Analysis of an Existing Strategic Marketing Plan: A Case Study of OpenTV
Introduction

OpenTV is the world’s leading interactive television (iTV) and media solutions company. The Company is leading a change in television watching, from the “lean back” to the “lean forward” position, reshaping television viewing from a passive experience to an interactive one. OpenTV’s software enables the development and delivery of digital interactive content and services by multichannel service operators (MSOs) to television viewers. The OpenTV solution includes its operating middleware, applications, software tools, and consulting services.

This paper will analyze OpenTV’s marketing plan and suggest alternative strategies and methods. The paper will build up to that analysis after providing an overview of the company, analyzing the iTV industry through the Five Forces framework, and analyzing the company through the SWOT model.

Company History

The Company started as a joint venture between Thomson Multimedia and Sun Microsystems in 1994 to produce software solutions for digital television. In March 1996, OpenTV began shipping its flagship product line 1.0. Three years later, the Company filed its initial public offering on November 23, 1999, raising over $100 million. In July 2000, it completed a $2.5 billion acquisition of Spyglass, Inc. a leading provider of Internet consulting, software, and professional services.

In the third quarter of 2000, OpenTV became the first iTV company to have more than 10 million deployments of its software in set-top boxes, which exceeds all of its competitors combined. To date, 22 network operators have launched OpenTV with another 12 network operators pending. These deployments span all major digital interactive platforms, including satellite, cable and terrestrial service providers.

OpenTV’s middleware has been selected by 34 digital cable, satellite and terrestrial communications networks in over 50 countries, including BSkyB in the United Kingdom; TPS and Noos in France; PrimaCom in Germany; Via Digital in Spain; GLA (the exclusive provider of DIRECTV™ in Latin America); and EchoStar’s DISH Network in the U.S. Twenty-nine digital set-top box
manufacturers have licensed OpenTV’s software, and OpenTV's authoring tools are licensed to more than 600 independent developers and content service providers.

**United States Television Industry**

There are more than 100 million television households in the United States. Exhibit 1 illustrates the market share of the two major MSOs: Cable and Direct Broadcast Satellite (DBS).

The market is dominated by analog cable distributors, accounting for 80% of all MSOs. Industry analysts, however, expect Digital Cable and DBS to own 25% each of the MSO market by 2005\(^1\).

**Cable networks**

Cable networks originated in the 1940’s when they were developed in remote areas that were difficult to access by regular broadcast television. Cumulatively, these fragmented cable TV markets gained market share through the years and became a dominant force in television by the 1980’s, with the top 15 cable operators accounting for 67.5 million subscribers. The ability to reach regional niches contributed to the boom of cable networks.

As a result, the cable market includes more than 200 networks. AT&T Broadcast, with approximately 22% of the total market, is the leader followed by Comcast, Time Warner Cable, Charter Communications, and Cox Communications. Total revenues of $36.1 billion are broken down between

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\(^1\) Figure 1: Paul Kagan and ING Barings LLC estimates
$22.4 billion from basic subscriptions, $4.9 billion from advertising, and $8.8 from PPV movies and premium channels\(^2\).

The industry has come under pressure from pure digital providers and the Federal Communications Commission (FCC) to upgrade to digital service. Cable networks are mostly analog, limiting the number of available channels and enhanced services. Its satellite counterpart has a competitive advantage with respect to the number of channel and the type of services it can offer. In addition, the FCC is dictating the time for the transition to Digital Television (DTV). The industry has responded by investing $11 billion in digital infrastructure in 1999\(^3\).

