

The Microsoft TV platform has been adopted by the company's WebTV Networks, Inc., unit, AT&T Broadband, NTL, Inc., and Rogers Communications, Inc., among others. In addition, Microsoft Corporation has partnered with a number of original equipment manufacturers such as Acer, Inc., Fujitsu, Ltd., Motorola, Inc., Hitachi, Ltd., Matsushita Electrical Industrial Company, Pace Micro Technology PLC, Philips Electronics Company, Sagem, S.A., Samsung Electronics Company, Ltd., Scientific-Atlanta, Inc., Sharp Corporation, Siemens AG, Sony Corporation, Tatung Company, Thomson Multimedia, TriGem Computer, Inc., and the Vestel Group of Companies.

Further, the Microsoft TV platform has formed relationships with independent software vendors such as Digital Video Arts, DIVA Systems Corporation, Intertainer, Inc., and SeaChange International, Inc. The company has also partnered with a variety of independent hardware vendors, system integrators, and head-end and infrastructure systems.

MANAGEMENT

Jon DeVaan is senior vice president of Microsoft Corporation's TV service and platform business and is responsible for the core businesses of Microsoft WebTV service and the Microsoft TV platform. DeVaan has held a number of positions at Microsoft Corporation. Prior to his current position, he led Microsoft Corporation's desktop applications division and was a vice president of development and director of development of the office applications.

William H. Gates is chairman and chief software architect of Microsoft Corporation. Gates is actively involved in the company's key management and strategic decisions, and he plays an important role in the technical development of new products.

NDS Group PLC

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Ticker: NNDS **Price: $78.38** **52-Week Range: $104.88-$26.00** **Market Capitalization: $4,106.9 million**

COMPANY DESCRIPTION

NDS Group PLC is a London-based company that provides software and hardware solutions to pay television broadcasters and set-top box manufacturers. These products and services improve the delivery of entertainment and information to personal computers, digital televisions, set-top boxes, and mobile devices. NDS Group PLC complements this core product offering with services that include systems integration, consulting, and technical support. The company's solutions power a broad range of interactive television applications, including sporting events, home shopping, entertainment guides, and other interactive content-specific channels.

REVENUE MODEL

The company generates revenue from the sale of its hardware and software to digital television operators. In addition, NDS Group PLC generates revenue from various consulting, engineering, and system design services, and through video-on-demand fees relating to its pay TV subscriber base of 16.8 million households.

FINANCIAL HIGHLIGHTS

For fiscal (June) 2000, NDS Group PLC reported year-over-year revenue growth of 26% to £160.2 million ($243.3 million). This increase in revenue can be directly attributed to a rise in sales of its software and services. The company reported an increase in operating income of 30% to £24.3 million ($36.9 million) versus fiscal 1999. Further, NDS Group PLC's Pay TV subscriber base increased 42% year over year to 18.5 million.

NEW INITIATIVES

NDS Group PLC recently announced a number of agreements to integrate its middleware and personal video recording technologies into interactive software platforms developed by Liberate Technologies, Inc., Microsoft Corporation, and Thomson Multimedia, among others. Other interactive agreements include one with In Flight Network, L.L.C., for the supply of software, services, and technology for in-flight entertainment and another with Picturevision, Inc., for the development and joint marketing of interactive photo applications.

PARTNERS

The company has partnered with broadcasters across the world including British Sky Broadcasting Group PLC, British Telecommunications, Cablevision Systems Corporation, DirecTV, Inc., FOX Entertainment Group (a subsidiary of News Corporation, Ltd.), Galaxy Latin America, NTL, Inc., Reuters PLC, Sky New Zealand, STAR TV, and Thomson Multimedia.

MANAGEMENT

Dr. Abe Peled is the president and CEO of NDS Group PLC. Prior to joining the company, Peled worked in a number of different capacities for International Business Machines Corporation's research division focusing on advanced digital technologies, systems, software, and applications. Peled also worked as a senior vice president in business development for Elron Electronic Industries, an Israel-based networking services and software company.

OpenTV Corporation

http://www.opentv.com
401 East Middlefield Road
Mountain View, CA 94043
Telephone: (877) 673-6888
Fax: (650) 237-0821

Ticker: OPTV **Price: $55.05** **52-Week Range: $245.75-$35.13** **Market Capitalization: $1,491.8 million**

COMPANY DESCRIPTION

OpenTV Corporation provides software that enables interactive television (ITV) applications such as e-mail, community features, and e-commerce to run on digital set-top boxes. OpenTV Corporation's software operates without interrupting a viewer's normal television viewing habits. The viewer interacts with a program using a standard remote control and can (1) access additional information relating to advertisements of products or services; (2) purchase merchandise; (3) conduct banking transactions; and (4) view real-time statistics and enhancements for sporting events and traditional programming. To date, the company's software has been installed in more than 9.3 million set-top boxes via the company's relationships with 29 cable network operators across 50 countries.

On July 24, 2000, OpenTV Corporation announced that it had completed the acquisition of SpyGlass, Inc., a provider of Internet and ITV software. The merger positions OpenTV Corporation to capitalize on the ITV software market because its offerings will now include Web browsing, which Spyglass, Inc., helped pioneer. Further, the company is positioned to benefit from higher market share as a result of increased access to set-top boxes and from improvements in royalties and server and applications revenue.

REVENUE MODEL

The company's revenue model is derived from royalties (65% in second-quarter 2000), license fees (15% in second-quarter 2000), and services and other revenue (20%).

FINANCIAL HIGHLIGHTS

For 1999, OpenTV Corporation reported total revenue of $26.0 million, up 174% from 1998. Additionally, OpenTV Corporation reported revenue for first-quarter 2000 of $10.9 million. Excluding the impact of noncash and nonrecurring charges, OpenTV Corporation's net loss for 1999 was $9.3 million, or $0.32 per diluted share, versus a net loss of $14.3 million, or $0.43 per diluted share, in 1998.

For second-quarter 2000, OpenTV Corporation reported total revenue of $11.3 million, representing an 83% increase year over year. Revenue growth was fueled by increases in royalty, license, and service revenue. As of June 30, 2000, OpenTV Corporation reported having cash and short-term investments of $152.5 million. Further, the company has announced plans for a secondary offering of common stock and plans to file a registration statement in the Fall of 2000.

NEW INITIATIVES

OpenTV Corporation formed a joint venture with EchoStar Communications Corporation during first-quarter 2000. The two companies will develop a low-cost one-box solution that includes digital ITV and hard-drive capabilities for the set-top box. The goal of this joint venture is to give consumers broader functionality that will include such features as video on demand, e-commerce, and other entertainment services.

Recently, the company announced that OpenTV Corporation would work with ACTV, Inc., and Motorola, Inc., to form Digital ADCO International, a subsidiary of Digital ADCO, Inc. This new company plans to bring the benefits of ACTV Inc.'s One to One Television software applications to multiple system operators and satellite television operators worldwide by leveraging OpenTV Corporation's strong international presence, its system technology, and its well-connected management team. The three companies will be equal partners in the newly formed subsidiary, and OpenTV Corporation will also receive a small equity interest in the parent company as a result of an investment of undisclosed proportions.

Also, the company formed several partnerships to develop ITV applications. Two of the most significant involve deals with Commerce.TV and Wink Communications, Inc. With the recent announcement of these two agreements, OpenTV Corporation's software platform is now equipped to more efficiently handle impulse t-commerce transactions from television viewers. Further, OpenTV Corporation reached a deal with Golden Channels, a large cable network provider in Israel, to deliver its platform for interactive services to Golden Channels' 460,000 subscribers.

The company's OpenAdvantage Program has already secured more than 300 independent OpenTV Corporation application developers. The OpenAdvantage Program plans to generate incremental revenue for the company through the sales of authoring tools, training, and other products.

PARTNERS

OpenTV Corporation has formed relationships with companies in a wide range of industries, including broadcast, the Internet, and broadband. The company has received strategic investments from industry leaders such as America Online, Inc., Motorola, Inc., Liberty Digital, Inc., MIH Limited, News Corporation Ltd., Shaw Communications, Inc., Sun Microsystems, Inc., and Time Warner, Inc., OpenTV Corporation's software has been selected by television network operators around the world, such as British Sky Broadcasting PLC in the United Kingdom, TPS in France, Via Digital in Spain, Senda in Sweden, Stream in Italy, and EchoStar Communications Corporation in the U.S.

In addition, OpenTV Corporation has partnered with a number of leading set-top box manufacturers to integrate its interactive software platform. These partners include Advanced Digital Broadcast Ltd., EchoStar Communications Corporation, Motorola, Inc., Hughes Network Systems, Panasonic, Nokia Corporation, Pace Micro Technology PLC, Philips Electronics Company, Sagem S.A., Samsung Electronics Company, Ltd., Sony Corporation, Thomson Multimedia, and Zenith Electronics.

INTELLECTUAL PROPERTY

OpenTV Corporation currently has 27 patents issued in the U.S., with another 27 patent applications pending.

MANAGEMENT

Jan Steenkamp has been the president and CEO of OpenTV Corporation since 1997. Steenkamp brings to the company an extensive background in both electrical engineering and pay television operations. Prior to joining OpenTV Corporation, Steenkamp was the commercial director of Irdeto Consultants in the Netherlands and held various management and new business initiative positions at both Irdeto Consultants and the Myriad International Holdings Group from 1985 to 1997.

Rachis Corporation

http://www.rachis.com
2 Clock Tower Place, Suite 600
Maynard, MA 01754
Telephone: (978) 461-9984
Fax: (978) 461-9986

COMPANY DESCRIPTION

Rachis Corporation is a privately held provider of software solutions that are aimed at providing interactive television (ITV) applications to set-top box manufacturers and component vendors. The company is working with Microsoft Corporation to enable the Microsoft Corporation's ITV software solution to run on advanced set-top boxes. In addition, Rachis Corporation is developing new product lines that will enable both television broadcasters and network operators to participate in additional revenue streams by offering their consumers software platforms that enable content, communication, and t-commerce.

REVENUE MODEL

Rachis Corporation's revenue model is based on the engineering consulting services that it provides for a variety of companies that conduct business within the ITV area. The company derives revenue on a time-and-materials basis.

FINANCIAL HIGHLIGHTS

In January 2000, Rachis Corporation received a first round of equity funding totaling $2.0 million, with the investors led by Venture Investment Management Company (VIMAC), a Boston-based venture capitalist. As part of the terms of the financing, VIMAC acquired a minority stake in the company. Rachis Corporation announced that the proceeds from the funding would be used for product development, expansion, and marketing. Rachis Corporation is already a profitable company.

NEW INITIATIVES

At the National Association of Broadcasters conference in April 2000, Rachis Corporation announced an agreement with Microsoft Corporation to provide consulting services to assist a wide range of set-top box and television manufacturers in rapidly deploying the Microsoft TV software platform. Further, Rachis Corporation recently announced its new ReadySet! program, which enables independent hardware vendors to more efficiently integrate their hardware components into the Microsoft TV set-top box and other related platforms.

PARTNERS

Rachis Corporation has partnered with a number of (1) processor and core logic component designers such as Hitachi, Ltd., IDT Corporation, NEC Corporation, Toshiba Corporation, V3 Semiconductor, Inc,; (2) graphic component designers, including ATI Technologies, Inc., Broadcom Corporation, BroadLogic, Oak Technology, Inc., Sigma Designs, Inc., TeraLogic, and Zoran Corporation; and (3) operating system vendors, such as Microsoft Corporation and Wind River Systems, Inc. In addition, Rachis Corporation is working with five undisclosed set-top box manufacturers and television original equipment manufacturers.

MANAGEMENT

Jeff Bobzin is president of Rachis Corporation and has been developing system-level software for embedded and standard personal computers since 1984. Most recently, Bobzin was a founder and senior vice president at SystemSoft Corporation, where he oversaw all hardware and system-level software development. Prior to SystemSoft Corporation, Bobzin was a director at Phoenix Technologies, Ltd., where he was the chief architect and manager of BIOS products development.

The following section identifies several participants in the TV-Based Internet Access/Services segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

TV-Based Internet Access/Services

Public Companies

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	**(9/11/00)**	**High**	**Low**	**(mil)**	**(mil)**	**(mil)**	**(mil)**	**Rev. Growth**	**Rev. Multiple**	**Profitable?**
LodgeNet Entertainment Corporation	LNET	$28.31	$28.44	$12.00	12.2	$345.4	$181.3	$201.5	11.2%	1.7	No
WorldGate Communications, Inc.	WGAT	22.63	50.00	13.00	21.5	486.44	5.6	16.3	191.6%	29.8	No

Subsidiary of Public Company

AOL TV (a unit of America Online, Inc.)

AOL TV

(A service of America Online, Inc.)
http://www.aoltv.com
22000 AOL Way
Dulles, VA 20166
Telephone: (703) 265-1000
Fax: (703) 265-1101

COMPANY DESCRIPTION

America Online, Inc., provides a wide range of interactive services and technologies designed to enhance the experiences of on-line users and television viewers. With the rollout of AOL TV, the company has extended its Internet access, e-mail, and instant messaging features to television. The service also offers users a program guide for simplified navigation; however, it will not include the full range of services that America Online, Inc., offers over the personal computer. For example, AOL TV users will not have the ability to download files directly from their television sets. The rollout of AOL TV began in June 2000.

REVENUE MODEL

AOL TV generates revenue from subscription fees. AOL TV will be offered to America Online, Inc., members for a reduced subscription rate of $14.95 per month and to nonmembers for $24.95 per month. AOL TV customers must also buy a $249 set-top box from Philips Electronics Company. We expect AOL TV to derive further revenue from advertising, e-commerce, and software licensing.

PARTNERS

The AOL TV service is being offered on set-top boxes manufactured by Philips Electronics Company and will be distributed through DirecTV, Inc. The AOL TV platform incorporates software developed by Liberate Technologies, Inc., and TiVo Inc.'s personal video recording technology. As part of the agreement, America Online, Inc., made a $200.0-million strategic investment in TiVo, Inc.

Currently, America Online, Inc., is working with a variety of television content providers for its AOL TV service. These providers include E! Entertainment Television, Oxygen Media, Inc., Starz Encore Group, QVC, Inc., the Weather Channel, Sesame Workshop (part of the Children's Television Workshop), Sony Pictures, Digital Entertainment's SoapCity, Court TV, and Odyssey. The company is also exploring interactive content relationships with E! Online, RollingStone.com, Electronic Arts, Inc., LAUNCH.com, Better Homes and Gardens, and BUZZTIME.com (a subsidiary of NTN Communications, Inc.).

MANAGEMENT

Barry M. Schuler is president of the interactive services group for America Online, Inc., and is considered a pioneer in the application of computer technology to graphic arts and visual communications. He is responsible for America Online Inc.'s product, programming, and production groups.

LodgeNet Entertainment Corporation

http://www.lodgenet.com
3900 West Innovation Street
Sioux Falls, SD 57107
Telephone: (605) 988-1000
Fax: (605) 330-1532

Ticker: LNET **Price: $28.31** **52-Week Range: $28.44-$12.00** **Market Capitalization: $345.4 million**

COMPANY DESCRIPTION

LodgeNet Entertainment Corporation is a communications company that provides broadband Internet access and interactive information and entertainment services to the lodging industry in the U.S., Canada, and other international markets. Examples of these guest-pay services include high-speed Internet access, on-demand movies and video games, and various Internet-enhanced television features. The company also offers services such as satellite-delivered basic and premium cable television programming. To date, LodgeNet Entertainment Corporation's system has been installed in more than 760,000 rooms in more than 4,900 hotel and motel properties.

REVENUE MODEL

LodgeNet Entertainment Corporation derives its revenue streams primarily from its guest-pay interactive services. Revenue from other sources includes cable television programming and other various free-to-guest services that are sold to hotels and motels rather than guests. LodgeNet Entertainment Corporation derives a small portion of its revenue from the sale of system equipment and from routine maintenance and technical support.

FINANCIAL HIGHLIGHTS

LodgeNet Entertainment Corporation reported revenue for second-quarter 2000 of $48.1 million, representing a year-over-year increase of 8.7%. Revenue from the company's guest-pay service increased 10% but was partly offset by a small decline in free-to-guest and other service-related revenue. The company reported a net loss of $6.5 million, a narrowing of 280% from a net loss of $24.8 million net loss for the comparable quarter in 1999.

NEW INITIATIVES

On June 20, 2000, LodgeNet Entertainment Corporation announced several new interactive television services, including independently produced Web films, on-demand digital music, and other Web-based entertainment and information services. In early 2000, the company introduced a new direct response advertising service that will use banner ads on its interactive television menus, from which viewers can view product information and respond to advertisements and promotions with their remote controls. Also, the company reported that it had added 19,000 net new guest-pay interactive rooms to its base, with the average revenue generated by each interactive room increasing 5.1%. On August 14, 2000, LodgeNet Entertainment Corporation announced a partnership with SurfControl, Inc., to provide hotels and guests with functionality that will enable them to customize the content they view through LodgeNet Entertainment Corporation's television-based Internet access.

PARTNERS

Corporate-managed hotel chains that have partnered with LodgeNet Entertainment Corporation include Sheraton and Westin (both units of Starwood Hotels & Resorts), Marriott Hotels (and its Ritz-Carlton unit), and Harrah's Casino Hotels (a subsidiary of Harrah's Entertainment, Inc.) The company also has relationships with Doubletree and Embassy Suites (both units of Hilton Hotels Corporation), the Inter-Continental and Holiday Inn (both units of Bass Hotels and Resorts, a subsidiary of Bass PLC), Prince, Radisson, Wingate, La Quinta Inns (a subsidiary of Meditrust), and Red Roof Inns (a subsidiary of Accor), among others.

MANAGEMENT

Scott C. Petersen is the president and CEO and a member of the board of directors for LodgeNet Entertainment Corporation. Petersen has worked in a variety of different capacities since joining the company in 1987. Prior to 1987, Petersen was in private legal practice and specialized in corporate law and real estate development and syndication.

WorldGate Communications, Inc.

http://www.wgate.com
3190 Tremont Avenue
Trevose, PA 19053
Telephone: (215) 354-5100
Fax: (215) 354-1046

Ticker: WGAT **Price: $22.63** **52-Week Range: $50.00-$13.00** **Market Capitalization: $486.4 million**

COMPANY DESCRIPTION

Utilizing a cable television infrastructure, WorldGate Communications, Inc., provides a service that enables cable subscribers to access a wide array of Internet services and e-mail, eliminating the need for personal computers and telephone line connections. WorldGate Communications, Inc.'s Channel HyperLinking technology enables subscribers to directly connect to a Web site associated with a TV show or commercial with the push of a button. A click transports the viewer to a Web site with related content, advertisements, and commerce opportunities. All customers need is either a remote control or a wireless keyboard, which the cable operators resell to their subscribers. The WorldGate Communications, Inc., service uses thin-client network architecture and is the only Internet/interactive television (ITV) service commercially deployed on both digital and advanced analog set-top boxes.

WorldGate Communications, Inc., currently offers Channel HyperLinking 24 hours a day seven days a week across 88 channels, representing 63,360 interactive programming hours a month. In addition, as of June 30, 2000, WorldGate Communications, Inc., serves more than 43,000 subscribers, up 126% from three months before.

