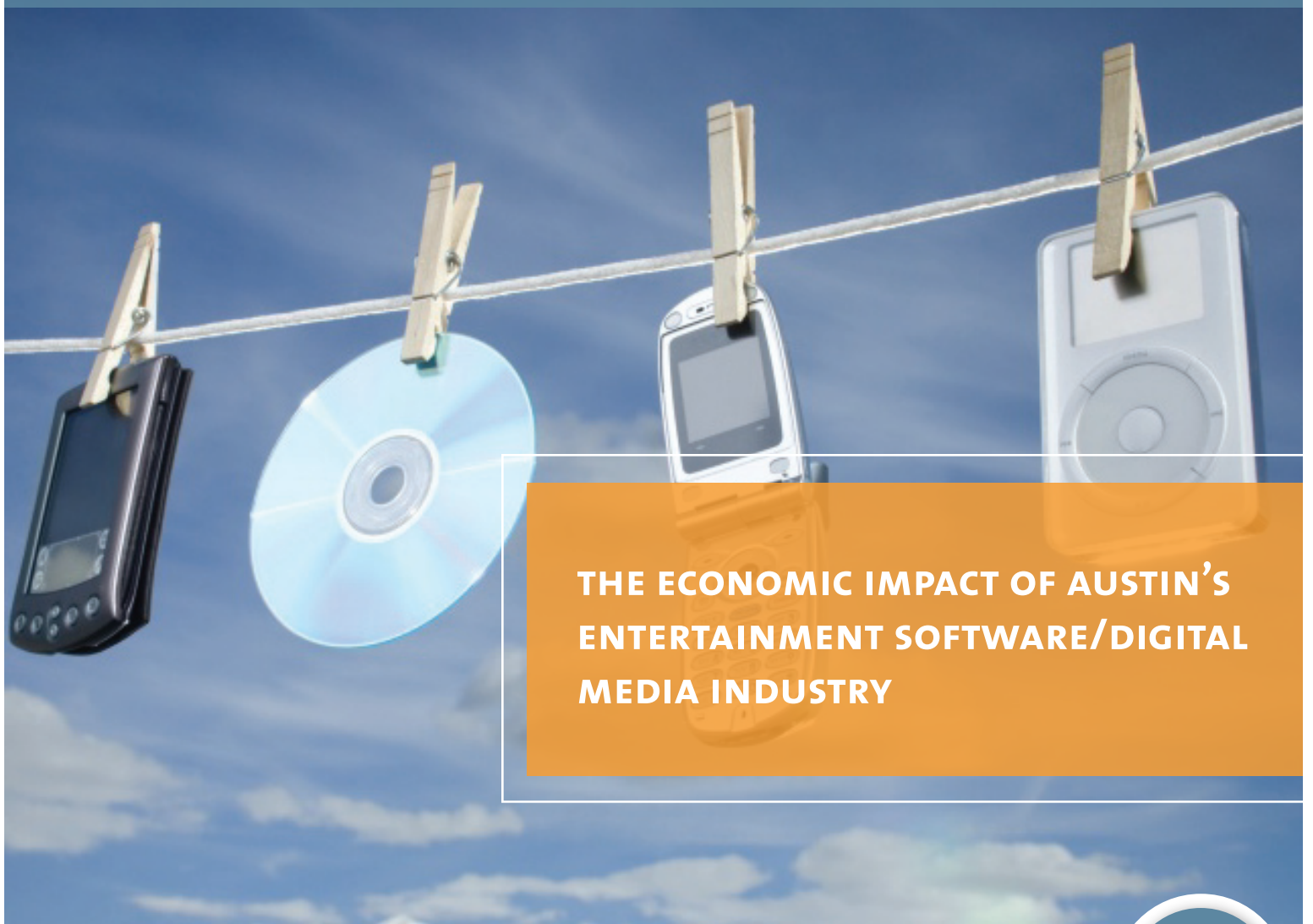


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THE ECONOMIC IMPACT OF AUSTIN'S ENTERTAINMENT SOFTWARE/DIGITAL MEDIA INDUSTRY

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Introduction

The video game industry is entering a new era, an era where technology and creativity will fuse to produce some of the most stunning entertainment of the 21st Century. Decades from now, cultural historians will look back at this time and say it is when the definition of entertainment changed forever.

–Douglas Lowenstein, President, Entertainment Software Association

Change appears to be the only constant these days in the entertainment software/digital media world, as platforms, content, business models, and the nature and scope of the industry itself are in an accelerating state of flux. In the process, what constitutes the “state-of-the-art” has become a very rapidly moving target, as ideas that seemed to be the next big thing last Fall are now, well, so 2005. It is no wonder that those in the industry seem to look forward with a mixture of excitement and trepidation – the opportunities are almost limitless, but the uncertainties are significant.