### Cable Industry: Number of Subscribers (millions)

<table>
<thead>
<tr>
<th>Company</th>
<th>Subscribers (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT&amp;T Broadband</td>
<td>16.2</td>
</tr>
<tr>
<td>Comcast</td>
<td>16.9</td>
</tr>
<tr>
<td>Time Warner Cable</td>
<td>16.9</td>
</tr>
<tr>
<td>Charter Comm.</td>
<td>6.5</td>
</tr>
<tr>
<td>Cox Comm.</td>
<td>6.2</td>
</tr>
<tr>
<td>Time Warner Enter.</td>
<td>6.1</td>
</tr>
<tr>
<td>Adelphia Comm.</td>
<td>6.0</td>
</tr>
<tr>
<td>Cablevision Syst.</td>
<td>6.1</td>
</tr>
<tr>
<td>AT&amp;T Time Warner</td>
<td>7.1</td>
</tr>
<tr>
<td>Cable One</td>
<td>6.2</td>
</tr>
<tr>
<td>Other (204 companies)</td>
<td>5.5</td>
</tr>
</tbody>
</table>

**DBS (Digital Broadcast Satellite)**

DBS is a relatively young technology serving a small sector of the US television market. DBS employs all digital technology, allowing a larger number of channels to be transmitted within the same bandwidth than in analog cable. Furthermore, Congress passed the Satellite Home Viewer Improvement Act (SHVIA) in 1999, granting satellite companies the right to retransmit local broadcast stations.

Satellite subscriptions have grown faster than those in cable, reaching 10 millions subscriptions (14% of the total market) in 1999\(^4\). The number of broadcasters is significantly smaller compared to that of cable.\(^4\) The duopoly comprised of DirecTV and EchoStar control 9 million and 4.5 million subscribers\(^5\).

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\(^{2}\) Euromonitor: Global Market Information Database: September 2000  
\(^{3}\) Figure 2: Paul Kagan and ING Barings LLC estimates  
\(^{4}\) Cable Networks: NCTA, Cable Television Developments, 1999.  
\(^{5}\) Hoovers Online
respectively. DBS main source of revenue comes from subscriptions, and revenue growth is over 60% per year. The discrepancy between analog cable and rival distribution methods is illustrated below.

**Interactive Television.** ITV was born from digital television broadcasting and is defined as services that allow consumers to customize and/or interact with their television. Examples of iTV include:

- **Enhanced Broadcasting.** Combining data and video to improve a viewer’s experience.
- **Interactive Advertising.** Obtaining detailed information about a product.
- **T-commerce.** Shopping through a TV.
- **Video on Demand (VOD) and personal VCR.** Ordering programming upon demand.
- **Interactive Program Guide (IPG).** Viewing the schedule of interactive programs.
- **Internet over TV.** Browsing the Web through a TV.

**Two Methods of Enabling Interactivity**

There are two main ways that MSOs enable interactivity – 1) two-way and 2) broadcast. Two-way interactivity is where an MSO and a viewer exchange information sequentially, i.e. a viewer queries certain information, and the MSO responds. The main advantage to this structure is customized interactivity while the main disadvantage is response time and higher fixed costs for an MSO.

Alternatively, an MSO can offer interactivity in the broadcast signal. In this method, middleware is overlaid atop content, but relatively little is sent back to the headend (broadcast origination) immediately. The main advantages of this structure are fast interactivity and rapid deployment, while the

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6 ING Barings: The interactive television (iTV) Guide, Version 1.0:September 2000
main downside is limited two-way communication. OpenTV has grown with satellite providers because of its broadcast method of interactivity and strategic relationship with EchoStar.

**Trends in Interactive TV**

*Television is the most ubiquitous media platform.* 99% of American households watch 4.5 hours of television per day, while 35-40% use the Internet 1 hour per day. Despite the proliferation of alternative video media such as the Internet and games, television consumption has maintained 45% of total domestic video consumption.\(^7\)

*US Interest in iTV.* Forrester Research\(^8\) recently conducted a survey of 9,000 North American households on iTV. The results indicate that 11% of participants, mostly high income, are enthusiastic about iTV and would use it for Web-type functions such as email and web browsing, and TV enhancements, such as program guides and interactive commercials. 55% of those surveyed are only interested in sustaining improvements such as on-screen viewing guides and detailed program information. The remaining 34% of those interviewed, mostly low income, have no interest on iTV.