REVENUE MODEL

The company currently derives its revenue from subscriber fees that the cable operators charge their customers (approximately 35% of a monthly fee of $9.95); from portal revenue generated by advertising and tenancy relationships; from e-commerce; from Channel HyperLinking; and from system sales to cable operators. This last source of revenue is currently the company's largest (accounting for 92% of sales); however, the largest source should shift eventually to portal revenue as more systems are deployed. At the present time, portal revenue accounts for 2% of total revenue, but is expected to increase to approximately 58%. Meanwhile, subscriber fees are forecast to increase to 16% from 6%.

FINANCIAL HIGHLIGHTS

WorldGate Communications, Inc., reported total revenue for second-quarter 2000 of $3.6 million, an increase year over year of 383% and a sequential increase of 127%. Excluding extraordinary items, the company's net loss for the quarter was $11.0 million, or $0.51 per share, compared with a net loss of $9.2 million, or $0.47 per share, a year ago. As of June 30, 2000, the company reported cash and cash equivalents of $49.9 million.

RECENT INITIATIVES

On July 26, 2000, WorldGate Communications, Inc., announced multiyear agreements with top multiple system operators (MSOs) such as Adelphia Communications Corporation, Comcast Corporation, Cox Communications, Inc., and an extension of its current agreement with Charter Communications, Inc. As part of the deployment agreements, these MSOs will also make investments totaling $24.5 million in WorldGate Communications, Inc. These agreements provide WorldGate Communications, Inc., with access to approximately 40% of U.S. cable television households. Besides the four cable companies, WorldGate Communications, Inc., will also be forming an ITV joint venture, TVGateway, which will enable WorldGate Communications, Inc., to share in incremental revenue stream from t-commerce and interactive advertising opportunities with its MSO partners.

In a test program, about 27,000 residents in LaGrange, Georgia, are being given the WorldGate Communications, Inc., service for free. Results of this trial will be crucial in determining the product's acceptance and will subsequently impact relationships with cable operators either positively or negatively depending on the outcome. WorldGate Communications, Inc., has international deployment and trial agreements with 21 MSOs in 13 countries worldwide.

WorldGate Communications, Inc., recently underwent what it describes as a exceptionally successful trial in Massillon, Ohio. The study, which was conducted with Nielsen Media Research, Inc., and with national and local advertisers, showed that approximately 79% of the 1,000 subscribers in the trial used Channel HyperLinking on a regular basis. The study also showed that, on average, each household engaged in approximately three interactive sessions per day and accessed the Internet an hour per day from a television set.

PARTNERS

To date, the company has forged relationships with five of the six largest MSOs in the country—Charter Communications, Inc., Comcast Corporation, Cox Communications, Inc., AT&T Corporation, and Adelphia Communications Corporation The company also has an agreement with Mexico's Cablevision S.A. de C.V. to begin the commercial deployment of WorldGate Communications, Inc., service in every home of Cablevision's digital subscribers in Mexico City.

WorldGate Communications, Inc., has partnered with Motorola, Inc.'s Broadband Communications Sector unit and Microsoft Corporation to integrate WorldGate Communications, Inc.'s service with the Microsoft TV platform on the Motorola DCT 5000 advanced digital set-top box. Also, the company has partnered with OpenTV Corporation to deploy its service on OpenTV-enabled digital set-top boxes and SeaChange International, Inc., to integrate SeaChange International, Inc.'s video-on-demand functionality into the WorldGate Communications, Inc., service.

The company has also formed strategic agreements with Starmedia Network and Quepasa.com to use the cable television infrastructure to deliver Internet access and ITV services in both Latin America and Spain.

Currently, the company has more than 70 partners for its Channel HyperLinking program, including Cable News Network (CNN, a unit of Time Warner, Inc.), ESPN Networks (a unit of the Walt Disney Company), USA Networks, Inc., Lifetime Television, and many other networks, programmers, and advertisers.

PATENTS

WorldGate Communications, Inc., has filed patent applications in the U.S. and offshore that cover aspects of its real-time two-way interactive systems, including its ultra-thin client architecture and its Channel HyperLinking technology.

MANAGEMENT

Hal M. Krisbergh is chairman and CEO of WorldGate Communications, Inc., and has been with the company since its inception in March 1995. From September 1981 to September 1994, Krisbergh was an executive officer of General Instrument (now part of Motorola, Inc.).

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The following section profiles two major participants in the Personal TV Services segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Personal TV Services

Public Company

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	(9/11/00)	High	Low	(mil)	(mil)	(mil)	(mil)	Rev. Growth	Rev. Multiple	Profitable?
TiVo, Inc.	TIVO	$20.13	$78.75	$15.75	37.9	$762.7	$0.2	$5.5	NM	138.7	No

NM = Not meaningful.

Private Company

ReplayTV, Inc.

ReplayTV, Inc.

http://www.replaytv.com
1945 Charleston Road
Mountain View, CA 94043
Telephone: (650) 210-1000
Fax: (650) 691-0094

COMPANY DESCRIPTION

ReplayTV, Inc., is a privately held company that offers a personal television device that enables viewers to record, pause, rewind, and fast-forward live television programming. In addition, viewers can also view instant replays or watch their favorite live programs in slow motion. Television viewers can create customized channels based upon their personal preferences, using ReplayTV, Inc.'s electronic programming guide. The ReplayTV service functions by recording programs onto a digital hard drive, allowing viewers to watch their favorite programs on demand.

REVENUE MODEL

ReplayTV, Inc., derives its revenue from the sale of its ReplayTV 3000 unit. Currently, this box is priced at $499 with a storage capacity of 20 hours and $599 with a storage capacity of 30 hours. ReplayTV, Inc., customers receive a free lifetime subscription to the ReplayTV service. With deployment of the service, the company anticipates generating further revenue streams from advertising sales, media sponsorships, premium subscription services, and various t-commerce and video-on-demand services.

FINANCIAL HIGHLIGHTS

On March 23, 2000, ReplayTV, Inc., announced that it had closed a strategic round of financing totaling $84.9 million from a number of investors, including Adelphia Communications Corporation, Comcast Corporation, EchoStar Communications Corporation, At Home Corporation, Grey Global Group, Inc. (formerly Grey Advertising), the Interpublic Group of Companies, Matsushita Electrical Industrial Company, the Broadband Communications Sector unit of Motorola, Inc., News Corporation Ltd., Omnicom Group, Inc., Rogers Communications, Inc., Scientific-Atlanta, Inc., SEGA Enterprises, Ltd., Sharp Corporation, Shaw Communications, Inc., Universal Music Group (a subsidiary of the Seagram Company, Ltd.), and Vulcan Ventures, Inc.

The company has previously participated in a number of strategic private financings, including a $57.0-million investment round in August 1999 that was led by Time-Warner, Inc., the Walt Disney Company, Showtime Networks, Inc. (a unit of Viacom, Inc.), Liberty Media Corporation, United Television, the National Broadcasting Company, Inc (NBC, Inc.), Kleiner Perkins Caufield & Byers, Tribune Company, Vulcan Ventures, Inc., and several individual investors.

In January 2000, ReplayTV, Inc., filed a registration statement for an initial public offering. The company recently withdrew the filing, citing unfavorable market conditions.

NEW INITIATIVES

On August 29, 2000, ReplayTV, Inc., announced an interactive advertising deal with Universal Pictures (a unit of the Seagram Company, Ltd.) to promote and deliver content and brand messaging to users of the ReplayTV, Inc., service. On August 9, 2000, ReplayTV, Inc., announced a new feature for its personal television service called MyReplayTV. The new service, available at www.myreplaytv.com, essentially creates a television portal in which owners of ReplayTV digital video recorders can access programming highlights, personal channel guides, and search for additional information relating to an individual's television shows. Also on July 25, 2000, ReplayTV, Inc., announced that select Comcast Corporation cable subscribers would be able to lease digital video recorders from the cable provider and receive the ReplayTV service free of charge. This trial will be available first to subscribers in Comcast Corporation's system in Burlington County, New Jersey.

PARTNERS

The company has formed manufacturing relationships with Panasonic Corporation and Sharp Corporation. Further, the company has formed strategic alliances with a wide variety of media companies including Warner Brothers, Time, Inc., TBS, TNT, the Cartoon Network, Cable News Network (all units of Time Warner, Inc.); CNN; NBC, Inc., MSNBC (a joint venture between Microsoft Corporation and NBC, Inc.), CNBC.com; Showtime Networks, Inc., Paramount Pictures, United Paramount Network, and Comedy Central (all units of Viacom, Inc.); GO Network; FLIX; E! Entertainment; the Movie Channel; American Movie Classics; Sundance Channel; and Spelling Entertainment Group, Inc.

MANAGEMENT

Kim LeMasters is chairman and CEO of ReplayTV, Inc. LeMasters joined ReplayTV, Inc., after having served as president of CBS Entertainment, CBS Television Comedy Development, and Stephen J. Cannell Productions. He has also held senior television programming positions at Walt Disney Studios, Warner Brothers Television, and the American Broadcasting Company.

TiVo, Inc.

http://www.tivo.com
2160 Gold Street
San Jose, CA 95164
Telephone: (408) 519-9100
Fax: (408) 747-5096

Ticker: TIVO **Price: $20.13** **52-Week Range: $78.75-$15.75** **Market Capitalization: $762.7 million**

COMPANY DESCRIPTION

TiVo, Inc., develops personal video recorders (PVRs) that enable television shows to be stored digitally on a hard drive. A complementary subscription-based service provides viewers with searchable program schedules. Based on viewing habits and viewer feedback, the TiVo, Inc., device learns what a viewer likes or dislikes and can recommend programming based upon an individual's preferences. In addition, the TiVo, Inc., service enables viewers to pause or rewind programs, watch instant replays, or view their favorite programs in slow motion. The TiVo hardware is currently available in more than 4,000 retail stores as well as on on-line electronics retail sites.

REVENUE MODEL

The TiVo, Inc., service generates revenue based on a subscription model. TiVo, Inc.'s digital recording machine records 30 hours of programs on a hard drive and sells for $399. The TiVo, Inc., service costs about $10 a month or $199 for a lifetime subscription. Once the service is more widely deployed, the company expects to derive a portion of its revenue streams from (1) advertising; (2) sharing revenue generated by the networks; and (3) e-commerce opportunities.

FINANCIAL HIGHLIGHTS

For TiVo, Inc.'s second-quarter 2000, the company reported total revenue of $719,000 for a sequential increase of 70%. A year before, the company recognized only $8,000 in revenue because the TiVo, Inc., service was not yet deployed in households. For the second-quarter 2000, TiVo, Inc., reported a net loss of $29.0 million, or $0.82 per share, versus a net loss of $6.1 million, or $1.15 per share, a year before. The company's increased net loss reflects its aggressive sales and marketing campaign and the narrower loss per share reflects the higher share count. TiVo, Inc., received a number of strategic investments prior to raising $88.0 million in its initial public offering in September 1999.

In 1999 alone, the company raised nearly $300.0 million from Vulcan Ventures, Inc., Showtime Networks, Inc. (a unit of Viacom, Inc.), DirecTV, Inc., NBC Multimedia, Philips Venture (a unit of Koninklijke Philips Electronics, N.V.), Discovery Communications, and Sony Corporation. TiVo, Inc., also raised an additional $12.0 million from venture capital firms that included New Enterprise Associates, Institutional Venture Partners, Allegro Ventures, and Comdisco Ventures (a unit of Comdisco, Inc.).

NEW INITIATIVES

TiVo, Inc., recently announced a strategic agreement with America Online, Inc., whereby the personal features of TiVo, Inc.'s service will be incorporated into AOL TV-branded set-top boxes expected to deploy in the early part of 2001. As part of the agreement, America Online, Inc., made a strategic investment of $200.0 million in TiVo, Inc. The company also recently unveiled a new addition to its core service, TiVo Takes, that will add an interactive video component enabling subscribers to easily access informative and interactive television schedules for the upcoming week.

TiVo, Inc., commissioned an independent study that resulted in the validation of its contention that the TiVo, Inc., service has the ability to significantly transform an individual's viewing habits as well as the programming and advertising industries. TiVo, Inc., recently announced plans to work with Nielsen Media Research, Inc., to measure viewer usage statistics for its personal television service. On August 15, 2000, TiVo, Inc., announced a partnership with the British Broadcasting Company (BBC) in the United Kingdom that will allow TiVo, Inc., to feature BBC programming on its on-screen menus once the personal television service is launched in the United Kingdom later in 2000.

PARTNERS

TiVo, Inc.’s equity investors include America Online, Inc., Advance/Newhouse, CBS Worldwide, Inc., Cox Communications, Inc., DirecTV, Inc., Discovery Communications, Encore Media Group, Liberty Media Corporation, Liberty Digital, Inc., the National Broadcasting Company, Inc. (NBC, Inc.), Philips Electronics Company, Showtime Networks, Inc. (a unit of Viacom, Inc.), Sony Corporation, TV Guide Interactive (a unit of Gemstar-TV Guide International, Inc.), and the Walt Disney Company.

TiVo, Inc., has partnered with Philips Electronics Company and Sony Corporation to incorporate TiVo, Inc.’s personal television service in the two partner companies’ PVRs. In addition, TiVo, Inc., has developed distribution relationships with cable service providers such as Comcast Interactive (a unit of Comcast Corporation) and Cox Communications, Inc., as well as satellite service providers including DirecTV, Inc., and British Sky Broadcasting PLC.

A significant number of network programmers have agreed to create promotional showcases on TiVo, Inc.’s system. These include Discovery Communications (includes 12 Discovery-owned and -operated stations), E! Entertainment, FLIX, Home and Garden Television (a unit of the E.W. Scripps Company), Home Box Office, Inc. (a unit of Time Warner, Inc.), NBC, Inc., Showtime Networks, Inc. (a unit of Viacom, Inc.), Starz Encore Group, the Movie Channel, the Weather Channel, and TechTV (formerly ZDTV and a unit of ZDNet, Inc.).

Deals with technology suppliers include one with Liberate Technologies, Inc., to integrate TiVo, Inc.’s functionality into its interactive television software platform; one with Quantum Corporation to supply digital storage technology for TiVo, Inc.; and one with Spyglass, Inc. (a unit of OpenTV Corporation), to create additional service offerings that will enable TiVo, Inc.’s partners to create content using hypertext markup language and JavaScript.

In addition, TiVo, Inc., has formed relationships with Blockbuster, Inc., to develop video-on-demand functionality for TiVo , Inc., PVRs, and with iFILM Corporation, to provide TiVo, Inc., customers with unique film content.

TiVo, Inc., plans to spend more than $50.0 million on its television, radio, and print advertising and promotional campaign, and has partnered with Creative Artists Agency to develop different methods for promoting the TiVo, Inc., service.

INTELLECTUAL PROPERTY

TiVo, Inc., has filed 15 patent applications, but no patents have been granted to date.

MANAGEMENT

Michael Ramsey is the president and CEO of TiVo, Inc. Ramsey previously worked in a number of different capacities for Silicon Graphics, Inc., including senior vice president of the Silicon desktop group, president of Silicon Studio, Inc., and senior vice president and general manager of the company's visual systems group. He also held the positions of vice president and general manager for the entry systems division and director in the advanced systems group. Before joining Silicon Graphics, Inc., Ramsey held research and development and engineering management positions at Hewlett-Packard Company and Convergent Technologies, Inc.

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The following section identifies several key participants in the Video-on-Demand segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Video on Demand

Public Company

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	(9/11/00)	High	Low	(mil)	(mil)	(mil)	(mil)	Rev. Growth	Rev. Multiple	Profitable?
Concurrent Computer Corporation	CCUR	$15.88	$27.25	$5.50	53.9	$855.7	$70.0	$69.6	(0.5%)	12.3	Yes

Private Companies

DIVA Systems Corporation
Intertainer, Inc.
MeTV.com, Inc.

Concurrent Computer Corporation

http://www.ccur.com
4375 RiverGreen Parkway
Duluth, GA 30096
Telephone: (678) 258-4000

Ticker: CCUR **Price: $15.88** **52-Week Range: $27.25-$5.50** **Market Capitalization: $855.7 million**

COMPANY DESCRIPTION

Concurrent Computer Corporation provides real-time computer systems and video-on-demand (VOD) solutions to both the commercial and the government markets. The company's real-time division focuses on data acquisition, industrial systems, and software. The company's VOD division, XSTREME, supplies digital video servers, integrated software, and hardware solutions that enable VOD applications for residential, hospitality, and in-flight entertainment markets.

REVENUE MODEL

Concurrent Computer Corporation generates product revenue from the sale of its real-time computer systems and related hardware and software. In addition, the company generates service revenue from maintenance, support, and training fees. In fiscal (June) 1999, Concurrent Computer Corporation's product revenue and service revenue accounted for approximately 45% and 55% of the company's total revenue, respectively.

FINANCIAL HIGHLIGHTS

For fiscal 2000, the company reported total revenue of $68.1 million. Concurrent Computer Corporation's XSTREME division posted revenue from VOD sales of $12.0 million and its real-time unit reported $56.1 million in systems and services revenue. The VOD component represents a tenfold increase in revenue growth year over year. The increase in revenue is attributable to increased deployment of the company's video servers to multiple system operators (MSOs) across North America and to the commercial launch of VOD services in some markets. The company's net loss for fiscal 2000 was $23.1 million, or $0.44 per share, versus a net loss of $1.7 million, or $0.03 per share, for fiscal 1999.

NEW INITIATIVES

On August 17, 2000, the company announced the cable industry's most significant VOD deployment to date with the commercial launch of VOD services in the Tampa Bay region through an agreement with Time Warner Cable. On June 5, 2000, Concurrent Computer Corporation announced that it would be providing VOD service to Cox Communications, Inc., cable subscribers in Phoenix. This follows an announcement earlier in the year in which Cox Communications, Inc., selected Concurrent Computer Corporation's subsidiary, Vivid Technology, for the initial deployment of VOD in Cox Communications, Inc.'s San Diego system. On May 8, 2000, Concurrent Computer Corporation announced a partnership with WorldGate Communications, Inc., to integrate VOD services with WorldGate Communications Inc.'s technology, which enables instant access to the Internet over television as well as interactive programming and advertising opportunities.

PARTNERS

Concurrent Computer Corporation has partnered with top MSOs to offer its VOD service. Some of these partners include Time Warner Cable, Cox Communications, Inc., and Comcast Corporation. In addition, At Home Corporation selected Concurrent Computer Corporation's video server to offer MSOs its Local.TV data broadcasting technology. Further, the company has formed technology integration agreements with Intertainer, Inc., Canal+ U.S. Technologies, and Pioneer Corporation, among others.

MANAGEMENT

Steve Nussrallah is president and CEO of Concurrent Computer Corporation and the acting president of its XSTREME division. Nussrallah has more than 20 years of diverse management experience in technology-oriented industries, including 15 years of experience in the cable television industry. Prior to December 1998, Nussrallah was president and COO of Syntellect, Inc., and he was formerly vice president and general manager of the subscriber business unit of Scientific-Atlanta, Inc.