Set against this context, the panel discussion at SXSW 2006, “Can Austin Become the Hollywood of Games?” points the direction to the future. According to Rodney Gibbs of Amaze Entertainment, the panel’s moderator, “We’ve assembled an all-star cast of game developers, game publishers, entertainment attorneys, and film producers to look at what makes Austin do well in games. More importantly, what does Austin need to do to go to the next level?” The panel went on to discuss issues related to education/workforce development, financing, access to markets, and general trends in the industry.

The purpose of this study is to help determine what is required for the local entertainment software/digital media industry to thrive. To that end, an overview of the industry is provided that includes a discussion of the history of gaming, a profile of gamers, a review of the structure and economic characteristics of this sector, and an outline of the market forces and trends currently in place.

The results of a survey of entertainment software firms with an Austin presence are then presented. This survey served two purposes. First, the data collected directly helped establish the direct “footprint” of Austin’s entertainment software industry, and was subsequently used as inputs into the econometric modeling effort that measures the total economic and fiscal impact. Second, the survey solicited identification and prioritization of the key factors influencing entertainment software’s local prospects, a process that was amplified by a series of individual interviews. As a note, the authors wish to thank the many representatives of Austin’s entertainment software and digital media companies who provided information during this process. The findings that emerge lead in turn to a series of specific recommendations related to the City’s role in the economic development of this sector.

Overview of the Entertainment Software Industry

According to a recent study, U.S. consumers spent \$8.2 billion on entertainment software in 2004, and sales are projected to reach \$15 billion by 2009¹. It is an understatement to say that the rise in popularity of video games has exploded over the past 20 years. As noted in *The Economist*²:

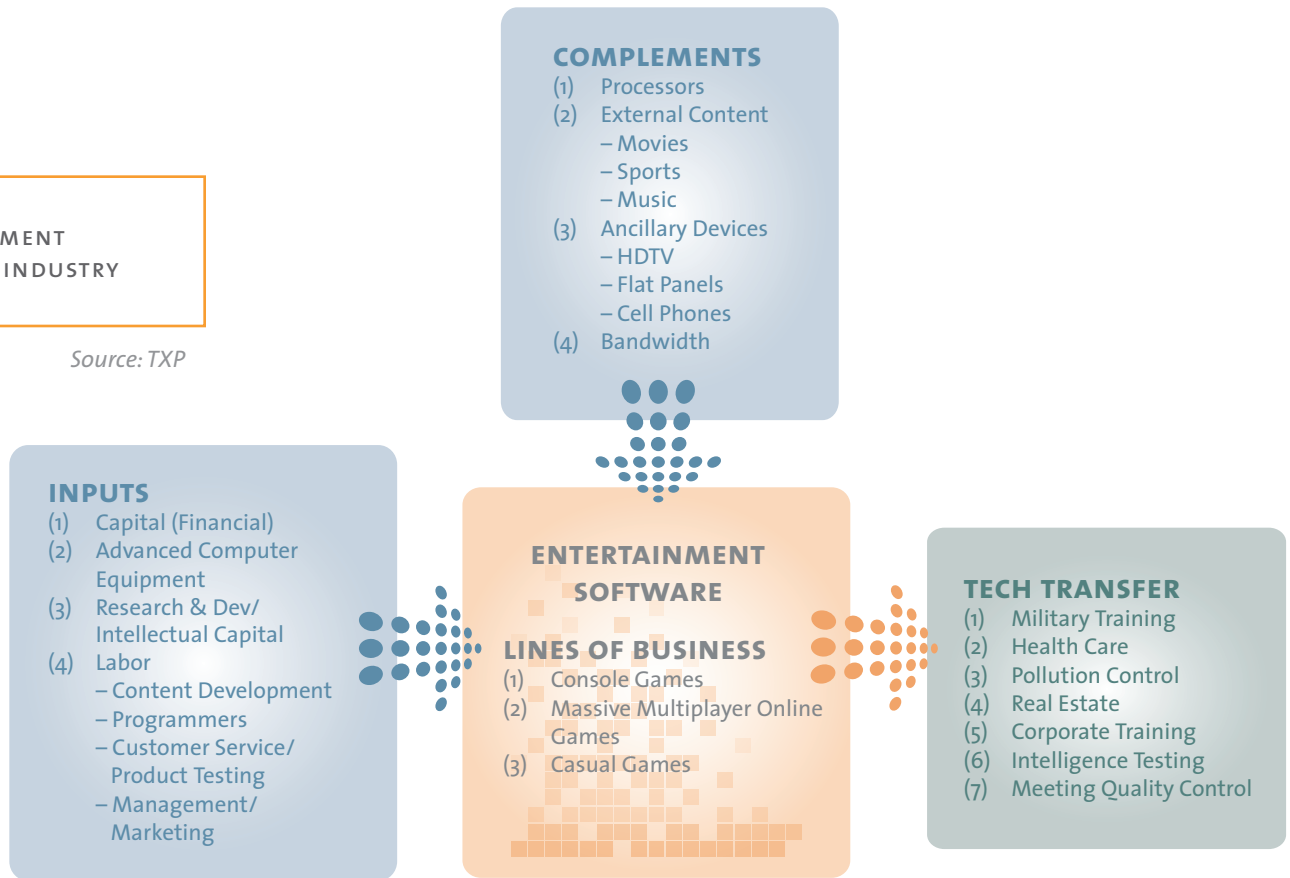
Gaming has gone from a minority activity to mass entertainment. Video games increasingly resemble films, with photorealistic images, complex plotlines and even famous actors...Games

consoles are the most powerful mass-produced computers in the world and the new machines will offer unprecedented levels of performance. This will, for example, make possible characters with convincing facial expressions, opening the way to games with the emotional charge of films, which could have a broader appeal and convince skeptics that gaming has finally come of age as a mainstream form of entertainment.