*Rapid deployment in Europe.* ITV has been deployed much more rapidly in Europe than in the US. The absence of legacy infrastructure\(^9\) has allowed a totally digital system to develop, reaching 6.2 million subscribers as of January 2000. In comparison, 3.3 million households have digital television through cable in the US.

*Large potential to commercialize iTV.* Several commercial successes in Europe have led analysts to consider iTV a potentially large and profitable opportunity. 1) Pay-per-view sales in Europe have at least doubled since the introduction of ITV. 2) T-commerce has been proven very successful: Woolworth’s, sold more through their TV stores than through physical stores. 3) Click-through rates on ITV advertisements reach up to 9% in some cases, significantly exceeding rates of less than 2% on the Web.\(^7\)

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\(^7\) Veronis, Suhler & Associates.

\(^8\) Forrester Report “Interactive TV Enthusiasts”, September 2000

**Entire value chain benefits.** ING Barings estimates that the US iTV market revenue will reach $40 billion dollars by 2005\(^\text{10}\). Revenues will be driven throughout the value chain by subscriptions, T-commerce, and interactive advertising in proportions of 19%, 38%, and 43%, respectively. Expected revenue from T-commerce will be driven by iTV’s pull strategy, which is more effective than the push strategy implemented on the Internet. Microadvertising, which is differentiation of commercials depending on previously stored information in the digital STB, will increase revenue from advertising as a result of a more measurable, efficient, and effective means to reach a targeted audience.

Content providers will benefit from the sale of interactive programs. The necessity to create attractive and compelling interactive programs and services will boost the development of Set Top Boxes (STBs), specific Operating Systems (OSs) and Application Programming Interfaces (APIs), which will generate revenues from STB sales, license fees, and incremental revenues.

DBS and cable providers will see increased subscriptions because of TV customization - personalized news and information, and services like banking. Advertisers will increase sales through microadvertising, i.e. differentiation of commercials depending on demographics, and T-commerce. As the market for ITV grows, new opportunities will emerge for new TV products and services, such as set-top boxes manufacturers, OS developers, middleware companies and service providers.

<table>
<thead>
<tr>
<th>Player</th>
<th>Added Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSOs</td>
<td>Revenue from new subscription, transaction fees from T-commerce and interactive advertising</td>
</tr>
<tr>
<td>Advertisers</td>
<td>Effective advertising, customer profile</td>
</tr>
<tr>
<td>Content &amp; Application Provider</td>
<td>Revenue from sale of interactive programs</td>
</tr>
<tr>
<td>Middleware</td>
<td>Revenue from sales, license &amp; transaction fees</td>
</tr>
<tr>
<td>STB Manufacturer, OS developer</td>
<td>Revenue from sales</td>
</tr>
<tr>
<td>Viewer</td>
<td>Enhanced Broadcasting, VOD, IPG, personalized services (banking, traffic information, local weather)</td>
</tr>
</tbody>
</table>

\(^{10}\) ING Barings: The interactive television (iTV) Guide, Version 1.0:September 2000
Interactive Television Industry - Value Chain

The following is a list of the major players in the interactive television industry, which is further discussed in Appendix A.

<table>
<thead>
<tr>
<th>MSO</th>
<th>Set-Top Box Makers</th>
<th>Real-Time OS</th>
<th>Middleware Software</th>
<th>Application Vendor</th>
<th>End Viewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Provider:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable, Satellite</td>
<td>Hardware:</td>
<td>Manages STB:</td>
<td>Application</td>
<td>Content &amp;</td>
<td>Mostly</td>
</tr>
<tr>
<td>Terrestrial</td>
<td>Motorola, Pace, SA</td>
<td>Mentar,</td>
<td>Interoperability:</td>
<td>Services:</td>
<td>consumers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Graphics</td>
<td>OpenTV, Liberate</td>
<td>Networks, Gemstar</td>
<td></td>
</tr>
</tbody>
</table>

Five Forces Model. The following section discusses the iTV industry using Porter’s Five Forces model.