DIVA Systems Corporation

http://www.divatv.com
800 Saginaw Drive
Redwood City, California 94063
Telephone: (650) 779-3000
Fax: (650) 779-3099

COMPANY DESCRIPTION

DIVA Systems Corporation is a privately held company that develops specialized servers and software that enable the delivery of video-on-demand (VOD) services by cable and other broadband network operators. In addition, the company markets an interactive program guide for digital television as a stand-alone product. Together, these products and services are capable of introducing a wide range of interactive on-demand services, including personalized television features, targeted advertising, and t-commerce.

REVENUE MODEL

The company's revenue streams are derived from (1) the sale of its VOD hardware products; (2) the licensing of its systems software applications; and (3) service-related revenue from engineering and network operations, content development, and other related services. DIVA Systems Corporation sets up a server loaded with its content library at the cable operator's head-end and pays the content owner a royalty while splitting the gross profit with the cable operator.

FINANCIAL HIGHLIGHTS

In early 1996, the company raised $51.0 million, and in August 1997, DIVA Systems Corporation completed a round of private equity financing totaling $47.0 million. In 1998, the company raised an additional $250.0 million in a high-yield debt offering. Recently, DIVA Systems Corporation received strategic equity investments from Motorola, Inc.'s Broadband Communications Sector unit and from OpenTV Corporation, of $7.0 million and $5.0 million, respectively. In May 2000, the company received an additional $15.0 million from (1) NTL, Inc., the United Kingdom's largest cable operator; (2) Liberate Technologies, Inc.; and (3) Starz Encore Group. For the third (March) fiscal quarter of 2000, DIVA Systems Corporation reported total revenue of $584,000, and a net loss of $31.4 million, or $1.95 per share. DIVA Systems Corporation recently filed a registration statement for an initial public offering, with a maximum offering size of $75.0 million.

NEW INITIATIVES

DIVA Systems Corporation recently announced a number of significant events, including agreements with Liberate Technologies, Inc., OpenTV Corporation, and the MicrosoftTV platform to integrate the company's VOD services into the three companies' interactive television (ITV) software platforms. With respect to cable network operators, DIVA Systems Corporation reached deployment agreements with Charter Communications, Inc., for the Los Angeles area and with Insight Communications, Company, Inc., for Evansville, Indiana. Further, DIVA Systems Corporation entered into an agreement with Time Warner Cable for the development and integration of the company's VOD hardware and software for Time Warner Inc.'s interactive services platform.

PARTNERSHIPS

DIVA Systems Corporation has extensive relationships with major multiple system operators (MSOs) including AT&T Corporation, Charter Communications, Inc., Insight Communications Company, Inc., MediaOne Group, NTL, Inc., and Chamber Cable. Further, the company has developed partnerships with hardware manufacturers such as Motorola, Inc.'s Broadband Communications Sector unit and Scientific-Atlanta, Inc., with middleware providers such as Liberate Technologies, Inc., Microsoft Corporation, and OpenTV Corporation, and with electronic program guide technology companies such as Gemstar-TV Guide International, Inc., and Interactive Channel. In addition, the company's content partners include Warner Brothers, New Line Cinema, Home Box Office, Inc. (all units of Time Warner, Inc.); Sony Corporation; Twentieth Century FOX (a unit of FOX Entertainment Group and a subsidiary of News Corporation Ltd.); the Walt Disney Company, Universal Studios (a unit of the Seagram Company, Ltd.); Metro-Goldwyn-Mayer, Inc.; Dreamworks SKG; the Public Broadcasting Service; Cable News Network (a unit of Turner Networks); ESPN Networks (a unit of the American Broadcasting Company, Inc., or ABC, Inc., a subsidiary of Viacom, Inc.); Showtime Networks, Inc. (a unit of Viacom, Inc.); the Travel Channel; and the Discovery Channel, among others.

MANAGEMENT

David Zucker has been the president and CEO of DIVA Systems Corporation since February 1999. Zucker began his career in mergers and acquisitions in 1984 at investment banking firm The Goldman Sachs Group and has extensive management experience in broadcast and cable with television networks such as ABC, Inc., and ESPN Networks.

Intertainer, Inc.

http://www.intertainer.com
10950 Washington Boulevard, 3rd Floor
Culver City, CA 90232
Telephone: (310) 202-2900
Fax: (310) 202-2929

COMPANY DESCRIPTION

Intertainer, Inc., is a leading privately held video-on-demand (VOD) provider that enables viewers to access movies, music, television, and shopping features on demand, either through their personal computers or their television sets. The company offers a wide array of programming from various content providers and can be delivered to home computers and televisions through digital subscriber lines (DSL), cable modems, and digital set-top boxes. Along with this core service, Intertainer, Inc., also possesses the capability to deliver full enhanced TV functionality, including interactive advertising, e-commerce, and personalization features.

REVENUE MODEL

Intertainer, Inc.'s revenue-sharing model enables the company to participate in a portion of the revenue streams derived from VOD purchases by subscribers, from e-commerce opportunities, and from advertising services. In each instance, the company shares a portion of the revenue stream with the content provider and/or distributor. A smaller segment of Intertainer, Inc.'s revenue stream is generated by subscriber fees from cable and DSL distributors.

FINANCIAL HIGHLIGHTS

To date, Intertainer, Inc., has received $102.0 million in funding from strategic investors. About one-third of this financing came from Comcast Corporation, Intel Corporation, the National Broadcasting Company, Inc., Sony Corporation, U.S. West, Inc., and Sterling Investment Partners, each of which owns an equity stake. Also, Microsoft Corporation took a $56.0 million stake in the company early in 2000 and provides interactive expertise relating to the encoding of media in addition to its financial investment.

NEW INITIATIVES

Intertainer, Inc., began commercial deployments of its programming early in 2000 with test markets in Boulder, Colorado (through U.S. West, Inc.), in New York City (through RCN Corporation), and in Willow Grove, Pennsylvania. More recently, Intertainer, Inc., announced a deal with SeaChange International, Inc., to develop an integrated platform that will enable the delivery of its Entertainment on Demand service to run on Motorola, Inc.'s Broadband Communications Sector unit's advanced digital set-top boxes. Intertainer, Inc., also announced a strategic alliance with Microsoft Corporation to use the latter's Windows Media video format and digital rights management technology. On August 14, 2000, Intertainer, Inc., announced a deal with Akamai Technologies, Inc., to deliver Intertainer, Inc.'s library of streaming programming via last-mile local networks.

PARTNERS

Intertainer, Inc., has formed content partnerships with Warner Brothers, New Line Cinema, Twentieth Century FOX (a unit of FOX Entertainment Group and a subsidiary of News Corporation Ltd.), DreamWorks SKG, Buena Vista Entertainment Group, Miramax Films, Columbia TriStar Television, Sony Music, ESPN Networks, the Public Broadcasting Service, the Disney Channel, the Discovery Channel, the American Film Institute, and Styleclick.com, Inc., among others. Further, Intertainer, Inc., has collaborated with a number of interactive television pioneers and set-top box manufacturers, including SeaChange International, Inc., Scientific-Atlanta, Inc., and Motorola, Inc.

MANAGEMENT

Jonathan Taplin is the president and CEO of Intertainer, Inc. From 1974 to 1996, Taplin produced 26 hours of television documentaries and 12 feature films. Taplin has also worked at Merrill Lynch & Company, Inc., where he served as vice president of media mergers and acquisitions.

MeTV.com, Inc.

http://www.metv.com
152 Cross Road
Waterford, CT 06385
Telephone: (860) 442-6388
Fax: (860) 437-3063

COMPANY DESCRIPTION

MeTV.com, Inc., is a privately held company that delivers real-time Web-based movies on demand to the TV from a personal computer (PC) through either a digital subscriber line (DSL) or a cable modem connection. Instead of connecting through the set-top box, MeTV.com, Inc., has developed a small box that links to the PC via a wireless connection and plugs into the audiovisual inputs in standard television sets. In addition to providing benefits for consumers, MeTV.com, Inc., also maintains a database of customer profiles and preferences that enables its business partners and advertisers to market to a precise demographic and track the results. MeTV.com, Inc.'s parent company, MeTV Network, Inc., is based in Connecticut and has offices in Los Angeles.

REVENUE MODEL

The majority of MeTV.com, Inc.'s revenue is generated through a pay-per-view model in which consumers are charged for movies on demand, with price points depending on the type of content the consumer wishes to view. In addition, the company generates advertising revenue and shares in this stream with the content providers. The company plans to shift to a monthly subscription model, with the consumer having access to an aggregated pool of virtually unlimited content.

FINANCIAL HIGHLIGHTS

MeTV.com, Inc., was formerly GroupE Communications Corporation, which owned radio stations across the Northeast. When GroupE Communications Corporation was sold, the proceeds were used to fund the development of MeTV.com, Inc.'s operations. Currently, the company is in the process of closing its first round of equity financing through a private placement and is looking to open its first institutional round of financing. MeTV.com, Inc., is working with the Chesapeake Group to secure financing and provide assistance in structuring strategic partnerships.

NEW INITIATIVES

On July 12, 2000, MeTV.com, Inc., announced the rollout of its new DSL enhancement program, which will give DSL providers a more efficient and reliable method of distributing video content to their customer bases. In addition, the company has worked with the National Broadcasting Company, Inc. (NBC, Inc.), to provide a streaming video solution so that viewers can see a preview of the NBC Fall 2000 line-up. Since this announcement, the company has signed up DSL providers Jump.net (Texas), IBS Networks (Virginia), and iNYC.com (New York), among others.

PARTNERS

MeTV.com, Inc., has signed an agreement with Microsoft Corporation for Windows Media Player Promotion and to be part of the Microsoft Broadband Initiative. The company has also partnered with Intel Corporation to provide a variety of broadband entertainment content for Intel Corporation's Internet media services division. MeTV.com, Inc., is also part of Sun Microsystems Inc.,'s developer program. Other noteworthy relationships include BEA Systems, Inc., Exodus Communications, Inc., the Allied Group, Loudeye Technologies, Inc., the Online Music Channel, RPK SecureMedia, Context Media, and Engage Technologies, Inc. (a CMGI, Inc., company). MeTV.com, Inc.'s distribution partners include Digital Island, Inc., iBEAM Broadcasting Corporation, InterVU (a unit of Akamai Technologies, Inc.), and Enron Corporation.

MANAGEMENT

Jeff Pescatello is the president and CEO of MeTV.com, Inc. Pescatello has spent most of his career in the entertainment industry, notably in radio, where he started and managed stations that served some 2.4 million New England listeners. After selling his radio properties for a substantial profit, Pescatello turned his attention to the Internet and developed the MeTV.com, Inc., concept. He is actively involved in every aspect of the development of the company's properties.

The following section identifies numerous key participants in the Home Shopping segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Home Shopping

Public Companies

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	**(9/11/00)**	**High**	**Low**	**(mil)**	**(mil)**	**(mil)**	**(mil)**	**Rev. Growth**	**Rev. Multiple**	**Profitable?**
Shop at Home, Inc.	SATH	$2.75	$14.75	$2.84	30.9	$85.0	$152.0	$205.2	35.0%	0.4	No
ValueVision International, Inc.	VVTV	26.50	62.00	13.94	38.6	1,022.9	274.9	380.0	38.2%	2.7	Yes

Our report on ValueVision International, Inc., can be found on page 83.

Subsidiaries of Public Companies

Home Shopping Network, Inc. (a unit of USA Networks, Inc.)
QVC, Inc. (a unit of Comcast Corporation)

Home Shopping Network, Inc.

http://www.hsn.com
1 HSN Drive
St. Petersburg, FL 33729

COMPANY DESCRIPTION

The Home Shopping Network, Inc., provides 24-hour programming seven days a week that is focused on television-based retailing. The company operates as a subsidiary of USA Networks, Inc., and its programming is transmitted via broadcast, cable, and satellite to more than 74.0 million households. In 1999, the company generated $1.2 billion in revenue on 68.0 million transactions and currently serves a customer base of more than five million. The company has pursued international initiatives through ownership interests in home shopping channels in Germany and Japan and also broadcasts its programming in Spanish.

REVENUE MODEL

The Home Shopping Network, Inc., generates revenue through the sale of consumer products and related merchandise through television-based programming and its complementary Web site, hsn.com.

FINANCIAL HIGHLIGHTS

USA Networks Inc., reported an 11.1% increase in net revenue from electronic retailing of approximately $1.2 billion. This rise was driven by the Home Shopping Network Inc.'s core business which generated a sales increase of $115.0 million ($93.9 million from Home Shopping Network, Inc., and America's Store and an additional $25.3 million from continuity services). A slight decline in return rates along with a 10.8% increase in total units shipped (32.0 million) also contributed to the rise in net revenue.

NEW INITIATIVES

On July 26, 2000, the Home Shopping Network, Inc., formed a strategic alliance with At Home Corporation to develop a cobranded broadband interactive shopping experience. The shopping program will be available on line at Excite.com and on Home Shopping Network, Inc., television programming. Interactive capabilities will include on-line interaction with program hosts, real-time chats, and live product polling.

The company also announced plans for further international expansion to the People's Republic of China and Hong Kong. This initiative should add 19 million cable subscribers throughout the two regions, bringing the total amount of households worldwide with access to Home Shopping Network, Inc., programming to 137.0 million. This gives the company a global footprint larger than that of any of its competitors. In first-quarter 2000, the company reported a 50% increase in sales from international operations.

In 1999, the Home Shopping Network, Inc., launched its Web site, hsn.com, to complement its television programming with fully integrated content, community, and e-commerce features. The company reports that its Internet operations are profitable. The company has also announced plans to form a new interactive division, labeled HSNi, in which the company will reportedly spend $100.0 million to create incremental revenue streams and drive more traffic to both its television shopping network and its complementary Web site.

MANAGEMENT

Mark Bozek is the president and CEO of Home Shopping Network, Inc.

QVC, Inc.

http://www.iqvc.com
1200 Wilson Drive
West Chester, PA 19380
Telephone: (610) 701-1000
Fax: (610) 701-8170

COMPANY DESCRIPTION

A subsidiary of Comcast Corporation, QVC, Inc., is an electronic media retailer that creates and distributes programming 24 hours a day seven days a week to more than 60 million full-time cable households and 11.9 million satellite users plus an additional 1.3 million homes on a part-time basis. The focus of the company's television programming is general merchandise, including electronics, jewelry, apparel, health and beauty products, and home furnishings. In addition, QVC, Inc., offers an interactive shopping service through an Internet operation labeled iQVC. The iQVC service offers more than 100,000 products in more than 51 categories that complement and supplement the company's regular network programming. Comcast Corporation owns a 57% stake in QVC, Inc.

REVENUE MODEL

QVC, Inc., generates revenue through sales of consumer products and related merchandise both through its traditional television programming and through its Web site, iQVC.com. Currently, QVC, Inc.'s Internet operations account for approximately 5% of the company's domestic net sales; however, QVC, Inc., expects this revenue stream to grow significantly over time.

FINANCIAL HIGHLIGHTS

In 1999, QVC, Inc., reported total revenue of $2.85 billion, representing an increase of 18.5% from 1998. Internet sales constituted $97.0 million of the total, and the company expects revenue from Internet operations to scale significantly, growing to more than $170.0 million in 2000. The increase in net sales is due to a rise in the average number of homes receiving QVC, Inc., services in the U.S. and abroad. Comcast Corporation estimates that its QVC, Inc., unit accounted for nearly 46% of Comcast Corporation's total revenue for 1999 and yielded about $540.0 million in 1999 operating cash flow, or about 40% of Comcast Corporation's entire cash flow from cable operations.

PARTNERS

QVC, Inc., works with an abundance of well-known designers, such as Coach, Inc., (a unit of Sara Lee Corporation), Liz Claiborne, Inc., Kenneth Cole (a subsidiary of Kenneth Cole Productions, Inc.), Gucci Group N.V., and Halston; of manufacturers, including Eastman Kodak Company, Victor Company of Japan (JVC), Thomson Multimedia (RCA), Panasonic, Sony Corporation, SEGA Enterprises, Ltd.; and of traditional retailers, such as The Home Depot and Warner Brothers Studio Stores. In addition, the company formed QVC: The Shopping Channel through a joint venture with British Sky Broadcasting PLC, with programming carried on satellite and cable systems across the United Kingdom.

MANAGEMENT

Douglas S. Briggs is president of QVC, Inc. Since 1986, Briggs has nurtured QVC, Inc.'s evolution from a single-channel shopping service to the present multitier business. His responsibilities for the company's $2.8-billion businesses encompass the core channel QVC, interactive division iQVC, Q Direct, QVC International, Q Records, QVC Publishing, and Pioneer Studios. Briggs was previously president of QVC Electronic Retailing and an executive vice president of QVC, Inc.

Shop at Home, Inc.

http://www.collectibles.com
5388 Hickory Hollow Parkway
P.O. Box 305249
Nashville, TN 37230
Telephone: (615) 263-8000
Fax: (615) 263-8084

Ticker: SATH **Price: $2.75** **52-Week Range: $14.75-$2.75** **Market Capitalization: $85.0 million**

COMPANY DESCRIPTION

Shop at Home, Inc., sells merchandise 24 hours a day, seven days a week through the company's television network and its complementary Web site, collectibles.com. The company's television programming is produced digitally in house and is distributed through traditional broadcast, cable and satellite, and the Internet. The company also distributes its programming through its six high-power television stations, which have an estimated market value of $220.0 million according to news service CBS Marketwatch. Among the site features of collectibles.com are real-time on-line customer service, a dynamic shopping cart, three-dimensional images, and streaming video. Shop at Home, Inc., differentiates itself from competitors by targeting a male audience with product categories that include sports collectibles, electronics, and toys. As of June 30, 2000, Shop at Home Inc.'s television programming was available in nearly 59.0 million individual cable households. Approximately 12.4 million cable households receive the company's programming full time, with 23.9 million receiving the programming on a full-time equivalent basis.

REVENUE MODEL

Merchandise sales on the Shop at Home, Inc., television network generate about 90% of the company's revenue, with the balance coming from e-commerce sales on its Web site. The company plans to build e-commerce sales as a percentage of the company's revenue streams.

FINANCIAL HIGHLIGHTS

Shop at Home, Inc.'s net revenue for fiscal (June) 1999 was $152.0 million, up nearly 51% from fiscal 1998. The company reported net income in fiscal 1999 of $1.5 million, or $0.09 per diluted share, versus a net loss of $3.3 million, or $0.14 per diluted share, in fiscal 1998. In early July 2000, the company reported that it had completed a $20.0-million private placement of convertible preferred stock. The investors were led by Promethean Asset Management.

NEW INITIATIVES

Shop at Home, Inc., launched www.collectibles.com toward the end of calendar 1999 and has experienced an increase in revenue unlike any seen from its prior Internet operation, shopathomeonline.com, which has been discontinued. The company recently reported (1) its first $1.0-million month in sales from its Web site; (2) a daily sales record of nearly $200,000; and (3) a record 632 total orders for one day, representing an increase of more than 100% from its typical daily order average.

PARTNERS

Shop at Home, Inc., has entered into many agreements with companies to become exclusive vendor providers on collectibles.com. Some of these companies are P7E, Inc., Rocket Jewelry Box Company, Weathervane Capital, and Legacy Brands. The company has also formed extensive marketing and promotional relationships with companies such as Krause Publications and Be Free, Inc.