The following graphic summarizes the industry structure, including its inputs, complements, business models, and impact on downstream applications.

FIGURE 1
ENTERTAINMENT
SOFTWARE INDUSTRY
LINKAGES

Source: TXP



The next sections provide more detail, starting with a brief history of the gaming industry, a summary profile of who plays games today, and expansion on downstream technology transfer. The types of games being played today are then outlined, followed by a discussion of industry structure and economic characteristics of the gaming industry. Lastly, both U.S. and worldwide market trends are reviewed.

History of Gaming

The technological roots of the gaming phenomenon can be traced to an MIT graduate student named Steven Russell who created a science fiction fantasy game in 1962. Spacewar was played on a massive PDP-1 mainframe computer and soon attracted a cult following among computer buffs at universities

1 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America's Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf.

2 *Chasing the dream*. (August 4, 2005). The Economist [electronic version]. Retrieved July 23, 2006 from <http://economist.com/printedition>.

and research facilities around the country. A second major milestone was reached in 1968 when the first home console was developed that could be used to display games on ordinary television sets. The “Television Gaming and Training Apparatus” was patented by Ralph H. Baer, an engineer at Sanders Associates. Sanders later sold the rights to Magnavox which used the patent to sue and collect fees from other home console makers.^{3, 4}

By the early 1970’s, technology had progressed enough that electronic computer power (integrated circuits) could move from large mainframe computers into a more portable, coin-operated format. Nolan Bushnell, a young University of Utah engineering graduate, developed the first coin arcade-style game in a converted bedroom workshop. Computer Space required players to read a set of instructions before playing, and never became a big hit. This changed, however, when his new company, Atari, developed a simple tennis-like game named Pong in 1971. Pong took the industry by storm and quickly became the first coin-operated video game hit. Soon thereafter, commercial Pong-style home video games also appeared, and the fledgling industry kept evolving:

In 1976, companies began selling consoles that could use interchangeable game cartridges for playing numerous games. Initially, all software was developed in house. In 1980, several Atari programmers left to start Activision, which represented the beginning of the independent software producing business.⁵

As these new designers produced more and more spectacular aural and visual effects, programmable console sales that had been languishing for lack of software suddenly began to sell in large numbers.

Consumers had finally discovered that they could play a reasonable facsimile of their favorite arcade games at home. The impact on Atari was astounding. Unprofitable for the first three years under the aegis of parent Warner Communications, Atari had, by the end of 1979, hit its stride. By either self-designing or licensing the most popular arcade concepts for cartridge format, the company had captured some 80 percent of the worldwide market for home video games.⁶

Industry sales of consoles and cartridges rose from close to zero in 1977 to over \$3 billion in 1982. By that time, video game hardware and software sales accounted for nearly one-third of total U.S. toy manufacturers’ shipments. The Japanese-based company Nintendo captured most of the market of the late 1980’s and early 1990’s with a technologically sophisticated and user-friendly game console and tightly controlled software development and marketing. By the late 1990’s, sales of game hardware and software, led by Sony’s PlayStation, reached approximately \$7 billion.⁷

Who Plays Games Today

Entertainment software has become a diverse market, encompassing personal computer (PC) games, console games, online games, and wireless games. According to Crandall & Sidak, “the consumer

3 Vogel, Harold L. (2001). *Playing the Game: The Economics of the Computer Game Industry*, a seminar extracted from chapter ten of *Entertainment Industry Economics* published by Cambridge University Press. Retrieved July 12, 2006 from www.fathom.com/course/21701761.

4 *The Video Game Revolution: History of Gaming*. (n.d.). Retrieved July 11, 2006 from www.pbs.org/kcts/videogamerevolution/history/timeline_flash.html.

5 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America’s Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf.

6 Vogel, Harold L. (2001). *Playing the Game: The Economics of the Computer Game Industry*, a seminar extracted from chapter ten of *Entertainment Industry Economics* published by Cambridge University Press. Retrieved July 12, 2006 from www.fathom.com/course/21701761.