Power of suppliers - High

Four types of suppliers reside throughout the value chain of iTV: collectively they represent a powerful force in the industry. Each type of supplier is discussed below.

- **MSOs** are the most powerful single type of supplier in the industry. They own the infrastructure and have relationships with potential buyer of iTV.
- **Content and Application Providers** are crucial to the success of the industry since they provide the programs and applications that viewers demand.
• *Advertisers* sponsor most of the content on TV and iTV. Microadvertising, like that previously discussed, is promising and may lead to further investments and sponsorships.

• *Middleware providers, real time OS developers, STB manufacturers* provide the hardware and software required to deliver iTV.

**Potential entrants - High**

Since the industry is in its infancy, barriers to entry are low. Intellectual property and patents are difficult to protect, time to market is short, and startup costs are relatively low. Profitability of first movers could attract large software and content providers that are sitting on the fence. Microsoft and AOL, for instance, have complementary businesses and sufficient resources to enter the industry rapidly.

Telecommunications and utility companies also pose a material threat since they can leverage their large installed infrastructures to enter this industry. Companies such as Qwest and Enron have proven that infrastructure and utility companies can change its business model quickly through their core competencies in distribution and economies of scale.

**Alternative products – Medium to High**

One of the main issues for iTV is a set of well-established alternative products. There is little pain left to remedy through iTV since standard TV, home video, pay per view, and Internet via PC address most viewers’ needs and wants. The development of a widely recognized “must have” product or service is crucial to demonstrate the value of iTV. Despite these factors, 47% of current cable subscribers and 55% of DBS subscribers would pay more than $100 for a fully loaded iTV set top box, indicating promise for this nascent industry.\(^{11}\)

**Power of customers - Low**

Viewers represent the end customers in iTV. Comprised of individuals, they have little power over the industry. The only choice they have is switch between established mediums: broadcast TV, cable TV, and satellite TV.

\(^{11}\) ING Barings: The interactive television (iTV) Guide, Version 1.0:September 2000
Industry Rivalry – High

Because most stakeholders possess medium to high power, we believe that industry rivalry is medium to high. The power represented by the four stakeholders in Porter’s model generally differs in orders of magnitude. Suppliers represent one end of the spectrum, holding tremendous power in the paradigm, whereas the individual viewer has little power.

Conclusion

The strong interdependence in the value chain, especially in the layers that lie far from the customer, the absence of an accepted technological standard for software and hardware integration, the uncertainty about revenue distribution between the different ITV features, has created different market visions. Companies that share a vision tend to create partnerships to develop an end-to-end product. This produces a value chain where products at each layer cannot be easily substituted. In the middleware layer, in particular, the choice of specific architectures, will constrain the design of APIs.

The success of ITV is dependent on those companies. Cable companies must complete system upgrades, DBS operators must deploy ITV services and TV programmers must embed interactivity into their content. Their power not only on Open TV, but also on the development of the whole industry is huge. Those companies are not totally dependent on the development of ITV for their success. They are already very profitable without having to invest in new technologies. Moreover creation of compelling interactive services is risky and costly. Only pressure from customers, aggressive competition, and new added value will expedite their transition to ITV.

The control that they have on end customers puts them in a central position to guide the transition. Among them the most reluctant to acquire this new technology are the cable companies, who have to sustain very high retrofitting costs.

We believe that demonstrating the added value to end customer is the key issue that companies involved in the launch ITV need to address.
The market is not yet profitable, as demonstrated by the negative balance of all the major companies in the business. Estimates are very optimistic about its future, as we saw in the section about trends.