MANAGEMENT

Kent E. Lillie has been president and CEO of Shop at Home, Inc., since September 1993. During his 20-year broadcast career, Lillie has held sales and sales management positions in local television broadcasting for both independent stations and affiliates of the American Broadcasting Company, Inc., the National Broadcasting Company, Inc., and FOX Entertainment Group (a subsidiary of News Corporation Ltd.).

The following section identifies numerous market participants in the Broadcasters/Content segment of the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Broadcasters/Content

Public Companies

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	(9/11/00)	High	Low	(mil)	(mil)	(mil)	(mil)	Rev. Growth	Rev. Multiple	Profitable?
At Home Corporation	ATHM	$16.25	$59.75	$12.88	365.2	$5,934.5	$337.0	$714.4	112.0%	8.3	No
Brilliant Digital Entertainment, Inc.	BDE	4.25	14.94	2.50	14.4	61.2	0.7	—	—	—	No
Gemstar-TV Guide International, Inc.	GMST	77.50	107.44	29.59	463.8	35944.5	229.2	304.4	32.8%	118.1	Yes
Martha Stewart Living Omnimedia, Inc.	MSO	30.94	47.50	13.06	14.1	436.2	232.3	273.1	17.6%	1.6	Yes
NTN Communications, Inc.	NTN	2.75	7.75	1.13	33.5	92.1	23.8	—	—	—	No
Visual Data Corporation	VDAT	4.50	17.69	2.28	8.5	38.3	4.5	7.3	63.7%	5.2	No
Walt Disney Internet Group (GO.com)	DIG	14.94	37.69	9.25	45.1	673.7	206.0	452.0	119.4%	1.5	No

Private Companies and Subsidiaries of Public Companies

Geocast Network Systems, Inc.
iBlast Networks, Inc.
MTVi Group, Inc., (a unit of Viacom, Inc.)
The National Broadcasting Company, Inc. (NBC, Inc.)
Oxygen Media, Inc.
Yack!, Inc.

At Home Corporation

http://www.home.net
450 Broadway Street
Redwood City, CA 94063
Telephone: (650) 569-5000
Fax: (650) 569-5100

Ticker: ATHM **Price: $16.25** **52-Week Range: $59.75-$12.88** **Market Capitalization: $5,934.5 million**

COMPANY DESCRIPTION

At Home Corporation is a new media company that was formed by the merger of the Excite portal with @Home, Inc. The combined entity provides broadband on-line services focused on delivering customized content and advertising services to the residential and commercial markets. At Home Corporation is scheduled to deploy its interactive television (ITV) service, labeled @Home TV, in the fourth quarter of 2000. Through existing cable connections and upgraded digital set-top boxes, subscribers will have access to e-mail, chat, t-commerce, personalized content, and targeted advertising. The company has more than 1.8 million subscribers for its @Home broadband service, and its network of Web sites has 77.0 million registered users and is fifth on the Media Metrix, Inc., list of top Web properties.

REVENUE MODEL

At Home Corporation's broadband access division derives subscription revenue for both its residential and commercial services. Residential pricing varies by market, but generally a subscriber will pay $39.95-$44.95 per month for the @Home service. In addition, the company offers various revenue-generating support services, such as network consulting, customer support, and content development.

NEW INITIATIVES

In June 2000, the company announced that it would soon begin ITV trials in San Diego through its relationship with Cox Communications, Inc. Participants in these interactive trials will have access to e-mail, t-commerce functionality, and personalization of content with a standard remote control and a cobranded digital set-top box. On July 18, 2000, At Home Corporation announced an agreement to merge its non-U.S. businesses with Dutch Internet service provider Chello Broadband (a unit of United Pan-Europe Communications N.V.) and plans to create a broadband Internet group with operations in Europe, Asia, and Australia. The company also announced plans to create a cobranded interactive shopping experience with the Home Shopping Network, Inc. (a unit of USA Networks, Inc.), with broadcasts available on the company's Web site, Excite.com, and through television programming on the Home Shopping Network, Inc.

PARTNERS

At Home Corporation has established affiliate agreements with 23 cable companies in North America including AT&T Broadband Unit, Cablevision Systems Corporation, Charter Communications, Inc., Century Communications, Comcast Corporation, Cox Communications, Inc., and Insight Communications Company, Inc. Additionally, At Home Corporation claims more than 110 different programming relationships with companies including Cable News Network (CNN, a unit of Time Warner, Inc.), FOX Entertainment Group (a subsidiary of News Corporation Ltd.), MSNBC (a joint venture between Microsoft Corporation and the National Broadcasting Company, Inc.), CNET Networks, Inc., the Discovery Channel, the New York Times Company, and USA Today (a unit of Gannett Company, Inc.).

MANAGEMENT

George Bell is chairman and CEO of At Home Corporation. From 1991 to 1995, Bell was senior vice president of Times Mirror Magazines. Prior to joining Times Mirror Magazines in 1991, Bell was a producer and writer for the American Broadcasting Company, Inc. (ABC, Inc.), CBS Worldwide, Inc., National Geographic, and the Discovery Channel. From 1985 to 1990, Bell independently packaged TV specials, and from 1980 to 1985, he was head writer and producer of ABC, Inc.'s *American Sportsman* series and of ABC, Inc.'s coverage of the 1984 Olympics.

Other members of the company's board of directors include C. Michael Armstrong, chairman and CEO of AT&T Corporation, and Dr. John Malone, chairman of Liberty Media Corporation.

Brilliant Digital Entertainment, Inc.

http://www.bde3d.com
6355 Topanga Canyon Boulevard, Suite 120
Woodland Hills, CA 91367
Telephone: (818) 615-1500

Ticker: BDE **Price: $4.25** **52-Week Range: $14.94-$2.50** **Market Capitalization: $61.2 million**

COMPANY DESCRIPTION

Brilliant Digital Entertainment, Inc., is an entertainment content provider and technology developer. The company combines state-of-the-art software tools and a world-class studio to produce three-dimensional, digitally animated interactive content in multiple formats for the Internet in a cost-efficient production process. The company distributes its content through its network of distribution partners, which include major portals and entertainment destinations including Yahoo!, Inc., Lycos, Inc., Time Warner Inc.'s Entertaindom, and At Home Corporation. The company also develops technology and software tools for sale to others to be used in the development of third-party content for the Internet.

REVENUE MODEL

Brilliant Digital Entertainment, Inc., has multiple revenue streams that include licensing fees for its content development tools; fees for studio production services through its Brilliant Studios subsidiary; and advertising revenue generated from its content library. The company intends to add an e-commerce component by building relevant merchandise offers into its content, for which it would generate transaction fees.

FINANCIAL HIGHLIGHTS

In 1999, Brilliant Digital Entertainment, Inc., reported total revenue of $730,000, up 69% over the prior year. More recently, the company reported revenue of $316,000 for second-quarter 2000, an increase of 149% year over year. The company reported a net loss of $4.5 million, or $0.30 per share, versus a loss of $2.2 million, or $0.20 per share, in second-quarter 1999.

NEW INITIATIVES

On August 2, 2000, the company announced an agreement with Studios USA (a unit of USA Networks, Inc.) whereby Studios USA will distribute Brilliant Digital Entertainment, Inc.'s content to local television Web sites across the country, with Multipath Movies simultaneously appearing on USA Entertainment's network of Web sites. In May 2000, Brilliant Digital Entertainment, Inc., announced a content agreement with Yahoo!, Inc., that will feature the company's short-form animated programming of rock band Kiss within the Yahoo! Entertainment section. In addition, Brilliant Digital Entertainment, Inc., announced a partnership with Videnet.com, in which Brilliant Digital Entertainment, Inc., will share in advertising and e-commerce revenue generated by viewers accessing its content through Videnet.com and other sites that Videnet.com hosts, including Lycos TV, a product of Lycos, Inc.

Previously, Brilliant Digital Entertainment, Inc., announced a relationship with Russell Simmons' 360HipHop.com to establish a joint venture studio for the creation of full-screen hip-hop content for the Internet. Earlier in the year, Brilliant Digital Entertainment, Inc., and E-New Media formed a joint venture partnership whereby Brilliant Digital Entertainment, Inc., will license content distribution and coproduction rights in exchange for a $2.5-million strategic investment by E-New Media.

PARTNERS

In addition to content relationships, Brilliant Digital Entertainment, Inc., also has valuable distribution partners, including Time Warner Inc.'s Entertaindom, Time Warner Cable's RoadRunner service, At Home Corporation, USA Networks, Inc., VH1 Networks (part of the MTVi Group, a unit of Viacom, Inc.), Slingshot Communications, and Infogrames, Inc. (formerly GT Interactive Software).

MANAGEMENT

Mark Dyne is the chairman of the board of directors and CEO, and Kevin Bermeister is president of the company. Both have occupied these positions since they founded the company in 1996. Both have been joint managing directors of SEGA Ozisoft Pty., Ltd., since founding that company in 1982. Dyne is currently a director of SEGA Enterprises, Ltd., Australia, a director of Monto Holdings, chairman of Tag-It Pacific Inc., and, along with Bermeister, a co-owner of Packard Bell NEC, Inc. (Australia).

Gemstar-TV Guide International, Inc.

135 North Los Robles Avenue, Suite 800
Pasadena, CA 91101
Telephone: (626) 792-5700
Fax: (626) 792-0252

Ticker: GMST **Price: $77.50** **52-Week Range: $107.44-$29.59** **Market Capitalization: $35,944.5 million**

COMPANY DESCRIPTION

Gemstar-TV Guide International, Inc., creates and licenses proprietary technologies aimed at simplifying a consumer's interaction with a variety of electronic products. The company is best known for its VCR Plus+ technology, which enables consumers to record television programming in a more efficient manner. However, the company has also developed a substantial portfolio of patents and intellectual property focused on improving the consumer's experience in other areas related to the delivery of video, programming, and other data such as electronic program guides (EPGs). On July 12, 2000, Gemstar International Group formally announced its acquisition of TV Guide, Inc., creating Gemstar-TV Guide International, Inc., and essentially creating the world's largest company in the global market for interactive on-screen program guides built into both videocassette recorders (VCRs) and televisions. Of major relevance is TV Guide, Inc.'s interactive segment, which focuses on the delivery of these EPGs to digital cable households.

We estimate that TV Guide, Inc.'s advanced interactive program guide is in 3.5 million homes and that Gemstar International Group's digital guides have been installed in nearly three million television households. The company's VCR Plus+ system is in 80 million homes and is currently being built into approximately 60% of all VCRs sold. Liberty Media Corporation and News Corporation Ltd. own about 19% of Gemstar-TV Guide International, Inc., each.

REVENUE MODEL

The company primarily generates its revenue in the form of license fees from consumer electronics manufacturers. These license fees are derived in most part from the company's VCR Plus+ and EPG technologies. With respect to the VCR Plus+ system, the company generates revenue strictly on per-unit up-front annual license fees. The company's EPG unit uses a recurring revenue model in which it receives revenue from advertising, promotion, and sponsorship displayed on various guide pages. The company's TV Guide properties will contribute advertising revenue from print and electronic media as well as subscription and service fees. Also of significance will be Gemstar-TV Guide International, Inc.'s ability to earn revenue from transactions initiated through the EPGs.

FINANCIAL HIGHLIGHTS

Excluding TV Guide, Inc.'s, results, Gemstar-TV Guide International, Inc., reported revenue of $63.2 million and earnings per share of $0.12 for the first (June) quarter of fiscal (March) 2001. For fiscal 2000, revenue was $241.4 million, an increase of 44% over revenue of $168.2 million reported for fiscal 1999. TV Guide, Inc., reported total revenue of $1.1 billion in fiscal 1999, up 83% from fiscal 1998. According to an article published in *Fortune*, the combined enterprise is expected to generate revenue of $1.5 billion and operating income of nearly $400.0 million. Gemstar International Group should supply only about 20% of total revenue and 35% of operating income, but Gemstar International Group's shareholders own the majority of the voting stock because Gemstar International, Inc., is believed to have more opportunity for growth.

NEW INITIATIVES

Apart from its merger agreement with TV Guide, Inc., Gemstar International Group has made several significant announcements related to the strengthening of its market position. The company acquired two electronic book companies, NuvoMedia, Inc., and SoftBook Press, and Electronic TV Host, a Web-based, on-line EPG. Also, Gemstar-TV Guide International, Inc., entered into a joint venture with the National Broadcasting Company, Inc., and Thomson Multimedia that is known as @TV Media. The joint venture's purpose is to expand the reach of the company's EPG to Europe and to pursue wireless interactive television (ITV) opportunities.

PARTNERS

Gemstar-TV Guide International, Inc., has licensed its proprietary technologies to many companies, including Aiwa Company, Ltd., Cox Communications, Inc., GTE (part of Verizon Communications), Goldstar Company, Hitachi, Ltd., Hughes Electronics Corporation, Victor Company of Japan (JVC), Matsushita Electric Industrial Company (Panasonic and Quasar), Microsoft Corporation, Mitsubishi Corporation, Philips Electronics Company, Pioneer Corporation, Samsung

Electronics Company, Ltd., Sanyo Electric Company, Ltd., Sharp Corporation, Thomson Multimedia, Toshiba Corporation, Uniden Corporation, U.S. West, Inc., and Zenith Electronics Corporation (a unit of LG Electronics, Inc.). The company's EPG has also been licensed to Microsoft Corporation and America Online, Inc., for their respective ITV services. TV Guide, Inc., brings to the combined entity valuable relationships with, among others, EchoStar Communications Corporation; Liberty Media Corporation; Columbia Tristar (a unit of Sony Corporation); and Showtime Networks, Inc., and VH1 Networks (both units of Viacom, Inc.).

INTELLECTUAL PROPERTY

Gemstar-TV Guide International, Inc., has been issued more than 140 U.S. patents and approximately 150 foreign patents with thousands of claims covering a wide range of audiovisual technologies. Gemstar-TV Guide International, Inc.'s, patents include claims on (1) the format of the grid layout of the on-screen program guide; (2) one-touch recording functionality; and (3) point-and-jump functionality, in which a viewer highlights a show and can then skip directly to the channel with a push of a remote control button. As a result, virtually any TV programmer, manufacturer, or distributor that wants to include an EPG among its offerings must license the technology from Gemstar-TV Guide International, Inc.

MANAGEMENT

Henry C. Yuen serves as chairman of the Board and CEO of Gemstar-TV Guide International, Inc. A lawyer, a mathematician, an inventor, and an entrepreneur, Yuen has more than 70 scientific publications and 18 issued patents to his credit. He was researching wave motion for TRW, Inc., when he and Daniel Kwoh founded Gemstar International Group with the idea of coming up with novel products. Yuen and Kwoh introduced VCR Plus+ in November 1991, and began full deployment in November 1992.

Geocast Network Systems, Inc.

http://www.geocast.com
190 Independence Drive
Menlo Park, CA 94025
Telephone: (650) 566-8111
Fax: (650) 566-8112

COMPANY DESCRIPTION

Geocast Network Systems, Inc., is a privately held company focused on delivering rich media content to personal computers (PCs). The company is utilizing digital broadcast technologies to build a network that will facilitate the delivery of national and local information and entertainment. Users of the Geocast service will be able to interact with content through various personalization and e-commerce features.

REVENUE MODEL

We believe that Geocast Network System, Inc.'s revenue model is similar to those of competitors such as iBlast Networks, charging content providers for the amount of bandwidth that they use to send their content across Geocast's network. This is generally done on a per-megabit basis.

FINANCIAL HIGHLIGHTS

On March 6, 2000, Geocast Network Systems, Inc., announced that it raised $74.0 million from a number of strategic investors, including Hearst-Argyle Television, Inc., A.H. Belo Corporation, Thomson Multimedia, Liberty Media Group, Electronic Arts, Inc., Allbritton Communications, and Philips Electronics Company. Previously, Geocast Network Systems, Inc., received two separate rounds of financing from the Mayfield Fund, Institutional Venture Partners, and Kleiner Perkins Caufield & Byers. The first round of funding totaled $5.0 million and closed in early 1999; the second round closed in February 2000 and resulted in proceeds of $12.0 million for Geocast Network Systems, Inc., Comdisco Ventures (the investment arm of Comdisco, Inc.) contributed an additional $250,000 in a separate round of financing.

NEW INITIATIVES

On May 1, 2000, Geocast Network Systems, Inc., announced the successful field test of its service in a trial conducted exclusively in the San Francisco Bay Area. Using a portion of the digital spectrum of a Granite Broadcasting Corporation American Broadcast Company, Inc., affiliate, participants in the trial were able to receive video, software, music, games, and other content on their PCs.

MANAGEMENT

H. Joseph Horowitz is chairman and CEO of Geocast Network Systems, Inc. Horowitz is a veteran venture capitalist with more than 20 years' experience in forming and guiding both technology and consumer start-up companies. Horowitz spent ten years at U.S. Venture Partners and was the founder of ICON Venture Advisors. His experience in the television and media industries dates back to 1991.

iBlast Networks, Inc.

http://www.iblast.com
100 North Crescent Drive
Beverly Hills, CA 90210
Telephone: (310) 551-2900
Fax: (310) 553-2999

COMPANY DESCRIPTION

iBlast Networks, Inc., is a privately held company that focuses on enhancing the delivery of digital media to personal computers and other receiving devices such as game consoles and MP3 participants. The iBlast signal is transmitted through a digital broadcast television signal in order to facilitate the distribution of media-rich content such as movie trailers, music, and software. Testing of the company's wireless digital network is currently under way, with a 25-market launch expected in early 2001. iBlast Networks, Inc., is a broadcaster-owned company that represents 19 major television station groups, 225 local stations in 143 markets, and 90% of U.S. television households.

REVENUE MODEL

The company's revenue comes from the content providers that push information across iBlast networks. The content provider pays iBlast Networks, Inc., a fee on a per-megabit basis for as much bandwidth as they need to blast their content to consumers.

FINANCIAL HIGHLIGHTS

In March 2000, iBlast Networks, Inc., announced the formation of the company's first round of founding investors, a group that includes Tribune Company, Gannett Company, Inc., Cox Communications, Inc., the Washington Post Company, the E.W. Scripps Company, Meredith Corporation, Media General, Inc., Lee Enterprises, Inc., the New York Times Company, the McGraw Hill Companies, Inc., Smith Broadcasting, and others. On July 6, 2000, the company announced the addition of seven more founding investors—Bahakel Communications, Bonneville International Corporation, Cosmos Broadcasting, Emmis Communications Corporation, Evening Post Publishing Company, Gray Communications Systems, Inc., and Raycom Media. According to *The Wall Street Journal*, iBlast Networks, Inc., received approximately $45.0 million from these strategic investments.

PARTNERS

So far, iBlast Networks, Inc., reports that it has signed on 59 CBS Worldwide, Inc., affiliates, 40 American Broadcasting Company, Inc., affiliates, 56 National Broadcasting Company, Inc., affiliates, and 33 Twentieth Century FOX affiliates. With the deployment of its service, the company is likely to announce relationships with a large number of providers of content ranging from print and electronic media to games, music, and video.

MANAGEMENT

Michael Lambert is chairman and CEO of iBlast Networks, Inc. In addition, Lambert owns and operates a broadcast station group and is the general partner of Partner Stations Network. Lambert was formerly president of domestic television for Twentieth Century FOX (a unit of FOX Entertainment Group and a subsidiary of News Corporation Ltd.), senior vice president for the Home Box Office, Inc. (a unit of Time Warner, Inc.), senior vice president of programming for Petry Television, and the head of Viacom, Inc.'s syndication unit.