7 Ibid.

demographics for each of these categories are extremely diverse and transcend the stereotypical teenage male.”⁸ Who then is playing computer and video games? According to a 2006 survey, 69 percent of American heads of household play computer or video games. The average game player is age 33, and, perhaps surprisingly, 25 percent of gamers were over the age of 50.⁹ A small group of “core gamers,” who account for only 21 percent of all gamers, purchase roughly 60 percent of all console and PC games.¹⁰

In terms of gender differences, increasing numbers of women are entering the entertainment software market; in 1987, women accounted for 14 percent of players,¹¹ but that number had risen to 38 percent in 2006. Women age 18 or older represent a significantly greater portion of the game-playing population (30 percent) than boys age 17 or younger (23 percent).¹² Additionally, in 2005 women were the primary consumers (64 percent) of casual online games.¹³

Along with the rise in popularity of video games has been curiosity and concern about the effect game playing has on children. Much has been written on the supposed connection between video games and violent crime, but the research does not bear it out. Studies have generally examined only the short-term effects of gaming, with no studies that track the long-term effects on the players themselves. As noted in *The Economist*:¹⁴

...it is meaningless to generalize about “game play” when there are thousands of games in dozens of genres. It is...equivalent to suggesting that all television programmes, radio shows and movies are the same. Better-designed studies that measure the long-term effects of specific types of games are needed.

In general, attitudes about gaming depend to a great extent on age. With half of the American population playing video games, most of the players are under age 40, while most critics are over age 40. As noted in *The Economist*, Marc Prensky of games2train makes the distinction between “digital natives” who grew up surrounded by technology, and “digital immigrants,” older people who have had to adapt in various ways to their new digital surroundings, much like a traveler in a foreign land without some grasp of the local language. “It’s just a generational divide,” says Gerhard Florin, the European boss of Electronic Arts, the world’s biggest games publisher. An analogy can be made between video games and the emergence of rock and roll music, both of which have been condemned for encouraging bad behavior among young people.

Like rock and roll in the 1950’s, games have been accepted by the young and largely rejected by the old. Once the young are old, and the old are dead, games will be regarded as just another medium and the debate will have moved on.¹⁵

8 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America’s Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf.

9 *Essential Facts About the Computer and Video Game Industry* (2006). Retrieved July 11, 2006 from <http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf>.

10 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America’s Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf, 11.

11 Ibid.

12 *Essential Facts About the Computer and Video Game Industry* (2006). Retrieved July 11, 2006 from <http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf>.

13 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America’s Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf.

14 *Chasing the dream*. (August 4, 2005). *The Economist* [electronic version]. Retrieved July 23, 2006 from <http://economist.com/printedition>, 3.

15 *Chasing the dream*. (August 4, 2005). *The Economist* [electronic version]. Retrieved July 23, 2006 from <http://economist.com/printedition>, 2.

The gaming industry is attempting to address the generational divide by producing games designed to appeal to non-gamers (computerized versions of card and board games, for example) and encouraging casual gamers who may occasionally play simple web-based games or games on mobile phones.

Other Uses for Gaming

Playing a video game requires players to learn a great deal, and many people, including educators and corporate executives, are acknowledging their vast potential to educate.

Games are complex, adaptive and force players to make a huge number of decisions. Gamers must construct hypotheses about the in-game world, learn its rules through trial and error, solve problems and puzzles, develop strategies and get help from other players via the internet when they get stuck. The problem-solving mechanic that underlies most games is like the 90% of an iceberg below the waterline - invisible to non-gamers.¹⁶

Some games contain such model economies and are often used in education. By playing them, it is possible to understand how such models work and to figure out what their biases are. In “Sim City,” for example, where the player assumes the role of the city mayor, no amount of spending on health care is ever enough to satisfy patients, and the fastest route to prosperity is to cut taxes.¹⁷

Some primary school educators have used role playing video games to prompt students to write descriptions and reactions to the activities happening on a large screen, thereby improving English test scores. In the business arena, corporate trainers are beginning to see how gaming provides excellent training for the corporate environment:¹⁸

Gamers...are skilled at multi-tasking, good at making decisions and evaluating risks, flexible in the face of change and inclined to treat setbacks as chances to try again. Firms that understand and exploit this...can gain a competitive advantage.

The technology produced by the gaming industry has been used for many years to train pilots using flight simulators, and are now being used for surgeons and soldiers as well. Corporations are beginning to use this technology to train new recruits, and some attorneys use simulators to practice before a court appearance. Thus, games are neither inherently good or bad - like books, films, or the internet, all can be used to depict sex and violence, or to educate and inform.¹⁹

Types of Games

The entertainment software industry encompasses console games, personal computer (PC) games, online games, and wireless games. Console games are played on a console or handheld device that is specially designed and manufactured for game playing. Consoles feature operating systems designed to take full advantage of technological advances that the hardware may possess, and console manufacturers compete on innovation as well as price.²⁰ The gaming market is dominated by console and handheld game sales, where they represented 76 percent of all U.S. sales in 2004.²¹ Because

¹⁶ Ibid, 5.

¹⁷ *Chasing the dream*. (August 4, 2005). The Economist [electronic version]. Retrieved July 23, 2006 from <http://economist.com/printedition>.

¹⁸ Ibid, 5.