**SWOT Analysis of OpenTV**

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Market Penetration</td>
<td>- Relatively few deployments in the US</td>
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<tr>
<td>- Strategic alliances</td>
<td>- No IPG Solution</td>
</tr>
<tr>
<td>- Diversified revenue base</td>
<td>- Late to market in next generation products</td>
</tr>
<tr>
<td>- Intellectual Property Portfolio</td>
<td>- Sustainable revenue model</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Applications</td>
<td>- Competition from Microsoft, AOL, and others</td>
</tr>
<tr>
<td>- Microsoft stumble</td>
<td>- Slow iTV adoption</td>
</tr>
<tr>
<td>- Lack of standard in iTV middleware</td>
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</tbody>
</table>

**Strengths:**

**Market Penetration: Leader in number of subscribers**

Unlike its competitors (which are largely focused on bringing real-time, two-way Web applications to the TV), OpenTV has maintained the aforementioned broadcast model. The chief advantage to this approach is that OpenTV is easier to deploy on a wide scale, allowing satellite TV providers to install the company’s software on set-top boxes before they ship, or download it after the boxes have been installed in the viewers’ homes.

This model has caught on well with satellite operators, who represent more than half of OpenTV’s customers. OpenTV can use this large customer base to become a de facto industry standard in satellite MSOs and to build credibility among other operators, programmers, and application developers.

**Strategic Alliances**

EchoStar is the first US MSO to deploy OpenTV’s middleware. By the end of the year, EchoStar will execute a launch of iTV with 1 million subscribers (representing 25% of its subscriber base). If iTV proves successful, EchoStar expects to increase the number of iTV subscribers, providing a competitive
advantage over the cable MSOs. Other strategic investors in OpenTV include AOL, Liberty Digital, and Time Warner.

OpenTV strengthened its relationship with Motorola recently when Motorola increased its ownership of OpenTV stock to 5.4% of total shares outstanding. Motorola is one of the largest stakeholders in set top boxes, acquiring General Instruments (GI) in 1999, a leading set-top box manufacturer. GI has agreements with TCI (now AT&T) and 12 other large U.S. based cable companies to supply 15 million next generation set-top boxes over the next five years. This alliance will increase the chances of OpenTV’s deployment into the next generation of set-top boxes.

**Merger with Spyglass provides the Proxy Browser solution and diversifies revenue base**

The merger would give OpenTV access to HTML-based web browsing capability or NetTV, which could be a fundamental application for interactive television. In addition, Spyglass’ professional services organization may be used to help network operators launch the OpenTV software. Finally, OpenTV plans to increase revenue through Spyglass consulting fees.

**Intellectual property portfolio**

As a result of sustained research and development efforts over the past several years, OpenTV has built a substantial intellectual property portfolio. OpenTV currently has 32 patents issued in the United States, with another 34 pending. This portfolio of patents contains many early patents in the digital interactive television field and will act as a barrier to entry to future entrants.

**Weaknesses**

**Relatively Few deployments in the United States**

Of the 10 million OpenTV deployments, only one satellite operator is U.S. based. Cable MSOs control more than 60% of the TV market in the US. OpenTV has not been able to gain traction with cable operators or the US market for several reasons.

- OpenTV has been coupled with satellite MSOs, creating a conflict of interest for cable operators
- Gemstar controls the market for IPG IP. OpenTV does not license or have an alternative product.
- Cable operators use Microsoft’s middleware\(^{12}\)
- Interactive television can only be used with digital television. Cable operators, compatibly with FCC directives, determine the pace of transitioning to digital television.

**Lack of an Interactive Programming Guide Solution**

Currently, Gemstar-TV Guide owns a significant amount of intellectual property related to the interactive programming guide (IPG). Furthermore, it is the leader in IPG with approximately 7 million IPGs deployed. The Internet Portal is seen as a proxy for the IPG – the IPG is where the viewers select their programs and interactive services. In fact, AOL and Microsoft have licensed Gemstar’s IPG, because of its strong intellectual property protection.

**Late to market on next generation products**

OpenTV’s success has been its ability to provide a platform that optimizes currently deployed set-top boxes. The Company is allocating resources to network deployment at the expense of developing the next version of software for the next generation of set-top boxes. Companies like Liberate and Microsoft are primarily focused on providing a platform for the next generation of set-top boxes and may have an advantage over OpenTV.

**Sustainable revenue model**

One-time deployment fees are OpenTV’s primary revenue stream in its iTV business. It needs to develop other products and services to provide stable cash flow.