Martha Stewart Living OmniMedia, Inc.

http://www.marthastewart.com
11 West 42nd Street
New York, NY 10036
Telephone: (212) 827-8000
Fax: (212) 827-8204

Ticker: MSO **Price: $30.94** **52-Week Range: $47.50-$13.06** **Market Capitalization: $436.2 million**

COMPANY DESCRIPTION

Martha Stewart Living OmniMedia, Inc., creates original content that is targeted to homemakers and other consumers and distributed through multiple channels. The company's four integrated business segments are publishing, Internet/direct commerce, television, and merchandising. The company's Web site, marthastewart.com, integrates all of the company's media, commerce, and community offerings.

REVENUE MODEL

Martha Stewart Living OmniMedia, Inc., generates revenue through its publishing unit by selling advertising in its magazines and from subscription fees. The company's television unit also derives its revenues from the sale of advertising. The merchandising unit generates revenue from the sale of products through various retail and media channels. The Internet/direct commerce business segment derives revenue from merchandise sales and through advertising and sponsorships.

FINANCIAL HIGHLIGHTS

In 1999, the company reported total revenue of $232.3 million, up 29% year over year, while net income increased $1.8 million, or 8%, to $25.6 million. The increase in revenue was driven by each of the company's business segments, with the most substantial increase coming from the company's Internet/direct commerce unit. More recently, the company's second-quarter 2000 total revenue increased 19% to $69.2 million. Besides Martha Stewart's own equity stake, there are equity stakes in the company from Time Inc. (a division of Time Warner, Inc.) and Kleiner Perkins Caufield & Byers.

NEW INITIATIVES

Martha Stewart Living OmniMedia, Inc., also announced plans to expand into two million cable households in the Brazilian market through a relationship with GloboSat, the pay-TV programming unit of the Globo TV network. The company also participated in the financing of Bluelight.com, the Internet vehicle for Kmart Corporation. Softbank Venture Capital and Martha Stewart Living OmniMedia, Inc., provided $62.5 million to assist in the December 1999 launch of Bluelight.com.

PARTNERS

Martha Stewart Living OmniMedia, Inc., has distribution and content relationships with CBS Worldwide, Inc. (*The Early Show* and syndication through King World Productions), Kmart Corporation, Zellers (a subsidiary of Hudson's Bay Company), P/Kauffman, Sherwin-Williams, Inc., and the Food Network (a unit of the E.W. Scripps Company).

MANAGEMENT

Martha Stewart is founder, chairman and CEO of the company and the author of 14 books on the domestic arts, including *Martha Stewart's Entertaining* and *Martha Stewart's Gardening*. Stewart has served as chairman of the board of directors and CEO of Martha Stewart Living OmniMedia, Inc., since its creation in 1996. Stewart created and was editor-in-chief and editorial director of *Martha Stewart Living* from 1990 to1997.

MTVi Group, Inc.

http://www.mtvigroup.com
770 Broadway, 10th Floor
New York, NY 10003
Telephone: (212) 654-9000

COMPANY DESCRIPTION

MTVi Group, Inc., is a leading on-line music content company that provides a wide array of entertainment services. The company has 22 Web sites, including MTV.com, VH1.com, and SonicNet.com, and is a unit of MTV Networks, a subsidiary of Viacom, Inc. It was formed by aggregating the three aforementioned Internet properties. MTVi Group, Inc., services include digital downloads, streaming radio, live and on-demand video, news, e-commerce, exclusive Web events, and convergence initiatives such as integrated on-line and on-air chats.

The company has made significant progress with regard to interactive television (ITV) initiatives through its *WebRiot* game show on the MTV Network, which enables on-line users to play along in real time through the synchronization of on-air programming with on-line content. Also, MTV.com recently launched a new TRL area on its Web site for its popular *Total Request Live* show, which will feature personalized content and community and chat features. VH1 Networks also announced that it will be offering the first-ever fully interactive music awards show when its annual VH1 Music Awards airs on November 30, 2000.

REVENUE MODEL

The company currently derives approximately half of its revenue from the sale of advertising that consists largely of banner advertisements and sponsorships. The company also generates promotional revenue through fees or equity stakes from specific companies for both on-air and on-line references. Lastly, the company receives distribution fees for the syndication of its original content to third parties. MTVi Group, Inc., plans to generate a significantly greater amount of revenue from its e-commerce initiatives by selling items such as CDs, concert tickets, and digital downloads.

FINANCIAL HIGHLIGHTS

MTVi Group, Inc., filed for an initial public offering on February 11, 2000. The company reported revenue for fiscal 1999 of $20.1 million and expenses totaling about $96.2 million, resulting in a net loss of approximately $79.0 million. This represents a 295% widening of the company’s reported net loss versus 1998.

NEW INITIATIVES

MTVi Group, Inc., recently announced restructuring changes that should result in the expansion of both the size and scope of its management team and enable MTVi Group, Inc., to keep pace with its growth initiatives pertaining to the MTV Network, international expansion, and Internet operations. Earlier this year, MTVi Group, Inc., acquired Mischief New Media, Inc., a Web design and content creation company, in an effort to increase its content and technology offerings.

PARTNERS

MTVi Group, Inc., has partnered with a number of companies focused on the development and delivery of interactive applications. These companies include iBEAM Broadcasting Corporation, an Internet broadcast network provider; Beatnik, Inc., a developer of interactive audio technologies and content for the Web; and Spiderdance, Inc., a provider of synchronized-to-broadcast technologies.

MANAGEMENT

Nicholas Butterworth has served as president and CEO MTVi Group, Inc., since 1999 and was elected one of MTVi Group Inc.’s directors in February 2000. From 1994 to 1999, Butterworth worked for Sonicet.com, the Internet’s personal music site, where he was editor in chief from 1994 to 1996, creative director from 1996 to 1998, and president from 1996 to 1999.

The National Broadcasting Company, Inc.

http://www.nbc.com
30 Rockefeller Plaza
New York, NY 10112
Telephone: (212) 664-4444
Fax: (212) 664-4085

COMPANY DESCRIPTION

The National Broadcasting Company, Inc. (NBC, Inc.), is a broad-based global media company with a keen focus on its core broadcasting business, the NBC Television Network. The company operates as a subsidiary of General Electric Company. In addition to owning and operating the popular peacock network, NBC, Inc., also owns and operates 13 television stations, CNBC, and, through a partnership with Microsoft Corporation, MSNBC. Further, the company holds a number of equity interests in entertainment and sports cable channels, as well as significant equity stakes in ValueVision International, Inc., and NBC Internet, Inc.

INTERACTIVE INITIATIVES

NBC, Inc., was one of the first adopters of technology developed by Wink Communications, Inc., which enables enhancements to be aired during NBC programming. Most notably, Wink Communications, Inc., has provided enhancements to NBC's *The Tonight Show with Jay Leno*, enabling a unique end-to-end e-commerce system that allows viewers to purchase CDs of musical guests using a remote control. In addition, Wink Communications, Inc., has regularly enhanced broadcasts of National Football League games that air on NBC.

The NBC Television Network, in conjunction with NBC Internet, Inc., and ValueVision International, Inc., formed the Passions Internet boutique, which features ValueVision International, Inc., jewelry inspired by characters from NBC's hit daytime soap opera, *Passions*. This initiative exemplifies the kind of integrated television and e-commerce opportunities that are possible as a result of these three companies working together. More recently, NBC, Inc., teamed up with NBC Internet, Inc., to again create a multimedia viewing experience for *Passions* by creating an on-line virtual diary that will provide viewers with an enhanced look into the personal thoughts of characters from the soap opera, available exclusively on line. Along with an especially designed NBC icon that will direct people to the Passions Web site, the virtual diary is a way for the company to offer television viewers a unique on- and off-air interactive experience.

NBC, Inc., has experimented with interactive programming in the past with a crossover between its television hit, *Homicide: Life on the Street* and its Internet extension, *Homicide: Second Shift.* The Internet version features interactive capabilities that enable users to examine evidence and eavesdrop on interrogations. In addition, NBC, Inc., fully integrated the plots of the two platforms, but the on-air show can still be viewed without knowing anything about its Internet counterpart. With the enhancements and crossovers, however, viewers can enjoy a more complete and enhanced viewing experience.

Before these initiatives, NBC, Inc., acquired a 5% stake in TDN, Inc., a joint venture between Gemstar (now Gemstar-TV Guide International, Inc.), and Thomson Multimedia. NBC, Inc., and TDN, Inc., then created an interactive television guide, called Guide Plus+ Gold, which features programming from NBC, Inc., CNBC, and MSNBC (a joint venture between Microsoft Corporation and NBC, Inc.).

MANAGEMENT

Robert Wright has been the president and CEO of NBC, Inc., since joining the company in 1986. Wright was recently promoted to the position of vice chairman of General Electric Company. Prior to his association with NBC, Inc., Wright served as president of General Electric Financial Services and, before that, as president of Cox Cable Communications, Inc. He has had a diversified career in general management, marketing, broadcasting, strategic planning and law, much of it with General Electric Company, NBC, Inc.'s parent company. Wright is on the boards of trustees of the American Film Institute and the Museum of Television and Radio and serves on the board of directors of the Motion Picture and Television Fund Corporation.

NTN Communications, Inc.

http://www.ntn.com
The Campus 5966 La Place Court
Carlsbad, CA 92008
Telephone: (760) 438-7400

Ticker: NTN **Price: $2.75** **52-Week Range: $7.75-$1.13** **Market Capitalization: $92.1 million**

COMPANY DESCRIPTION

NTN Communications, Inc., operates the NTN Network and BUZZTIME.com. The NTN Network operates two interactive television networks, the original NTN Network and its new Digital Interactive Television Network. Both networks broadcast a menu of interactive sports and trivia games, advertisements, and informational programming to consumers in approximately 3,300 restaurants, sports bars, and taverns. BUZZTIME.com distributes Web-based versions of its unique TV play-along multiplayer interactive sports games.

REVENUE MODEL

NTN Communications, Inc., currently generates most of its revenue through its hospitality division by broadcasting content to customer locations through its interactive television network. The BUZZTIME.com segment's principal source of revenue generation is derived from the distribution of its trivia content and play-along games. Additional revenue is created through the sale of advertising and various production services.

FINANCIAL HIGHLIGHTS

In fiscal 1999, NTN Communications, Inc., reported total revenues of $23.7 million, down 2% from fiscal 1998. This slight revenue decrease was the result of higher advertising and subscriber fees being offset by the Internet operations of the BUZZTIME.com business segment. In fiscal 1999, NTN Communications, Inc., reported a net loss of $2.5 million, or $0.09 per share, versus a net loss of $1.8 million, or $0.10 per share, the year before. NTN Communications, Inc., recently completed a public offering of two million registered shares of common stock, resulting in net proceeds of $6.0 million.

NEW INITIATIVES

On September 6, 2000, NTN Communications, Inc., announced an extension of its existing agreement with FOXSports.com (a unit of News Corporation Ltd.) to create live play along gaming enhancements for the 2000-2001 National Football League (NFL) season. The company recently signed a marketing and distribution agreement with the National Hockey League to develop an interactive trivia site with multiplayer capabilities. Also, the company renewed its licensing agreement with the NFL for further production and distribution of content from NTN Communications, Inc. The company also announced the successful launch of *Paranoia* on the FOX Family Channel (a unit of FOX Entertainment Group), which enables television viewers with Internet access to interact simultaneously with both the live Web site and the televised game show so viewers can compete from home and win cash and other prizes.

PARTNERS

NTN Communications, Inc., has partnered with a number of companies for distribution and marketing. These companies include Microsoft Corporation's WebTV Networks, Inc., America Online, Inc., AT&T Corporation's Interactive Offerings Group, Sun Microsytems, Inc., Midway Games, Inc., Inflightonline, the NFL, the National Hockey League, FOX Sports, and the FOX Family Channel.

MANAGEMENT

Stanley B. Kinsey has been chairman and CEO of NTN Communications, Inc., since October 1998 and a member of its board of directors since November 1997. Previously, Kinsey co-founded IWERKS Entertainment, Inc., a leading high-technology entertainment company. From 1980 to 1985, he was a senior executive with the Walt Disney Company.

Oxygen Media, Inc.

http://www.oxygen.com
75 Ninth Avenue
New York, NY 10011
Telephone: (212) 651-2000
Fax: (212) 651-2099

COMPANY DESCRIPTION

Oxygen Media, Inc., is a privately held integrated media company comprised of a network of Web sites and a 24-hour cable network. This blend of Internet properties and cable television is designed with a focus on serving the needs of women. Oxygen Media, Inc.'s properties include oxygen.com, Thrive Online, Moms Online, Oprah.com, ka-Ching, GirlsOn, and Electra. Together, these properties offer a women's perspective on topics such as healthy living, personal finance, and entertainment (including television, movies, music, and books).

REVENUE MODEL

We believe that Oxygen Media, Inc., principally generates its revenue from selling advertising, either through commercial spots on its television programming or through advertisements and sponsorships on its Web sites.

FINANCIAL HIGHLIGHTS

Oxygen Media, Inc., recently announced that LVMH Moet Hennessy Louis Vuitton, a French luxury goods group, and unit of Groupe Arnault S.A., and Europ@web, an Internet investment company, plans to make a strategic investment of $122.0 million in Oxygen Media, Inc. The move by LVMH Moet Hennessy Louis Vuitton and Europ@web is part of Oxygen Media, Inc.'s private financing, which also includes strategic investments totaling an additional $100.0 million and led by Vulcan Ventures, Inc., with additional funding provided by the American Broadcasting Company, Inc., America Online, Inc, Harpo Entertainment Group, and Carsey-Werner-Mandabach.

PARTNERS

Apart from Oxygen Media, Inc.,'s relationships with key strategic investors such as Carsey-Werner-Mandabach, Harpo Entertainment Group, Vulcan Ventures, Inc., and America Online, Inc., the company has secured important sponsorship and advertising agreements with Procter & Gamble Company, Hewlett-Packard Company, and Johnson & Johnson. The company also has a partnership with RealNetworks, Inc., which enables Oxygen Media Inc.'s audio and video content to be transmitted using RealNetworks, Inc.'s streaming media technology.

MANAGEMENT

Geraldine Laybourne is chairman and CEO of Oxygen Media, Inc. Laybourne, known for her innovative television thinking, attitudes, and programming, was the creative and business force behind building Nickelodeon (a unit of MTV Networks, a subsidiary of Viacom, Inc.) and Nick at Nite during the 1980s and early 1990s.

Oprah Winfrey is a cofounder of Oxygen Media, Inc. Winfrey's many media interests include her highly successful daily program, *The Oprah Winfrey Show*, which is viewed by an estimated 22.0 million people each week.

Visual Data Corporation

http://www.vdat.com
1291 S.W. 29th Avenue
Pompano Beach, FL 33069
Telephone: (954) 917-6655
Fax: (954) 917-0575

Ticker: VDAT **Price: $4.50** **52-Week Range: $17.69-$2.28** **Market Capitalization: $38.3 million**

COMPANY DESCRIPTION

Visual Data Corporation produces and distributes multimedia (video and audio) content for both the Internet and interactive television (ITV). The company's video libraries provide a full-motion broadcast-quality tour or overview of a particular destination, event, or specific information. Its content includes travel, healthcare, and corporate information. Visual Data Corporation also operates as a full-service production company capable of aggregating and distributing content through its global network of camera crews and a 25,000-square-foot production facility. More than 1,000 Internet sites carry the company's unique content at the present time. Also, Visual Data Corporation recently launched a new service, TheFirstNews.com, giving subscribers access to an audio broadcasting stream of continuous corporate and industry news alerts.

REVENUE MODEL

Visual Data Corporation plans to generate revenue through (1) annual subscription fees paid by information sponsors (destination sites, hotels, and corporations) and (2) per-view fees each time someone views a video over the Internet. The consumer receives the service for free, in what is essentially a reverse pay-per-view model. Visual Data Corporation also plans to derive revenue from syndication of its content and advertising fees. With respect to TheFirstNews.com, consumers will have the option of either a full service based upon a monthly subscription rate or a free service offering less functionality.

FINANCIAL HIGHLIGHTS

For fiscal (September) 1999, Visual Data Corporation reported revenue of $4.5 million, an increase of 137% from fiscal 1998. The company reported a net loss for fiscal 1999 of $7.1 million, or $1.20 per share, versus a net loss of $3.4 million, or $1.06 per share in fiscal 1998. More recently, for the company's third (June) quarter of fiscal 2000, revenue was $1.4 million, up 21% year over year.

NEW INITIATIVES

In June 2000, the company launched TheFirstNews.com service, which gives investors customized audio and text financial news throughout the trading day through its agreements with national news sources. Shortly after, the company announced a significant agreement with Yahoo!, Inc., with TheFirstNews.com service being the first featured link on Yahoo! FinanceVision's home page. In August 2000, Visual Data Corporation signed an agreement with Helmsley Hotels (a unit of Helmsley Enterprises, Inc.) to produce digital video tours for all of Helmsley Hotel's New York City properties.

PARTNERS

Visual Data Corporation has partnered with PR Newswire, InterVU (a unit of Akamai Technologies, Inc.), TravelWeb, Time Warner Inc.'s RoadRunner, Yahoo!, Inc., NBC Internet, Inc., Rezsolutions, and Intelihealth, Inc. Also, through the company's Entertainment Digital subsidiary (EDnet), the company has formed relationships with motion picture and music industry companies that include LucasFilm's Skywalker Sound, Sony Entertainment, Disney/MGM Studios, Warner Brothers, National Football League Films, and Professional Golf Association Tour Productions. In addition, as of mid-July 2000, the company reported agreements with more than 36 affiliates for TheFirstNews.com service. These affiliates include StockTalkLive.com, Omni Alert, 1-800Investments.com, 21st Century Markets.com, Discover Investment, Fire Fly Capital, Internet Stock News, A.B. Watley Group, Inc., Insider Street.com, GlobalNetFinancial.com, AboveTrade.com, and TD Waterhouse Group, Inc.

MANAGEMENT

Randy S. Selman has served as Visual Data Corporation's president and CEO since its inception in May 1993. Selman is also a member of the board of directors and is chairman of the board of EDnet. Previously, Selman was chairman of the board, president and CEO of SK Technologies Corporation, a publicly traded software development company. His responsibilities there included management, public and investor relations, finance, high level sales, and general administration.

Walt Disney Internet Group

http://www.go.com
500 South Buena Vista Street
Burbank, CA 91521
Telephone: (818) 560-1000
Fax: (818) 560-1930

Ticker: DIG **Price: $14.31** **52-Week Range: $37.69-$9.25** **Market Capitalization: $673.7 million**

COMPANY DESCRIPTION

The Walt Disney Internet Group (formerly GO.com) manages the Internet properties of the Walt Disney Company. The company was formed through the merger of the Buena Vista Entertainment Group with Infoseek Corporation. The company oversees a network of Web sites that includes the GO Network portal, ABC.com (and ABCNEWS.com), Disney.com (and DisneyStore.com), ESPN.com, NFL.com, NBA.com, Family.com, and Mr. Showbiz. The Walt Disney Internet Group develops and delivers content for a broad range of on-line services focused on consumer interests such as news, entertainment, and sports. In addition, the Walt Disney Internet Group supplements its content with search, community, and shopping features.