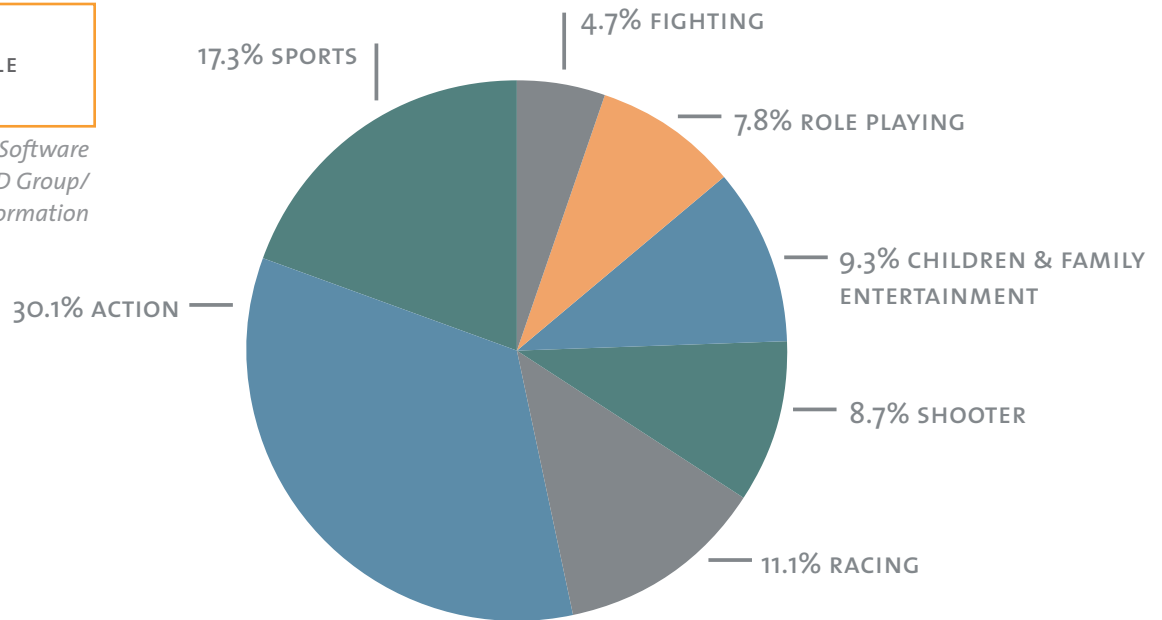
¹⁹ Ibid, 5.

²⁰ Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America's Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf, 30.

software manufacturers are most likely to introduce the latest, cutting edge games on consoles, it is not surprising that forty percent of most frequent console game players are under eighteen years old (thirty-five percent are between 18 and 35 years old, and twenty-five percent are over 35 years old). The following figure shows the best selling console game genres in 2005:

FIGURE 2
BEST-SELLING CONSOLE
GAME GENRES, 2005

Source: Entertainment Software Association, the NPD Group/Point-of-Sale Information



PC games are played on a personal computer, and represented 13 percent of all U.S. sales in 2004. Thirty percent of most frequent PC game players are under eighteen years old, twenty-six percent are between 18 and 35 years old, and forty-four percent are over 35 years old.²² As console games attract more attention from both game developers and players, the market for PC games has deteriorated, a trend which is expected to continue. PC game sales decreased by 11.1 percent in 2005, the sixth consecutive decline since its peak in 1999.²³

Although not as common as consoles, online and wireless game playing are becoming increasingly popular, representing 7.9 percent of all U.S. sales in 2004. The online game platform enables players to download games and game content and to compete against each other via the Internet. There are a number of online sites that provide free games, with revenues coming from advertising. Other providers offer gaming subscriptions with an upfront and/or monthly fee charged. There were 5.8 million online video game subscribers in 2005, representing 14.6 percent of the broadband universe; this number is expected to increase to 21.1 percent of broadband households by 2010.²⁴

A 2006 consumer survey²⁵ showed that 44 percent of most frequent game players say they play games online, up from 19 percent in 2000. 58 percent of online game players are male, while 42 percent are female. The following figure shows the types of games that are commonly played online:

21 PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid,371>.

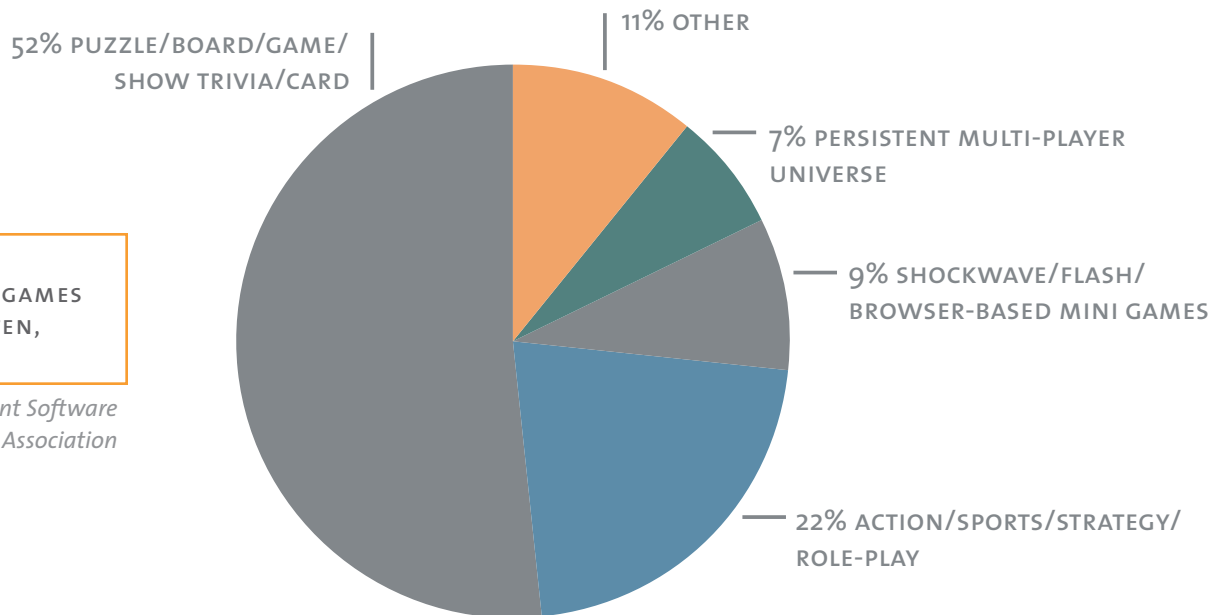
22 *Game Player Data* (2006). Retrieved July 26, 2006 from http://www.theesa.com/facts/gamer_data.php.

23 PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid>, p. 374.

24 *Ibid*, 375.

FIGURE 3
TYPES OF ONLINE GAMES
PLAYED MOST OFTEN,
2006

Source: Entertainment Software
Association



One trend of note in online gaming is the emergence of massive multiplayer online games (MMOGs). As noted in a report by PricewaterhouseCoopers:²⁶

(These games) are played by thousands of people worldwide simultaneously, with games continuing for weeks or months. The games, usually played by younger males, often involve role playing in fantasy worlds. Players usually pay for the initial copy of the game and then pay a monthly subscription fee to play online.

Lastly, wireless or mobile games are also increasing in popularity. Thirty-two percent of heads of households report they play games on wireless devices such as a cell phone or PDA, up from 20 percent in 2002.²⁷ Although wireless phones have come preloaded with games for many years, this trend is reversing as cell phone companies see an opportunity to increase revenue by charging customers to download games. Increasingly sophisticated phones add to the gaming experience and encourage players to make the purchase. In 2005, 15.6 million peoples downloaded wireless games, representing 8 percent of all wireless subscribers. This number is expected to rise to 27 percent of all wireless subscribers by 2010.²⁸

Wireless games tend to be played for shorter periods of time (15 minutes or less) and therefore are simpler than console games. The most popular mobile games are single-player board games, word games, and puzzles. Wireless players are generally more casual players and include a higher percentage of women and older adults.

²⁵ *Essential Facts About the Computer and Video Game Industry* (2006). Retrieved July 11, 2006 from <http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf>, 9.

²⁶ PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid,374-375>.

²⁷ *Essential Facts About the Computer and Video Game Industry* (2006). Retrieved July 11, 2006 from <http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf>.

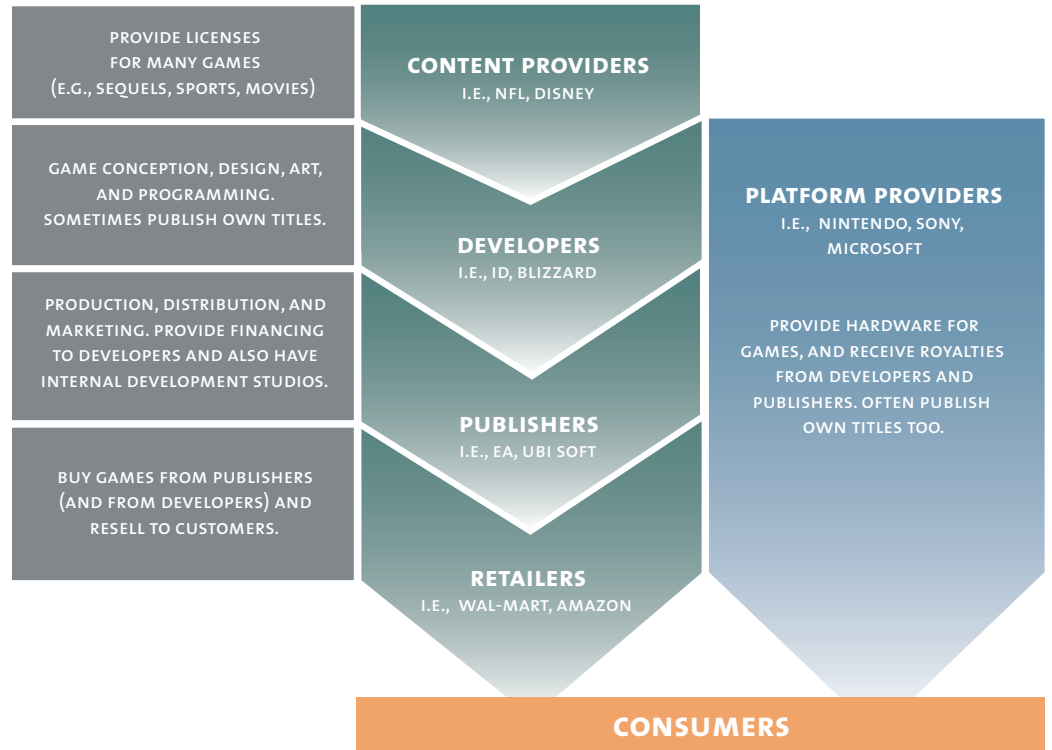
²⁸ PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid,376>.