**Opportunities**

**Develop applications for large subscriber base**

OpenTV can leverage its base of 10 million subscribers and develop relevant applications. The application market is where OpenTV will have a real chance of deriving a recurring stream of revenues via subscription, advertising and/or television commerce (t-commerce). The Company can develop a strategy that focuses on the iTV Enthusiasts – entertainment-focused, sports-focused high-income technology optimists. The Company runs an independent software vendor (ISV) program, called

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\(^{12}\) To further its chances of wide-scale cable deployment, Microsoft invested $5 billion into AT&T, the largest cable operator in the United States.
OpenAdvantage that gives the Company visibility into current applications. The Company can thus use the OpenAdvantage program to screen potential applications that leverage the iTV enthusiast profile.

**Microsoft stumbles**

Microsoft is late in delivering its anticipated middleware platform to the main cable operators, such as AT&T in the United States and United Pan Communications (UPC) in Europe. Microsoft’s tardiness opens up the door for OpenTV to pitch and gain the confidence of the large cable operators. The fact that OpenTV’s has a proven subscriber base greater than its competitors’ combined should give them a competitive advantage.

**Lack of standard in iTV middleware**

The battle for the development of a standard to increase interoperability is bloody. Microsoft and Liberate have teamed up to promote ATVEF, which allows for “Internet on the TV”. Other standard-setting bodies include ATSC, OpenCable, and DVB. A standard is required if iTV is to achieve widespread deployment. OpenTV can use its leadership position to determine the de facto standard that the programmers and developers will adopt to provide iTV, which can further promote its own technology and capabilities.

**Threats**

**Strong competition**

The opportunities that lie ahead in the interactive television industry has attracted AOL and Microsoft. AOL has content through Time Warner and Microsoft has a huge war chest. These two companies can use its resources and relationships to shut out smaller companies such as OpenTV. Thus, OpenTV must be ready to battle these established companies with superior products. Alternatively, it must develop partnerships that will provide the necessary resources that will allow OpenTV to compete.

OpenTV faces stiff competition besides AOL and Microsoft. The desire of the MSOs to have a vertically integrated, end-to-end solution will drive consolidation in the industry. Other reasons for consolidation include the need for revenue scale and the pooling of intellectual property to increase barriers to entry.
Slow iTV adoption

The adoption of iTV is dependent on the upgrade of current cable systems to two-way communications. The FCC is trying to mandate an earlier digital television adoption through regulation. Content and applications also will drive consumer demand for iTV. Programmers and developers must be willing to invest millions to provide such services to lure the consumers.

Analysis of OpenTV’s marketing plan

Why has OpenTV not experienced a resounding market success? Moore's *Crossing the Chasm* offers some excellent insights. Approximately 0.5% of all households currently have ITV. Based on the number of consumers and their characteristics, OpenTV appears to be in the Early Adopter stage. Most of these customers are affluent, young, entertainment oriented, and technology optimistic. They tend to be technology adopters, and are not particularly brand loyal.

According to Moore, now would be the time for OpenTV to transition to the Early Majority stage. Early Adopters see interactive TV as transforming how TV is 'done.' They bought into interactive TV because they felt it represented what was to come. The Early Majority, by contrast, is looking for an incremental improvement to their TV experience. They expect the technology or platform will not be obsolete and that someone will respond to them should they experience problems with the product. They are interested in emerging markets and want a reliable company that will be a trustworthy partner. Cultural differences between the two groups implies that the Early Majority will not trust the Early Adopters when making purchasing decisions.

Moore’s solution is to choose a very narrow market segment in that OpenTV can dominate and then spread to related segments from there. To reach the majority and dominate, OpenTV must deliver a 'whole product' that will not disappoint the skeptical, but soon to be loyal, early majority customer with some partial solution. Open TV is not doing this.