REVENUE MODEL

The Walt Disney Internet Group derives revenue through Internet-based sales and direct marketing revenue. The company's Internet revenue is derived through advertising, sponsorships, and e-commerce sales. The company also generates direct marketing revenue from merchandise sales by its catalog operations.

FINANCIAL HIGHLIGHTS

The company reported total revenue of $86.4 million for the third (June) quarter of fiscal (September) 2000, up 10% year over year. Revenue from Internet operations and direct marketing was $69.5 million and $16.9 million, respectively. The company also reported increases in all aspects of its key operating metrics. Average daily page views grew 18% year over year to 92.0 million, and the number of registered users increased 75% to 25.0 million. As of June 2000, the network of Web sites ranks sixth on the Media Metrix, Inc., list of the top 50 Web properties.

NEW INITIATIVES

The company has been experimenting with enhanced television, which gives viewers of certain American Broadcasting Company, Inc. (ABC, Inc.), programming access to unique content via their personal computers that is synchronized to the actual television broadcast. The company has enhanced broadcasts of ABC, Inc.'s *Who Wants to Be a Millionaire?* and claims to have brought in more than two million participants, with each spending an average of 45 minutes on the site. The company also provided an enhanced broadcast of Super Bowl XXXIV that brought 650,000 users to the site for an average of 42 minutes each. Further, the Walt Disney Internet Group and ABC, Inc., are collaborating to produce enhanced television programming for the 2000 Emmy Awards show, ABC, Inc., Monday Night Football games, and ESPN Networks' Sunday Night Football contests. The Walt Disney Internet Group also recently partnered with NTT Mobile Communications Network, Inc., to offer Disney-branded content on various wireless platforms throughout Japan.

PARTNERS

The company's primary partners include ABC.com, ABCNEWS.com, Disney.com, DisneyStore.com, ESPN.com, NFL.com, NBA.com, Family.com, and Mr. Showbiz.

MANAGEMENT

As chairman of the Walt Disney Internet Group, Steven Bornstein has overall responsibility for the Walt Disney Company's entire Internet portfolio. Bornstein was previously chairman of the Walt Disney Company's Buena Vista Internet Group. Prior to his promotion, Bornstein was president of ABC, Inc., and from 1990 to 1999, he was president and CEO of ESPN Networks.

Yack!, Inc.

http://www.yack.com
461 Fifth Avenue, 12th Floor
New York, NY 10017
Telephone: (212) 584-9000
Fax: (212) 584-9001

COMPANY DESCRIPTION

Yack!, Inc., is a privately held provider of a Web-based electronic program guide (EPG) that enables users to check information about live Web events such as schedules, editorial content, and details about live chats and interactive events. The company maintains a searchable database of more than 15,000 live Web events each week. Yack!, Inc., also enables users to track their favorite events with a Web-based calendar and to receive e-mail reminders about programs that may be of interest. The company's Web-based guide is also syndicated on line through numerous channels and off line through traditional print media. As Internet content increasingly finds its way onto TV sets, we expect Yack!, Inc., to become an indispensable resource to television viewers.

REVENUE MODEL

Yack!, Inc.'s revenue was once heavily ad focused, with advertisers paying Yack!, Inc., fees for advertising and/or sponsorships within Yack!, Inc.'s EPG. Although the company still generates more than half of its revenue from advertising fees, Yack!, Inc., is shifting to a model in which it derives revenue from license and syndication fees paid by portals and platform providers.

FINANCIAL HIGHLIGHTS

In June 2000, Yack!, Inc., received $10.0 million from venture capital firm Trans Cosmos and several individual investors. In September 1999, the company received $18.0 million from Information Technology Ventures, the Mayfield Fund, Weiss Peck & Greer Venture Partners, Blue Chip Venture Company, Condor Ventures, and Launchpad Software. As of July 2000, Yack!, Inc., was in the process of raising an additional $10.0 million as a follow-on to its most recent $10.0-million investment. The company expects the round of financing to close in early Fall 2000.

NEW INITIATIVES

In June 2000, Yack!, Inc., announced that it plans to acquire broadband portal ChannelSeek, Inc., in an all-stock deal with undisclosed terms. The acquisition combines two of the leading streaming media portals and extends Yack!, Inc.'s reach for the delivery of scheduling information for live on-demand Web-based content. Also, Yack!, Inc., signed an agreement with British Telecommunications whereby its EPG will be distributed across all of British Telecommunications' Internet properties. Further, Yack!, Inc., agreed with Chello Broadband N.V. (a unit of United Pan-Europe Communications N.V.) to provide a broadband version of its EPG to users in Europe, Latin America, and Australia.

PARTNERS

Yack!, Inc., has partnered with a variety of companies in an effort to cobrand and syndicate its EPG to live Internet events. Among the partners are Microsoft Corporation, AT&T WorldNet, Alta Vista, Inc., iWon.com, Inc., LookSmart, Ltd., Planet Direct, Inc., Time Warner Inc.'s RoadRunner, BellSouth Corporation, Gemstar-TV Guide International, Inc., InfoSpace, Inc., PayForView.com, and Comcast Corporation.

MANAGEMENT

Jeff Morris is the CEO of Yack!, Inc. Prior to joining Yack!, Inc., Morris was a senior vice president of new media and technology for Showtime Networks, Inc. (a unit of Viacom, Inc.). Previously, he was the manager of market research for Home Box Office, Inc. (a unit of Time Warner, Inc.).

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The following section identifies two significant Investment Holding Companies in the interactive television industry. The companies we have profiled in this universe are either privately held, publicly traded, or a subsidiary of publicly traded company. In this section, we present a brief synopsis on each company (in alphabetical order) including all or some of the following categories—company description, revenue model, new initiatives, financial highlights, strategic partners, intellectual property/patents, and management biography. For the public entities, we provide a comparative analysis of key financial data.

Investment Holding Companies

Public Company

							Calendar				
							1999	2000E			
		Price	52-Week Range		Shares	Market Cap	Revenue	Revenue	2000E/1999	2000E	
	Ticker	(9/11/00)	High	Low	(mil)	(mil)	(mil)	(mil)	Rev. Growth	Rev. Multiple	Profitable?
Liberty Media Group	LMGA	$20.75	$30.72	$16.50	2,580.0	$53,535.0	$729.0	—	—	—	Yes

Private Company

Vulcan Ventures, Inc.

Liberty Media Corporation

http://www.libertymedia.com
5619 DTC Parkway
Englewood, CO 80111
Telephone: (303) 267-5500
Fax: (303) 488-3206

Ticker: LMGA **Price: $20.75** **52-Week Range: $30.72-$16.50** **Market Capitalization: $53,535.0 million**

COMPANY DESCRIPTION

Liberty Media Corporation, a subsidiary of AT&T Corporation, provides various entertainment and informational programming services through a number of media formats including electronic retailing and direct marketing by its subsidiaries and affiliates. The company distributes this programming both in the U.S. and abroad through cable, wireless, and high-speed Internet services.

Liberty Digital, Inc., a subsidiary of Liberty Media Corporation, operates two new media business segments, interactive media and audio. The company's interactive media unit focuses on providing interactive television (ITV) services and makes strategic investments in Internet and new media companies; the audio segment programs, markets, and distributes digital and analog music services.

Liberty Livewire Corporation (formerly Todd-AO Corporation) is a unit of Liberty Media Corporation that offers a wide array of traditional audio and video post-production services to the motion picture and television industries. The company also markets an ITV service, HyperTV with Livewire, in conjunction with ACTV, Inc. This joint effort provides hosting, data management, and e-commerce opportunities that are capable of generating additional revenue streams for programmers and advertisers.

NEW INITIATIVES

On June 27, 2000, Liberty Media Corporation announced plans to merge its Japanese cable assets with those of Microsoft Corporation, giving Liberty Media Corporation a 35% stake in Japanese cable provider Jupiter Telecommunications. This stake gives the company access to a potential subscriber base in Japan of more than five million and highlights the company's recent international expansion. The company also recently became the largest shareholder in UnitedGlobalCom, Inc., one of Europe's largest cable television distribution channels. The company also increased its stake in ACTV, Inc., to more than 25%, took a 9.9% stake in IDT Corporation, a provider of digital subscriber line and long-distance services, and invested $200.0 million in Primedia, Inc., to begin a broadband video relationship.

On August 21, 2000, Liberty Digital, Inc., acquired a 50% stake in the Game Show Network for $225.0 million in cash and an additional $50.0 million in stock. This gives Liberty Digital, Inc., access to its first cable television channel and, along with Sony Corporation, Liberty Digital, Inc., plans to create a 24-hour fully interactive game-based television network. We believe that the alliance with Sony Corporation is likely to benefit ACTV, Inc. Given ACTV, Inc.'s recent acquisition of Bottle Rocket, Inc., and its existing relationship with Liberty Digital, Inc., we believe that ACTV, Inc., is positioned to provide extensive interactive applications for the Game Show Network. Furthermore, on June 20, 2000, Liberty Digital, Inc., and a number of other industry heavyweights invested in ICTV, Inc., an interactive software platform provider enabling a number of enhanced television services.

Liberty Livewire Corporation announced that it would offer the first regularly scheduled enhanced TV programming through HyperTV with Livewire. The programming will be featured on TBS Superstation (Superstation, Inc., is a unit of Time Warner, Inc.) and combines ACTV Inc.'s expertise in convergence with Liberty Livewire Corporation's valuable entertainment industry relationships. In addition, on June 28, 2000, Liberty Livewire Corporation announced its acquisition of privately held Triumph Communications, a provider of various video transmission services including fiber optic, satellite, and encoding and encryption. Subsequently, Liberty Livewire Corporation announced an agreement to acquire Video Service Corporation, a provider of production and distribution services for the video and broadcast industries.

PARTNERS

A significant portion of Liberty Media Corporation's business is conducted through its interests in nonconsolidated subsidiaries including Sprint PCS Group, Time Warner, Inc., Gemstar-TV Guide International, Inc., Motorola, Inc.'s Broadband Communications Sector unit, News Corporation Ltd., Telewest Communications PLC, USA Networks, Inc., Teligent, Inc., Cendant Corporation, UnitedGlobalCom, Inc., Emmis Communications Corporation, ANTEC Corporation, Discovery Communications, Inc., QVC, Inc., BET Holdings II, Telemundo Network Group, Court TV, Odyssey Holdings, E! Entertainment Television, Astrolink International L.L.C., iSKY, Inc., and Geocast Network Systems, Inc. In addition, Liberty Media Corporation has interests in nonpublic international cable distribution and programming businesses and owns Starz Encore Group, a provider of premium movie services.

Liberty Digital, Inc., has developed strategic relationships with, among others, ACTV, Inc., Alloy Online, Inc., BET.com, CarsDirect.com, Inc., DMX, Inc., Digital Music Express, drugstore.com, Inc., Food.com, Inc., HomeGrocer.com, Inc., iBEAM Broadcasting Corporation, iFILM Corporation, Internet Pictures Corporation (formerly Interactive Pictures Corporation), iVillage, Inc., Kaleidoscope Interactive, Kozmo.com, Inc., Lightspan, Inc., MedScholar Digital Network, MTVi Group, netLibrary, OpenTV Corporation, OurHouse.com, the Walt Disney Internet Group, priceline.com, Inc., Quokka Sports, Inc., ReplayTV, Inc., SportsLine.com (a unit of CBS Worldwide, Inc.), TiVo, Inc., and UGO Networks.

MANAGEMENT

Dr. John C. Malone is chairman of Liberty Media Corporation, a position he has held since 1990. From 1996 to March 1999, when Tele-Communications, Inc., merged with AT&T Corporation, he was also chairman and CEO of Tele-Communications, Inc. From 1973 to 1996, Malone served as president and CEO of Tele-Communications, Inc. He is a director of AT&T Corporation and also serves on the board of directors for the Bank of New York Company, the CATO Institute, Discovery Communications, Inc., BET Holdings II, Inc., At Home Corporation, and USANi, L.L.C. Additionally, Malone is chairman emeritus of the board for Cable Television Laboratories, Inc.

Vulcan Ventures, Inc.

http://www.paulallen.com
110 110th Avenue N.E., Suite 550
Bellevue, WA 98004
Telephone: (425) 453-1940

BACKGROUND INFORMATION

Vulcan Ventures, Inc., is a privately held company that was founded by Microsoft Corporation cofounder Paul Allen with the principal purpose of seeking out investment opportunities integral to the development and delivery of digital and interactive content. Many of Vulcan Ventures, Inc.'s investments have been focused in the broadband and convergence industries. Vulcan Ventures, Inc., has invested heavily in broadband infrastructure, e-commerce, and interactive applications for both the personal computer and television. Vulcan Ventures, Inc., owns Charter Communications, Inc., the fourth largest multiple system operator in the U.S., through which it acquires small profitable cable companies that deliver cheaper telephone service and high-speed Internet access to consumers.

RELEVANT INVESTMENTS

- *Go2Net, Inc.,* offers a network of properties and aggregated content relating to search, e-commerce services, and multi-player games, and recently agreed to be acquired by InfoSpace, Inc.
- *RCN Corporation* sells bundled communications services to the residential market.
- *ReplayTV, Inc.,* creates and markets consumer television products aimed at improving an individual's television viewing experience.
- *TiVo, Inc.,* is the creator of a personal television device that is capable of adapting to a viewer's preferences and enables full control of live programs through the ability to pause, rewind, instant replay, and play back any broadcast.
- *Wink Communications, Inc.,* provides an interactive television feature available in cable and broadcast television called enhanced broadcasting. Using the Wink service and their remote controls, viewers can click and view more information about or make purchases of specific products and services.
- *WorldGate Communications, Inc.,* provides a television-based Internet service with full-featured Internet functionality that delivers the Internet through cable television systems. The company also possesses technology capable of linking television programming to advertising and related Web sites.

In addition to these investments, Vulcan Ventures, Inc., has invested significantly in companies that enhance the delivery of content, such as InterNAP Network Services Corporation, and Northpoint Communications Group, Inc., Along with Charter Communications, Inc., Vulcan Ventures, Inc., invested $75.0 million in High Speed Access Corporation, a provider of broadband Internet access. Vulcan Ventures, Inc., has also invested in Oxygen Media, Inc., USA Networks, Inc., iFILM Corporation, TechTV (Formerly ZDTV and a unit of ZDNet, Inc.), and Dreamworks SKG.

Profiles of Other Public and Private Interactive Television Companies

5th Avenue Channel Corporation
Broadcom Corporation
Cisco Systems, Inc.
Canal+ U.S. Technologies
Intellocity USA, Inc.
iSurfTV, Inc.
Metabyte Networks, Inc.
Net For All, Inc.
NXTV, Inc.
Telecruz Technologies, Inc.
TVN Entertainment Corporation
Twin Entertainment
Universal Electronics, Inc.

5th Avenue Channel Corporation

http://www.5ac.com
3957 N.E. 163rd Street
Miami, FL 33160
Telephone: (305)-947-3010
Fax: (305) 919-8154

COMPANY DESCRIPTION

5th Avenue Channel Corporation offers streaming live programming through its Web site, NeTVideoNetworks.com, and also through its network television program called *Net Financial News*. The company offers its customers access to a multitude of interactive resources relating to financial news and information. Further, the company plans to enter the digital interactive set-top box market through purchase of two wireless cable systems, one in Wisconsin and the other in Costa Rica. The company recently announced that Fusion Capital, a Chicago-based investment fund, entered into an equity purchase agreement that will provide 5th Avenue Channel Corporation with approximately $12.0 million in funding. The proceeds will be used to fund further Internet initiatives and explore strategic partnership opportunities.

Broadcom Corporation

http://www.broadcom.com
16215 Alton Parkway
P.O. Box 57013
Irvine, CA 92619-7013
Telephone: (949) 450-8700
Fax: (949) 450-8710

COMPANY DESCRIPTION

A company focused on providing products that enable high-speed data transmission, Broadcom Corporation is an important participant in the interactive television marketplace. The company recently developed a computer chip for set-top boxes that integrate two digital receivers and a cable modem and enable the transition from a one-way broadcast to a two-way fully interactive experience. The chip will (1) enable broadcasters and advertisers to more accurately monitor the preferences of television viewers; (2) enable retailers to offer impulse t-commerce purchases; and (3) let viewers access high-quality television along with full Web-browsing and e-mail functionality.

Cisco Systems, Inc.

http://www.cisco.com
170 West Tasman Drive
San Jose, CA 95134
Telephone: (408) 526-7208
Fax: (408) 526-4100

COMPANY DESCRIPTION

Cisco Systems, Inc., a recognized leader in networking for the Internet, also provides digital set-top infrastructure solutions that enable cable operators to offer their subscribers interactive services. The company works closely with Liberate Technologies, Inc., in the development of various interactive cable solutions such as Internet access, personalized programming features, video on demand, targeted advertising, and t-commerce. Cisco Systems, Inc. recently invested $100 million in Liberate Technologies, Inc.

Canal+ U.S. Technologies

http://www.canalus.com
20230 Stevens Creek Boulevard
Cupertino, CA 95014
Telephone: (515) 243-3742

COMPANY DESCRIPTION

Canal+ U.S. Technologies has deployed more than five million set-top boxes worldwide using its core software product, MediaHighway, a complete end-to-end interactive television system. The company has programming relationships in the U.S. and abroad through its former parent company Canal+ Group, which was recently acquired by France's Vivendi.

Intellocity USA, Inc.

http://www.intellocity.com
1400 Market Street
Denver, CO 80202
Telephone: (303) 572-8200
Fax: (303) 572-8008

COMPANY DESCRIPTION

Intellocity USA, Inc., develops and integrates interactive and enhanced television platforms and content for broadband network operators. In addition, the company works closely with content developers to design and create interactive and enhanced television content. If content has already been produced, Intellocity USA, Inc., can integrate it into multiple platforms and networks.

iSurfTV Corporation

http://www.isurftv.com
413 Tasman Drive
Sunnyvale, CA 94089
Telephone: (408) 744-2900
Fax: (408) 744-2901

COMPANY DESCRIPTION

iSurfTV Corporation is a developer of a customizable interactive program guide that is used by broadcasters, content providers, and device manufacturers. In addition, the company is also working to create other interactive television software technologies for applications such as t-commerce and video on demand. iSurfTV Corporation is focused on providing client and server products, tools, and consulting to facilitate the development of interactive video applications. iSurfTV Corporation completed its first round of financing on June 16, 2000, and received $6.4 million from InSight Capital Partners and W.I. Harper Group.

Metabyte Networks, Inc.

http://www.mbtv.com
39350 Civic Center Drive, Suite 200
Fremont, CA 94538
Telephone: (510) 494-9700

COMPANY DESCRIPTION

Metabyte Networks, Inc., is a personal television company that offers a feature-rich interactive program guide and a personalized video instrument that directs viewers to relevant content based on prior viewing habits and programming preferences. The company offers original equipment manufacturers the tools to capture additional revenue streams and a competitive advantage by offering personalized television as a standard feature in set-top appliances. Investors in Metabyte Networks, Inc., include Thomson Multimedia and Seagate Technology, Inc. The company has also established strategic alliances with Microsoft Corporation, Western Digital Corporation, and C-Cube Microsystems, Inc.