Industry Structure

According to Redman, there are six major players in the gaming industry: content providers, developers, publishers, platform providers, retailers, and consumers.²⁹ The following figure visually shows the relationship between the players:

FIGURE 4
SUPPLY CHAIN OF VIDEO GAME INDUSTRY

Source: Redman, Adapted by Author from Coughlan (2004) and Kofler and Fonnesebech (2002)



Below is a description of each of the players, adapted from Redman:³⁰

Content Providers: Since the early 1990's, nearly half the content in video games has come from officially licenses products, such as sports (e.g., NFL) or film/TV/cartoon characters (e.g., Disney). Publishers are increasingly relying on licenses as the games developed from them are usually successful, thereby reducing their risk. This is important, as 95 percent of games developed are not profitable. Many argue that the increase in licensing is holding back the creativity of the industry.

Developers: Developers are the heart and mind of the gaming industry. Some development studios are solely owned by a software publisher; Microsoft, for example, owns Bungie Studios. Others are independent, but work very closely with certain publishers to release titles; this is the most common model, since publishers have the capital to invest in the development of games. In exchange for financing, the developer hands over the publishing and distribution rights of their product. Still others work completely independently and often publish their own titles. The challenge for these studios is securing financing for the marketing and distribution, which the publisher usually pays for. Some of the game industry professionals employed by development studios include game programmer, game designer, level designer, game producer, game artist, and game tester.³¹

²⁹ Redman, Andy (June 2005). *The Next Big Thing: Louisiana and the Video Game Development Industry*. Prepared for The Chamber of Baton Rouge and Louisiana Technology Park. Retrieved on January 18, 2006 from www.lafilm.org/images/docs/videogamestudy.pdf.

³⁰ Redman, Andy (June 2005). *The Next Big Thing: Louisiana and the Video Game Development Industry*. Prepared for The Chamber of Baton Rouge and Louisiana Technology Park. Retrieved on January 18, 2006 from www.lafilm.org/images/docs/videogamestudy.pdf, 9-10.

³¹ *Computer and Video Game Industry: Disciplines* (updated June 22, 2006). Downloaded June 22, 2006 from http://en.wikipedia.org/wiki/Video_game_industry.

Publishers: Publishers manage the entire process of publishing games; they coordinate the relationship with platform providers and distributors, handle marketing and industry analysis, and package the games. One of the most important jobs of the publisher is to manage the relationship with platform providers. The goal is to get game licenses for as many game systems (consoles) as possible. Since many games are net losses, publishers typically release a lot of games to spread the risk. This has led publishers to consolidate so there are only a few big players in the industry. Publishers hold most of the wealth because they own the intellectual property.

Platform Providers: These companies are primarily concerned with video game hardware; the majority of their time is spent designing, marketing, and selling consoles. Some also develop games in-house. Because consoles can cost up to billions of dollars and take many years to develop, the long-term capital investment has led to an industry with very few companies: Nintendo, Sony, and Microsoft. Because of steep competition, platform providers often sell consoles at a loss, making up other revenues from publishers on the royalties paid for games sold on their platform. Additionally, platform providers sell their own games.

Because console game sales follow the cycle of game machines they are played on, when the market is in a transition period between platforms, game sales can drop dramatically. 2006 is such a transition year; according to Paul Jackson, an analyst with Forrester Research, “It’s a year of an uncertain market and a shift in platforms, which makes for extremely uncomfortable times for manufacturers and developers and gamers.”³² Each hardware shortage or delay (not uncommon in the industry) means publishers can’t sell their products, which in turn can mean lost profits and layoffs.