“In our view OpenTV is the only ITV company that brings together technology, content and professional expertise in the format of integrated services that can deliver real, digital ITV solutions for today and tomorrow…” James Ackerman, President, OpenTV

13 Geoffrey Moore, “Crossing the Chasm”
Open TV is clearly trying to be an end-to-end solution. The company claims to provide a software platform that will enable e-commerce, instant news, stock quotes, weather, video-on-demand, personal video recording, interactive TV, TV web browsing, email, and enhanced sports. They are approaching this through satellite, cable and MSO's. They provide an operating system, software to develop applications to several devices, 'broadband technologies,' and integration services. In other words, they have chosen to focus on enabling at least 9 major goals, via 3 major categories of providers, and 5 major product areas.

When asked to describe OpenTV’s marketing strategy, a senior member of OpenTV’s marketing group quipped, “There is no marketing strategy. The company is all over the board.” Unsurprisingly, OpenTV’s success has been mixed to date. The company has been successful with satellite MSOs overseas, but the US cable market has not been as fruitful. OpenTV has been successful with set-top box manufacturers, but has floundered in developing applications (both in-house and through third party developers). Finally, OpenTV’s foray into consulting has been weak, at best. OpenTV has been trying to be everything to everyone and have not solved anyone’s pain in the process.

**Recommendations**

1) Target the sports fanatics who use satellite services.

This is an excellent market segment for Open TV's attack on the early majority. Enhanced sports viewing has been one of the most successful in Europe, along with electronic program guides and weather. This product allows the user to select among different camera angles, follow certain players throughout the game, replay on demand, and pull up statistics. The expanded sporting coverage of the satellite system has been one of its primary selling features. These same customers would be likely to want even further sports viewing capability. In the U.S., the satellite providers have been much more amenable than the cable providers to adopt and advance interactive TV. This is in large part because they have the digital infrastructure that is lacking in the cable market. In considering the whole product, it would be much easier to form alliances with the satellite companies. Many of the other components of the whole product exist already. The network covering the game provides the content. They currently
have multiple cameras. They also have access to extensive statistics. The set top boxes exist, and Open TV has been successful in getting their software installed. Spyglass is well positioned to oversee customer service.

As an example of the potential power in targeting the sports fan market, imagine what the recent Olympics would have looked like with interactive TV. Instead of waiting half a day for viewing the event, the user would have had access when desired. He or she would have been able to flip from women's volleyball, to velodrome, to men's gymnastics. This is a very different experience to watching whatever sporadic coverage the broadcaster deems best. It is radically different from the still images appearing on the Internet. Open TV should consider a large sporting event for its rollout. The Superbowl or Wimbledon are candidates. Alternatively, Open TV can rollout over several events culminating in the next Olympics.

One important caveat to this approach is that it is debatable whether this is a must have proposition. It is true that Open TV would be offering a service that is currently unavailable. The real question concerns the zeal of the sports fanatic. Would this service be something they must have? To answer this question Open TV would need to do more in depth market studies in this area.

2) Define the competition as regular non-interactive TV.

As Moore states, the early majority needs to compare with something. Standard non-interactive TV is something that everyone understands. And, it is an area that can offer no challenge to Open TV's new service. The elevator pitch would be:

For die-hard sports fans that want to be more involved in the game, Open TV allows you to control what you see. Unlike regular, non-interactive TV, Open TV makes you feel that you are in the control booth at the game.

3) Aggressively seek alliances with more MSO's and content providers.

The early majority wants to see excellent market-centric value, in the words of Moore. One way to achieve this is to have the most third party supporters. In essence, it provides a point of reference that is otherwise difficult to come by.
4) Pay keen attention to customer service.

   This too addresses creating market-centric value. As the market matures and moves from early
adopters to early majority, the market demands less focus on the technology and more attention to the
support functions and company reputation. As mentioned above, Open TV can leverage the expertise of
Spyglass in this area.

5) Leverage the targeted marketing/advertising aspect of interactive TV.

   This can be a powerful selling point for both the MSO's and some of the content providers. The
two-way information capability of interactive TV allows for superb market research and focused
advertising. As discussed earlier, interactive TV enthusiasts have demonstrated they are more apt to
purchases online, with 1/5 having done so to date. Indeed, the Forrester report states that online retailers
must move to the TV.