Net For All, Inc.

http://www.netforall.com
1330 Post Oak Boulevard., Suite 1900
Houston, Texas 77056
Telephone: (713) 350-8300
Fax: (713) 350-8444

COMPANY DESCRIPTION

Net For All, Inc., plans to position itself as a leader in the emerging Latino interactive television market. Net For All, Inc., offers a multilingual (English, Spanish, and Portuguese) interactive television service with built-in functionality for Internet access, e-mail, games, home banking, video on demand, and personalized information and entertainment features. The Net For All service requires purchase of a set-top appliance for $2999, and the basic service for $21.95 per month. The company targets Hispanic populations in over more than 70 cities across the U.S., and the service has been deployed in Mexico.

NXTV, Inc.

http://www.nxtvinc.com
Los Angeles, CA

COMPANY DESCRIPTION

NXTV, Inc., delivers interactive digital broadband services to the hospitality and residential markets. The company began marketing broadband services in 1999 and has received commitments to deploy its service in hotels in Los Angeles. NXTV, Inc., shares its revenue streams with the hotel operators that deploy its services and derives additional revenue from subscription fees to residences for Internet access and video on demand. The company's recently completed second round of funding totaled $15.5 million. Previously, the company had raised $1.5 million. The lead investor is Global Crossing, Inc., and other investors include Canyon Capital Advisors and the Pivotal Group.

Television.com

http://www.television.com
12300 Wilshire Boulevard, Suite 400
Los Angeles, CA 90025
Telephone: (310) 826-1510
Fax: (310) 979-7871

COMPANY DESCRIPTION

Television.com is an Internet site that delivers information and entertainment content focused on the world of television. The Web site offers customized content; interactive polls; trivia games; and merchandise, based on TV shows, such as T-shirts. The company signed agreements with more than 35 major broadcast and cable networks to provide interactive television content including links and e-mail reminders for programming of interest. Television.com is led by the founder of E! Entertainment Television and a programming executive from Viacom, Inc., and E! Entertainment Television.

TeleCruz Technologies, Inc.

http://www.telecruz.com
2391 Qume Drive
San Jose, CA 95131
Telephone: (408) 570-0660
Fax: (408) 570-0670

COMPANY DESCRIPTION

TeleCruz Technologies, Inc., develops and manufactures integrated circuits and other embedded software for Web sites and content creators in order to integrate their product or service offerings into interactive television platforms. For example, the TeleCruz solution enables interactive functionality in program guides as well as efficient television-based Internet access. The company's customers include Yack!, Inc., and Spiderdance, Inc. TeleCruz Technologies, Inc., is a privately held company that has raised more than $34.0 million to date. Investors include Gemstar-TV Guide International, Inc., Zeron Group, Institutional Venture Partners, Crosslink Capital (formerly Omega Venture Partners), and Fujigin Capital (Fuji Bank of Japan).

TVIA, Inc.

http://www.tvia.com
4001 Burton Drive
Santa Clara, CA 95054
Telephone: (408) 982-8588

COMPANY DESCRIPTION

TVIA, Inc., creates and markets integrated circuits and proprietary software that enables interactive television applications to run on Internet appliances, set-top boxes and digital televisions. Early in 2000, TVIA, Inc., announced that its core streaming media processor is going to be used by America Online, Inc., and Philips Electronics Company to power the set-top boxes that deliver the AOL TV service. More recently, TVIA, Inc., completed an initial public offering of five million shares of its common stock that resulted in $55.0 million in proceeds less underwriting fees.

TVN Entertainment Corporation

http://www.tvn.com
2901 West Alameda Avenue
Burbank, CA 91505
Telephone: (818) 526-5000
Fax: (818) 526-5001

COMPANY DESCRIPTION

TVN Entertainment Corporation delivers content through a variety of formats, including pay per view and video on demand. TVN Entertainment Corporation's technology enables automated movie ordering, e-commerce transactions, direct response programming, and other content. The company's services are primarily satellite based; however, the company offers a 32-channel digital service to several small cable systems that could potentially serve multiple system operators. To complement these transactional content services, TVN Entertainment Group, through its broadband Internet group, established a digital network operations center to handle back-end technical support including encryption and caching services, server operations, and content scheduling.

TWIN Entertainment

http://www.twinentertainment.com
4929 Wilshire Boulevard, Suite 930
Los Angeles, CA 90010
Telephone: (323) 857-1144
Fax: (323) 857-1488

COMPANY DESCRIPTION

TWIN Entertainment is a joint venture between Two Way TV and Interactive Network, Inc., that draw upon Interactive Network Inc.'s patent portfolio and Two Way TV's unique content, production systems, and platform for digital interactive services. The company plans to produce live entertainment for interactive television across a number of distribution platforms, including cable, satellite, and broadband Internet. TWIN Entertainment has already established several significant partnerships, and its partners include Liberate Technologies, Inc., Microsoft Corporation's Microsoft TV, Canal+ U.S. Technologies, and OpenTV Corporation.

Universal Electronics, Inc.

http://www.uei.com
6101 Gateway Drive
Cypress, CA 90630
Telephone: (714) 820-1093

COMPANY DESCRIPTION

Universal Electronics, Inc., supplies wireless technologies such as universal remote controls, keyboards, and handheld devices for cable and satellite companies, original equipment manufacturers, and private label retailers. The company holds more than 32 patents (issued or pending) in this area and has deals with all of the large multiple system operators including Time Warner Cable, Charter Communications, Inc., Comcast Corporation, and Cox Communications, Inc. Universal Electronics, Inc., has approximately $100.0 million in annual revenue and to date has shipped 130.0 million remote controls and other wireless handheld devices.

GLOSSARY OF TERMS

Asymmetric Digital Subscriber Line (ADSL) A technology that provides high speed access over existing analog voice telephone lines for data and multimedia applications.

Advanced Television Enhancement Forum (ATVEF) A cross-industry alliance that comprises companies from the broadcast and cable networks, television transports, consumer electronics, and PC industries. The goal of this organization is to develop standard protocols to encourage the development of enhanced television content and services through either an analog or digital signal.

analog A communication signal that is continuous whereas a digital signal consists of values measured at discrete intervals.

bandwidth The rate at which data flow over a network, measured in bits per second for digital networks and cycles per second (or Hertz) for analog signals. The term generally refers to the amount of voice, text, and/or video that can be sent through a connection in a given amount of time.

broadband Describes a network capable of delivering a large quantity of high-bandwidth applications—such as voice, data, graphics, and multimedia—simultaneously. Broadband networks are used by Internet and cable television providers.

cable modem A device that provides one-way or two-way high-speed Internet access via cable television line rather than traditional telephone lines.

cable television Refers to a type of system network that distributes television signals using coaxial or fiber-optic cables.

delivery systems A blanket term encompassing cable, satellite, wireless, and airwave systems of transmitting data and/or video signals.

Digital Signal Television (DTV) The transmission of a signal that can be compressed to provide four, five, or more channels in the same bandwidth required for one channel of analog transmission. The Federal Communications Commission has mandated that all analog broadcast systems must convert to digital by 2006.

Digital Subscriber Line (DSL) A modem technology that delivers high-bandwidth voice and data transmissions simultaneously by transforming existing copper phone lines into high-speed digital lines.

Direct Broadcast Satellite (DBS) An alternative to cable television that provides cablelike television programming directly from satellites on small satellite dishes that are 18 inches to three feet in diameter. The system involves digitally compressing standard analog television signals, which enables as many as 300 channels to be broadcast using a single satellite dish.

Data-Over-Cable Service Interface Specification (DOCSIS) A set of standards for cable modems used in distributing data over high-speed networks.

Electronic Programming Guide (EPG) A channel selection application that enables television viewers to easily search for programs by category, time, or keyword. EPGs also provide brief descriptions of each program. Some EPGs learn an individual's television viewing habits to suggest programming choices that may of interest to the viewer.

enhanced television Television programming that has been encoded with data, graphics, interactive services, Internet content, or e-commerce offers.

head end The originating point of a signal in a cable television system. Head-end equipment receives satellite and local-broadcast TV signals and converts them to a form that can travel down coaxial cable to subscribers.

High-Definition Television (HDTV) A new type of television that provides higher-quality signal resolution than standard televisions based on a digital format. There are a number of competing HDTV standards, but all support a wider screen, sharper resolution, and digital-quality sound.

hyperlinking An area on a Web page, either text or graphics, that when activated takes the user to another Web page.

Hypertext Markup Language (HTML) The language used to author Web pages. It includes features such as text formatting, hyperlinking, and graphics layout.

interface A set of textual or graphical symbols that enables a computer user to communicate with underlying software.

megaHertz (MHZ) A unit of frequency equal to one million Hertz, or one million cycles per second.

middleware Software that mediates between an application program and a network.

Multipoint Multichannel Distribution Service (MMDS) A technology that delivers wireless high-speed access. MMDS requires a direct line of sight between transmitting and receiving antennas. This means more transmitters and antennas will be needed to overcome buildings and terrain obstructions.

narrowcasting Delivering specialized content for the purpose of targeting a select group of individuals that has similar interests and preferences. The opposite of broadcasting, which attempts to reach mass audiences.

next generation Refers to the newest technological standard to be introduced for a device or application.

Near Video on Demand (NVOD) The service of providing a movie to subscribers on multiple channels and rotating its start time.

off line A term used to describe a situation in which an individual may be actively working on a computer but is not connected to a network.

personal television A type of interactive television technology featuring a digital hard disk drive inside a set-top box. While programs are recording, viewers can pause, play back, rewind, and use other features, thereby taking control of what they see and when. The term personal television is synonymous with the personal video recorder or PVR.

protocol A way for dissimilar systems to communicate across a network, often referred to as the language spoken between computers.

Source: Interactive TV Today, CNET Networks, Inc., The Free On-Line Dictionary of Computing, and Gruntal & Co., L.L.C.

rights holder The owner of an exclusive right to authorize the broadcast of any event or series of events involving a particular property. For example, the Olympic Committee is the rights holder of the Olympic Games and, for a heavy fee, has granted permission to the National Broadcasting Company, Inc., to broadcast the Olympics on its television network.

set-top box An electronic device that sits on top of the television set and enables the viewer to connect to cable systems, game consoles, and the Internet. By providing in-home Internet access, interactive information, and electronic programming through a television set, the set-top box promises to enhance the home entertainment experience.

spectrum Refers to the electromagnetic spectrum, or the entire range of electromagnetic frequencies at which electromagnetic waves can travel during the transmission of voice, data, and television.

Vertical Blanking Interval (VBI) Portion of the TV signal that is not used for video information but that is used to transmit other data such as captions, Web data, and current stock market prices.

Video on Demand (VOD) This service enables consumers to rent movies with the click of a remote control, calling upon a video from a potentially infinite number of titles at any time of the day.

Interactive Television Links

I. Interactive Television News and Research

www.iTVreport.com

www.itvnews.com *(Carat Interactive Television News)*

www.itvt.com *(Interactive TV Today)*

www.ruel.net

www.spyglass.com/tvexpert

www.tvnet.com

www.catv.org

www.digitaltelevision.com

www.broadband-today.com

II. Broadcast and ITV Industry Associations

www.nab.org (official Web site of the National Association of Broadcasters)

www.atvef.com (official Web site for the Advanced Television Enhancement Forum)

www.atsc.org (official Web site for the Advanced Television Systems Committee)

www.tvb.org (official Web site for the Television Bureau of Advertising)

III. Cable and Satellite Magazines

www.SmartTVMag.com (interactive television industry magazine)

www.TVtechnology.com (interactive television industry magazine)

www.cablevisionmagazine.com (cable industry magazine)

Publicly Traded Companies Mentioned in This Report

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
1-800-Flowers.com, Inc.	FLWS	NASDAQ	$5.56	Not Rated
3Com Corporation#	COMS	NASDAQ	16.63	Not Rated
5th Avenue Channel Corporation	FAVE	NASDAQ	0.31	Not Rated
A.B. Watley Group, Inc.	ABWG	NASDAQ	13.00	Not Rated
A.H. Belo Corporation	BLC	NYSE	18.69	Not Rated
Accor	ACRFY	NASDAQ	20.75	Not Rated
Acer, Inc.	—	Taiwan	—	Not Rated
ACTV, Inc.#	IATV	NASDAQ	16.31	1-1
Adelphia Communications Corporation	ADLAC	NASDAQ	31.44	Not Rated
Airborne Freight Corporation	ABF	NYSE	14.44	Not Rated
Aiwa Co., Ltd.	—	Tokyo	—	Not Rated
Akamai Technologies, Inc.	AKAM	NASDAQ	62.69	Not Rated
Alcatel	ALA	NYSE	75.50	Not Rated
Alliance Atlantis Communications, Inc.#	AACB	NASDAQ	14.25	Not Rated
Allied Riser Communications Corporation	ARCC	NASDAQ	6.03	Not Rated
Alloy Online, Inc.	ALOY	NASDAQ	8.50	Not Rated
Allstate Corporation	ALL	NYSE	31.50	Not Rated
Amazon.com, Inc.	AMZN	NASDAQ	42.38	Not Rated
America Online, Inc.	AOL	NYSE	55.88	Not Rated
American Eagle Outfitters, Inc.	AEOS	NASDAQ	31.50	Not Rated
American Express Company	AXP	NYSE	61.81	Not Rated
American International Group, Inc.	AIG	NSYE	91.56	Not Rated
American Tower Corporation	AMT	NYSE	37.25	Not Rated
AMR Corporation	AMR	NYSE	32.00	Not Rated
Anixter International, Inc.	AXE	NYSE	33.00	Not Rated
ANTEC Corporation	ANTC	NASDAQ	29.38	Not Rated
Apple Computer, Inc.	AAPL	NASDAQ	58.44	Not Rated
At Home Corporation#	ATHM	NASDAQ	16.25	Not Rated
AT&T Corporation	T	NYSE	30.50	Not Rated
AT&T Wireless Group	AWE	NYSE	24.88	Not Rated
ATI Technologies, Inc.#	ATYT	NASDAQ	9.06	Not Rated
autobytel.com, Inc.#	ABTL	NASDAQ	4.59	Not Rated
Autodesk, Inc.	ADSK	NASDAQ	28.50	Not Rated
Ballantyne of Omaha, Inc.	BTN	NYSE	1.44	Not Rated
Bank of America Corporation	BAC	NYSE	56.56	Not Rated
Bank of New York Company	BK	NYSE	54.94	Not Rated
Bass PLC	BAS	NYSE	9.63	Not Rated
Bayou Steel Corporation	BYX	AMEX	1.63	Not Rated
Be Free, Inc.#	BFRE	NASDAQ	5.25	Not Rated
BEA Systems, Inc.	BEAS	NASDAQ	61.94	Not Rated
Bear Stearns Companies, Inc.	BSC	NYSE	72.13	Not Rated
Bell Canada Enterprises, Inc.	BCE	NYSE	22.75	Not Rated
Bell Canada International	BCICF	NASDAQ	26.00	Not Rated
BellSouth Corporation	BLS	NYSE	38.63	Not Rated
BigStar Entertainment, Inc.	BGST	NASDAQ	1.00	Not Rated
Blockbuster, Inc.	BBI	NYSE	9.75	Not Rated
Bluefly, Inc.#	BFLY	NASDAQ	3.75	2-1

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
Brilliant Digital Entertainment, Inc.	BDE	AMEX	$4.25	Not Rated
Bristol-Myers Squibb Company	BMY	NYSE	51.81	2-1
British Sky Broadcasting Group PLC	BSY	NYSE	100.94	Not Rated
British Telecommunications	BTY	NYSE	117.00	Not Rated
Broadcom Corporation	BRCM	NASDAQ	224.13	Not Rated
Cabletel Communications Corporation	TTV	AMEX	2.94	Not Rated
Cablevision Systems Corporation	CVC	NYSE	68.13	Not Rated
CacheFlow, Inc.	CFLO	NASDAQ	109.75	Not Rated
Canadian Satellite Communications, Inc.	—	Toronto	—	Not Rated
Canal+ Group	CNPLY	NASDAQ	32.25	Not Rated
Canon, Inc.	CANNY	NASDAQ	42.63	Not Rated
C-Cube Microsystems, Inc.	CUBE	NASDAQ	20.63	Not Rated
CDNow, Inc.#	CDNW	NASDAQ	2.97	Not Rated
Cendant Corporation	CD	NYSE	13.06	Not Rated
Charles Schwab Corporation	SCH	NYSE	38.00	Not Rated
Chart House Enterprises, Inc.	CHT	NYSE	5.81	Not Rated
Charter Communications, Inc.#	CHTR	NASDAQ	14.25	Not Rated
Chase Manhattan Corporation	CMB	NYSE	57.50	Not Rated
CheckPoint Software Technologies Ltd	CHKP	NASDAQ	138.06	Not Rated
Chordiant Software, Inc.	CHRD	NASDAQ	11.31	Not Rated
Chyron Corporation	CHY	NYSE	2.69	Not Rated
Cisco Systems, Inc.	CSCO	NASDAQ	61.19	Not Rated
Citigroup, Inc.	C	NYSE	56.50	Not Rated
Clorox Company	CLX	NYSE	36.88	Not Rated
CMGI, Inc.	CMGI	NASDAQ	39.63	Not Rated
CNET Networks, Inc.	CNET	NASDAQ	29.00	Not Rated
Coca-Cola Company	KO	NYSE	53.00	Not Rated
Comcast Corporation#	CMCSA	NASDAQ	35.81	Not Rated
Comdisco Inc.	CDO	NYSE	25.75	Not Rated
Concero, Inc.	CERO	NASDAQ	5.47	Not Rated
Concord Computer Corporation	LENS	NASDAQ	25.44	Not Rated
Concurrent Computer Corporation#	CCUR	NASDAQ	15.88	Not Rated
Cox Communications, Inc.	COX	NYSE	33.88	Not Rated
DaimlerChrysler AG	DCX	NYSE	50.00	Not Rated
Davel Communications, Inc.	DAVL	NASDAQ	0.38	Not Rated
Diageo PLC	DEO	NYSE	33.06	Not Rated
Dick Clark Productions, Inc.	DCPI	NASDAQ	12.75	Not Rated
Digital Island, Inc.	ISLD	NASDAQ	26.00	Not Rated
DLT & Storage Systems Group	DSS	NYSE	14.38	Not Rated
Donaldson, Lufkin & Jenrette, Inc.	DLJ	NYSE	88.75	Not Rated
Dow Jones & Company, Inc.	DJ	NYSE	62.00	Not Rated
drugstore.com, Inc.#	DSCM	NASDAQ	5.25	1-1
E.W. Scripps Company	SSP	NYSE	51.00	Not Rated
Eastman Kodak Company	EK	NYSE	62.00	Not Rated
EchoStar Communications Corporation	DISH	NASDAQ	44.63	Not Rated
Eircom PLC	EIR	NYSE	9.00	Not Rated
Electric Lightwave, Inc.	ELIX	NASDAQ	12.25	Not Rated
Electronic Arts, Inc.	ERTS	NASDAQ	50.63	Not Rated
E-LOAN, Inc.	EELN	NASDAQ	3.19	Not Rated