   There are two reasons why targeted marketing is likely to work on interactive TV where it has not
on the Web. Web marketing is a push technology. Double Click, for example, posts banners that the user
then has to actively pursue, often through multiple screens. Interactive TV, on the other hand, is more of
a pull. Also, using the Web and watching TV are different activities. TV is much more passive by nature
with the watcher being familiar with and open to advertising.

6) Begin to plan for future niches.

   Obvious candidate market segments would be what has been proven successful in Europe such as
electronic program guide and customized weather reports. Another consideration would be for local
content service that allows commuters to get customized traffic and transportation information, schedules
of local events, restaurant services, garbage pickup schedules and other such information. This is
currently being tested by Insight Communications in Rockford, Illinois and Columbus, Ohio.
Appendix A

The following describes the various players in the value chain.

**Multichannel Service Operators (MSOs)**

MSOs own the customer and own the infrastructure from the headend to the home. Cable operators are the predominant form of MSOs in the United States, with the top 15 cable operators accounting for 67.5 million subscribers. Digital satellite operators own about 14 million subscribers, or 20% of the cable operator subscriber base. MSOs are the gatekeepers in this industry: they determine the configuration to the subscriber and deploy the set-top boxes to them.

**Set-Top Box Manufacturers**

The set-top box operates interactive television in the home. It is the physical box that is connected to the TV set and the cable connection. The main features of a set-top box may be classified as follows: decodes the incoming digital signal; verifies access rights and security levels; displays cinema-quality pictures on the TV set; outputs digital surround sound; and processes and renders Internet and interactive TV services. There are many set-top box manufacturers in this fragmented market. The largest player is Motorola (formerly GI), which has deployed over 7 million set-top boxes to date and is anticipated to deploy another 15 million with the next generation STB. Other players include Sony, Philips, and Scientific Atlantic.

**Real Time Operating System**

Similar to a desktop operating system (OS), such as Windows 2000, a set-top box requires an OS that processes a number of tasks ranging from processing incoming MPEG digital streams to validating security messages. Microsoft is a big player in this segment, with its Windows CE operating system. Other notable names are Wind River and Linux.

**Middleware Platform**

Middleware isolates application programs from the details of the underlying broadband network. The current business model for digital TV services is comprised of a subscriber buying or leasing a set-
top box running a proprietary middleware software system. The middleware is part of the software infrastructure that applications must comply with for deployment with the MSO.

The middleware platform includes a suite of software programs used to implement and manage networked interactive content and services that viewers access through their TV sets. The platform includes the client software, the server software, and the applications and authoring tools.

Application Vendors

The most popular application today is the IPG, which Gemstar-TV Guide monopolizes. The application provider model has been proven by News Corporation’s British Sky Broadcasting (BSkyB). Originally launched in October 1999, BSkyB allows 3.4 million subscribers to access iTV applications such as home shopping, TV banking, interactive entertainment, and e-mail. The preliminary results indicate that much potential exists in this part of the value chain. Successful application providers will have a business model characterized by multiple recurring revenue streams, high cash flow margins, low CAPEX requirements, and hence, high returns on invested capital.

Content providers will also play an important role in determining the iTV programming. Currently, all the network operators have programs in production that will demonstrate the power of iTV. OpenTV is actively working with a cable network to launch the first iTV cartoon program on EchoStar. Entertainment will continue to motivate the iTV enthusiasts and shape future iTV offerings.

End Viewer

ITV enthusiasts are early adopters of this technology. According to a recent Forrester Research Report, the profiles of today’s iTV subscribers are young, single, with above-average incomes. They like to watch sports but don’t participate. 40% of the current iTV subscribers surveyed say that they attend more sports events versus 7% of those surveyed with no iTV. They own technologies like cell phones but are less likely to own a PC. Interactive TV appeals to “entertainment-focused Mouse Potatoes”, a segment of people that are high-income technology optimists.