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
Elron Electronic Industries Ltd.	ELRNF	NASDAQ	$35.31	Not Rated
Emmis Communications Corporation	EMMS	NASDAQ	29.38	Not Rated
Enron Corporation	ENE	NYSE	86.02	Not Rated
Ericsson Telephone Company	ERICY	NASDAQ	18.44	Not Rated
Exodus Communications, Inc.	EXDS	NASDAQ	61.06	Not Rated
Extensity, Inc.	EXTN	NASDAQ	23.31	Not Rated
Federated Department Stores, Inc.	FD	NYSE	27.94	Not Rated
FIND/SVP Group, Inc.	FSVP	NASDAQ	1.25	Not Rated
First Data Corporation	FDC	NYSE	43.19	Not Rated
First Union Corporation	FTU	NYSE	30.25	Not Rated
Ford Motor Company	F	NYSE	26.00	Not Rated
Forrester Research, Inc.	FORR	NASDAQ	56.69	Not Rated
Foundry Networks, Inc.	FDRY	NASDAQ	73.75	Not Rated
Fox Entertainment Group, Inc.	FOX	NYSE	29.94	Not Rated
Fujitsu Ltd. ADR	FJTSY.OB	NASDAQ	137.00	Not Rated
Gannett Company, Inc.	GCI	NYSE	53.50	Not Rated
Gartner Group, Inc.	IT	NYSE	13.56	Not Rated
Gateway, Inc.	GTW	NYSE	62.91	Not Rated
Gaylord Entertainment Company	GET	NYSE	25.44	Not Rated
Gemstar-TV Guide International, Inc.	GMST	NASDAQ	77.50	Not Rated
General Electric Company	GE	NYSE	59.69	Not Rated
General Motors Corporation	GM	NYSE	74.50	Not Rated
Geoworks Corporation#	GWRX	NASDAQ	11.00	Not Rated
Go2Net, Inc.	GNET	NASDAQ	72.19	Not Rated
Goldman Sachs Group	GS	NYSE	132.00	Not Rated
Goodyear Tire & Rubber Company	GT	NYSE	24.38	Not Rated
Granite Broadcasting Corporation	GBTVK	NASDAQ	4.88	Not Rated
Gray Communications Systems, Inc.	GCS	NYSE	11.13	Not Rated
Grey Global Group, Inc.	GREY	NASDAQ	609.00	Not Rated
Grupo Financiero Bancomer, S.A.	—	Mexico	—	Not Rated
Grupo Televisa, S.A.	TV	NYSE	65.38	Not Rated
Gucci Group N.V.	GUC	NYSE	96.19	Not Rated
Hanover Compressor Company	HC	NYSE	33.56	Not Rated
Harrah's Entertainment, Inc.	HET	NYSE	29.75	Not Rated
Harvey Entertainment Company	HRVY	NASDAQ	2.06	Not Rated
Hearst-Argyle Television, Inc.	HTV	NYSE	22.44	Not Rated
Heineken N.V.	HINKY	NASDAQ	50.88	Not Rated
Hewlett-Packard Company	HWP	NYSE	114.00	Not Rated
Hexcel Corporation	HXL	NYSE	14.88	Not Rated
High Speed Access Corporation#	HSAC	NASDAQ	5.19	Not Rated
Hilton Hotels Corporation	HLT	NYSE	11.13	Not Rated
Hitachi, Ltd.	HIT	NYSE	113.75	Not Rated
Home Depot, Inc.	HD	NYSE	54.25	Not Rated
Honda Motor, Ltd.	HMC	NYSE	75.88	Not Rated
HotJobs.com, Ltd.#	HOTJ	NASDAQ	19.00	Not Rated
Hudson's Bay Company	—	Toronto	—	Not Rated
Hughes Electronics Corporation	GMH	NYSE	35.69	Not Rated
iBEAM Broadcasting Corporation	IBEM	NASDAQ	10.00	Not Rated
IDT Corporation	IDTC	NASDAQ	40.06	Not Rated

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
Imax Corporation	IMAX	NASDAQ	$25.50	Not Rated
Infogrames, Inc.	GTIS	NASDAQ	6.63	Not Rated
InfoSpace, Inc.	INSP	NASDAQ	40.31	Not Rated
Inktomi Corporation	INKT	NASDAQ	118.44	Not Rated
Insight Communications Company, Inc.	ICCI	NASDAQ	17.44	Not Rated
Intel Corporation	INTC	NASDAQ	64.69	Not Rated
Interactive Network, Inc.	INNN	NASDAQ	1.72	Not Rated
InterNAP Network Services Corporation	INAP	NASDAQ	33.50	Not Rated
International Business Machines Corporation	IBM	NYSE	124.50	Not Rated
Internet Pictures Corporation	IPIX	NASDAQ	8.13	Not Rated
Interpublic Group of Companies	IPG	NYSE	38.00	Not Rated
iVillage, Inc.	IVIL	NASDAQ	5.88	Not Rated
IWERKS Entertainment, Inc.	IWRKC	NASDAQ	0.63	Not Rated
Johnson & Johnson	JNJ	NYSE	95.01	2-1
Juniper Networks, Inc.	JNPR	NASDAQ	183.06	Not Rated
Jupiter Communications, Inc.	JPTR	NASDAQ	18.13	Not Rated
Kenneth Cole Productions, Inc.	KCP	NYSE	40.00	Not Rated
Kmart Corporation	KM	NYSE	6.94	Not Rated
Koninklijke Philips Electronics N.V.	PHG	NYSE	44.69	Not Rated
Krause's Furniture, Inc.	KFI	AMEX	1.00	Not Rated
Lee Enterprises, Inc.	LEE	NYSE	27.75	Not Rated
Lehman Brothers, Inc.	LEH	NYSE	160.00	Not Rated
LG Electronics, Inc.	—	Korea	—	Not Rated
Liberate Technologies, Inc.#	LBRT	NASDAQ	32.13	Not Rated
Liberty Digital, Inc.	LDIG	NASDAQ	24.63	Not Rated
Liberty Livewire Corporation	LWIRA	NASDAQ	39.00	Not Rated
Liberty Media Group	LMGA	NASDAQ	20.75	Not Rated
Lightspan, Inc.	LSPN	NASDAQ	3.03	Not Rated
Liz Claiborne, Inc.	LIZ	NYSE	42.88	1-1
LodgeNet Entertainment Corporation	LNET	NASDAQ	28.31	Not Rated
LookSmart, Ltd.	LOOK	NASDAQ	15.38	Not Rated
Loudeye Technologies, Inc.	LOUD	NASDAQ	11.88	Not Rated
Lucent Technologies, Inc.	LU	NYSE	38.75	Not Rated
LVMH Moet Hennessy Louis Vuitton S.A.	LVMHY	NASDAQ	14.75	Not Rated
Lycos, Inc.#	LCOS	NASDAQ	66.06	Not Rated
Macromedia Inc.	MACR	NASDAQ	65.00	Not Rated
Marriott International, Inc.	MAR	NYSE	37.75	Not Rated
Martha Stewart Living OmniMedia, Inc.	MSO	NYSE	30.94	Not Rated
Marubeni Corporation	MARUY	NASDAQ	30.88	Not Rated
Marvel Enterprises, Inc.	MVL	NYSE	5.06	Not Rated
Matsushita Electric Industrial Company	MC	NYSE	256.13	Not Rated
McGraw Hill Companies, Inc.	MHP	NYSE	63.56	Not Rated
Media General, Inc.	MEGA	AMEX	52.30	Not Rated
Media Metrix, Inc.	MMXI	NASDAQ	19.13	Not Rated
Meditrust Corporation	MT	NYSE	3.06	Not Rated
Meredith Corporation	MDP	NYSE	27.56	Not Rated
Merrill Lynch & Company, Inc.	MER	NYSE	71.50	Not Rated
Metro-Goldwyn-Mayer, Inc.	MGM	NYSE	23.88	Not Rated
Microsoft Corporation	MSFT	NASDAQ	68.81	Not Rated

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
Midway Games, Inc.	MWY	NYSE	$8.38	Not Rated
MIH Limited	MIHL	NASDAQ	36.63	Not Rated
Mitsubishi Corporation	MSBHY	NASDAQ	14.63	Not Rated
MonsterDaata.com, Inc.	MDDC.OB	OTC:BB	0.47	Not Rated
Motorola, Inc.	MOT	NYSE	33.38	Not Rated
National Computer Systems, Inc.	NLCS	NASDAQ	72.88	Not Rated
National Semiconductor Corporation	NSM	NYSE	46.06	1-1
NBC Internet, Inc.#†	NBCI	NASDAQ	9.06	2-1
NDS Group PLC	NNDS	NASDAQ	78.38	Not Rated
NEC Corporation	NIPNY	NASDAQ	135.50	Not Rated
Neomagic Corporation	NMGC	NASDAQ	4.03	Not Rated
Net Perceptions, Inc.	NETP	NASDAQ	13.69	Not Rated
NetRadio Corporation#	NETR	NASDAQ	1.75	Not Rated
NetRatings, Inc.	NTRT	NASDAQ	16.00	Not Rated
New York Times Co.	NYT	NYSE	37.50	Not Rated
News Corporation Ltd.	NWS	NYSE	52.88	Not Rated
Next Level Communications, Inc.	NXTV	NASDAQ	72.44	Not Rated
NextLink Communications, Inc.	NXLK	NASDAQ	30.44	Not Rated
Nintendo Company, Ltd.#	NTDOY	NASDAQ	22.50	Not Rated
Nissan Motor Company, Ltd.	NSANY	NASDAQ	9.63	Not Rated
Nokia Corporation	NOK	NYSE	96.19	Not Rated
Northpoint Communications Group, Inc.	NPNT	NASDAQ	10.63	Not Rated
NTL Incorporated	NTLI	NASDAQ	43.50	Not Rated
NTN Communications, Inc.	NTN	NYSE	2.75	Not Rated
NTT Mobile Communications Network, Inc.	—	Tokyo	—	Not Rated
Oak Technology, Inc.	OAKT	NYSE	27.69	Not Rated
Omnicom Group, Inc.	OMC	NYSE	80.63	Not Rated
Open Market, Inc.#	OMKT	NASDAQ	8.00	Not Rated
OpenTV Corporation	OPTV	NASDAQ	55.05	Not Rated
Oracle Corporation#	ORCL	NASDAQ	83.44	Not Rated
Pace Micro Technology PLC	—	London	—	Not Rated
Paradyne Networks, Inc.	PDYN	NASDAQ	17.50	Not Rated
Pegasus Communications Corporation	PGTV	NASDAQ	45.75	Not Rated
PepsiCo, Inc.	PEP	NYSE	42.75	Not Rated
Pfizer, Inc.	PFE	NYSE	40.44	1-1
Philip Morris Companies	MO	NYSE	29.69	Not Rated
Phoenix Technologies Ltd.A198	PTEC	NASDAQ	17.56	Not Rated
Pioneer Corporation	PIO	NYSE	40.00	Not Rated
Playboy Enterprises, Inc.	PLA	NYSE	15.44	Not Rated
priceline.com, Inc.	PCLN	NASDAQ	26.50	Not Rated
Primedia, Inc.	PRM	NYSE	18.19	Not Rated
Princeton Video Image, Inc.#	PVII	NASDAQ	4.25	1-1
Procter & Gamble Company	PG	NYSE	62.69	Not Rated
PSINet, Inc.#	PSIX	NASDAQ	15.50	Not Rated
Quokka Sports, Inc.	QKKA	NASDAQ	6.03	Not Rated
Qwest Communications International, Inc.	Q	NYSE	49.56	Not Rated
Radare/RND Networks	RDWR	NASDAQ	32.50	Not Rated
Radyne ComStream, Inc.	RADN	NASDAQ	10.56	Not Rated
Ralston Purina	RAL	NYSE	22.88	Not Rated

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
Rambus, Inc.	RMBS	NASDAQ	$79.25	Not Rated
Raytheon Company	RTN.B	NYSE	26.00	Not Rated
RCN Corporation	RCNC	NASDAQ	24.50	Not Rated
RealNetworks, Inc.	RNWK	NASDAQ	50.63	Not Rated
Reebok International, Ltd.	RBK	NYSE	20.13	Not Rated
Reuters Group PLC	RTRSY	NASDAQ	113.25	Not Rated
Rogers Communications, Inc.	RG	NYSE	25.00	Not Rated
Sagem S.A.	—	Paris	—	Not Rated
Samsung Electronics Company, Ltd.	SSNLF	NASDAQ	242.38	Not Rated
Sanyo Electric Company, Ltd.	SANYY	NASDAQ	43.88	Not Rated
Sara Lee Corporation	SLE	NYSE	19.75	Not Rated
SBC Communications, Inc.	SBC	NYSE	45.68	Not Rated
Scientific-Atlanta, Inc.	SFA	NYSE	70.13	Not Rated
SeaChange International, Inc.	SEAC	NASDAQ	29.31	Not Rated
Seagate Technology, Inc.	SEG	NYSE	54.81	Not Rated
Seagram Company Ltd.	VO	NYSE	59.06	Not Rated
Sears, Roebuck & Company	S	NYSE	35.25	Not Rated
Secure Computing Corporation#	SCUR	NASDAQ	26.88	Not Rated
SEGA Enterprises Ltd.#	SEGNY.OB	NASDAQ	2.75	Not Rated
Sharp Corporation	SHCAY.OB	NASDAQ	163.00	Not Rated
Sharper Image Corporation	SHRP	NASDAQ	20.44	Not Rated
Shaw Communications Inc.	SJR	NYSE	23.94	Not Rated
Sherwin-Williams Company	SHW	NYSE	24.38	Not Rated
Shop at Home, Inc.#	SATH	NASDAQ	2.75	Not Rated
Siemens AG#	SMAWY.OB	NASDAQ	155.00	Not Rated
Sigma Designs, Inc.#	SIGM	NASDAQ	4.13	Not Rated
Silicon Graphics, Inc.	SGI	NYSE	4.13	Not Rated
SK Technologies Corporation	SKTC.OB	NASDAQ	0.13	Not Rated
Sony Corporation	SNE	NYSE	109.94	Not Rated
Source Media Inc.#	SRCM	NASDAQ	5.31	Not Rated
Southwest Airlines Company	LUV	NYSE	22.31	Not Rated
Sports World Media Group PLC	SPMDF	London	10.62	Not Rated
Sportsline.com, Inc.	SPLN	NASDAQ	16.94	Not Rated
Sprint Corporation	FON	NYSE	29.69	Not Rated
Sprint PCS Group	PCS	NYSE	46.75	Not Rated
Starwood Hotels & Resorts	HOT	NYSE	33.06	Not Rated
Strouds, Inc.	STRO	NASDAQ	0.50	Not Rated
Styleclick.com, Inc.	IBUY	NASDAQ	11.31	Not Rated
Sun Microsystems, Inc.	SUNW	NASDAQ	115.25	Not Rated
Sybase, Inc.#	SYBS	NASDAQ	26.06	Not Rated
Syntellect, Inc.#	SYNL	NASDAQ	7.75	Not Rated
Talk City, Inc.	TCTY	NASDAQ	1.53	Not Rated
Tatung Company	—	Taiwan	—	Not Rated
TD Waterhouse Group, Inc.	TWE	NYSE	20.38	Not Rated
Telewest Communications PLC	TWSTY	NASDAQ	24.50	Not Rated
Teligent, Inc.#	TGNT	NASDAQ	15.94	Not Rated
Telocity, Inc.#	TLCT	NASDAQ	5.00	Not Rated
Thomson Multimedia	TMS	NYSE	58.50	Not Rated
Time Warner, Inc.	TWX	NYSE	80.31	Not Rated

Name	Ticker	Exchange	Closing Price (09/11/00)	Rating
TiVo, Inc.	TIVO	NASDAQ	$20.13	Not Rated
Toshiba Corporation	TOSBF	NASDAQ	9.38	Not Rated
Transmedia Network, Inc.	TMN	NYSE	3.50	Not Rated
Tribune Company	TRB	NYSE	36.38	Not Rated
TriGem Computer, Inc.	—	Korea	—	Not Rated
TV Azteca S.A. de C.V.	TZA	NYSE	13.69	Not Rated
Uniden Corporation	—	Tokyo	—	Not Rated
Unilever N.V.	UN	NYSE	44.31	Not Rated
Unilever PLC	UL	NYSE	23.94	Not Rated
United Pan-Europe Communications N.V.	UPCOY	NASDAQ	23.44	Not Rated
United Television, Inc.	UTVI	NASDAQ	144.06	Not Rated
UnitedGlobalCom, Inc.#	UCOMA	NASDAQ	40.19	Not Rated
Universal Electronics, Inc.	UEIC	NASDAQ	25.00	Not Rated
Unocal Corporation	UCL	NYSE	36.25	Not Rated
USA Networks, Inc.	USAI	NASDAQ	21.88	Not Rated
V3 Semiconductor, Inc.	VVVI	NASDAQ	15.00	Not Rated
ValueVision International, Inc.#	VVTV	NASDAQ	26.50	1-1
Verio, Inc.	VRIO	NASDAQ	59.81	Not Rated
Verizon Communications	VZ	NYSE	45.06	Not Rated
Viacom, Inc.	VIA	NYSE	64.63	Not Rated
Victor Company of Japan	VJAPY	NASDAQ	15.50	Not Rated
Visual Data Corporation#	VDAT	NASDAQ	4.50	Not Rated
Vivendi ADR	VVDIY	NASDAQ	15.75	Not Rated
VNU N.V.	VNUVY	NASDAQ	55.00	Not Rated
W.R. Grace & Co.	GRA	NYSE	7.50	Not Rated
Walt Disney Company	DIS	NYSE	39.94	Not Rated
Walt Disney Internet Group	DIG	NYSE	14.94	Not Rated
Washington Post Company	WPO	NYSE	505.00	Not Rated
Wells Fargo Company	WFC	NYSE	46.25	Not Rated
Western Digital Corporation	WDC	NYSE	5.69	Not Rated
Williams Communications Group, Inc.	WCG	NYSE	26.25	Not Rated
Wind River Systems, Inc.#	WIND	NASDAQ	46.38	Not Rated
Wink Communications, Inc.#	WINK	NASDAQ	13.25	2-1
Winstar Communications, Inc.	WCII	NASDAQ	21.50	Not Rated
WorldCom, Inc.#	WCOM	NASDAQ	30.00	Not Rated
WorldGate Communications, Inc.#	WGAT	NASDAQ	22.63	Not Rated
WPP Group PLC	WPPGY	NASDAQ	67.81	Not Rated
Yahoo!, Inc.	YHOO	NASDAQ	106.31	Not Rated
Young & Rubicam, Inc.	YNR	NYSE	56.19	Not Rated
Ziff-Davis, Inc.	ZD	NYSE	9.88	Not Rated
ZipLink, Inc.#	ZIPL	NASDAQ	5.53	Not Rated
Zoran Corporation	ZRAN	NASDAQ	54.50	Not Rated

#Gruntal & Co., L.L.C., makes a market in this security.

†Within the past three years, Gruntal & Co., L.L.C. was the manager (co-manager) of a public offering of the securities of this company and/or has performed other banking services for which it has received a fee.

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