Retailers: Retailers for games include specialty electronics shops, toy stores, mass merchants, and online vendors. Retailers reap as much as 30 percent of the revenue stream, but many analysts are predicting that increasing digital distribution of games will eliminate the power of retailers in the value chain in the future. There is a growing market for used games, as serious gamers can quickly lose interest in a new game; they can then sell it to a retailer who turns around and resells it for half the price of a new game.³³ Another important aspect of the retail business is game rentals (e.g., Blockbuster). In 2004, video game rental revenue in the U.S. was \$700 million, and is expected to grow by seven percent annually through 2008.³⁴ GameFly is among a number of companies using the Netflix model, whereby consumers order rental DVDs online and receive them via overnight mail. The company charges a monthly fee which lets customers rent two games at a time and keep them as long as they want.³⁵

Consumers: The number of consumers has rapidly increased over the years as three generations of children have now grown up playing video games. As video gaming becomes more and more part of the cultural landscape, their numbers will only increase. 53 percent of current gamers believe they will still be playing as much or more in ten years time.

Economic Characteristics of the Industry

A 2006 report commissioned by the Entertainment Software Association examined the contribution of the entertainment software industry to the U.S. economy. Study authors Robert Crandall & J. Gregory

³² Terrell, Kenneth (2006, May 15). Gamers Push Pause. U.S. News & World Report, 42-43.

³³ PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid>.

³⁴ Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America's Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf.

Sidak note that gaming is a serious business that improves training, efficiency, and productivity in a variety of industries, and has led to innovation in other high-technology industries. They cite three prominent economic characteristics of the entertainment software industry:³⁶

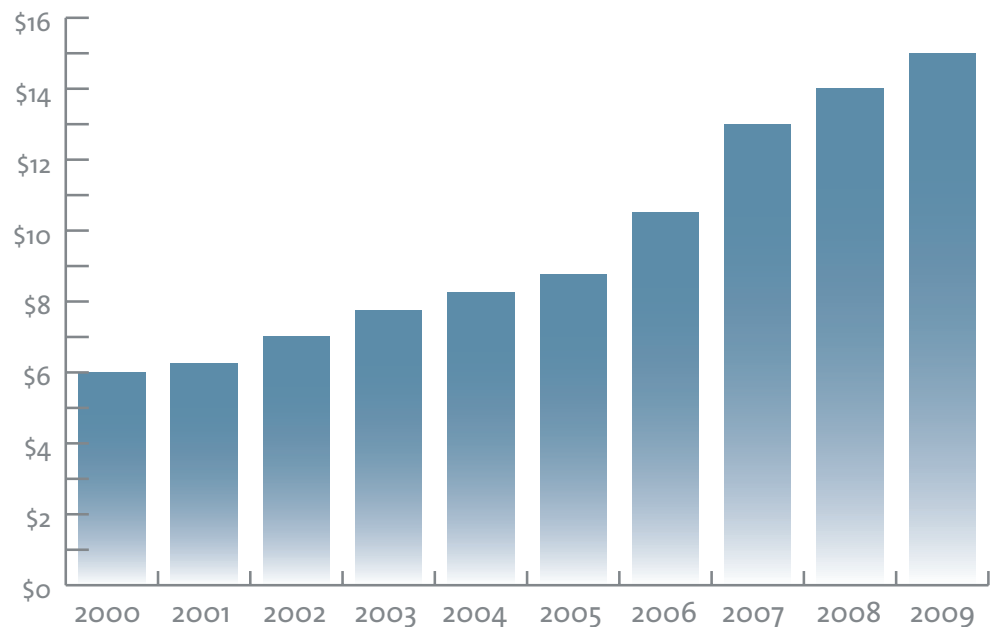
1. *Cyclical Nature.* Historically, the entertainment software cycle has lasted between five and seven years. Demand for software generally peaks one to two years after the peak demand for the related hardware. This peak in demand for software is followed by a slow decline in demand as consumers curtail purchases in anticipation of the next generation of game consoles. Individual titles have a short lifespan, with more than half of a software title's units sold in the first three months from its release.
2. *First-Mover Advantages.* The first mover in a console cycle can establish market share before other companies can release competing consoles and gains an advantage. For example, many credit the arrival of Sony's PlayStation II before the Microsoft Xbox or Nintendo GameCube as the reason for Sony's dominance of the 128-bit generation console cycle.
3. *Network Effects.* Additional users of a console increase the potential sales of entertainment software producers, which increases the number of entertainment software titles produced for that console. Consumers are less likely to switch brands after they have invested in a console.

Market Trends - United States

In 2004, spending on video games in the United States reached \$8.2 billion, of which console games accounted for 75.7 percent of the total, PC games 12.8 percent, online games 7.9 percent, and wireless games 3.4 percent. The overall video game market is projected to grow by 8.9 percent compounded annually to \$13.0 billion by 2010. The following figure shows real sales of entertainment software from 2000 through 2004, and projected sales from 2005 through 2009.

FIGURE 5
OBSERVED AND PROJECTED
U.S. INFLATION-ADJUSTED
SALES OF ENTERTAINMENT
SOFTWARE, 2000–2009
(\$BILLIONS, 2004 DOLLARS)

Source: PricewaterhouseCoopers



35 PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublishations.nsf/docid>.

36 Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America's Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf, 12-14.

As Crandall & Sidak note, these sales figures are highly conservative because they exclude sales by U.S.-based software firms to foreign countries. According to their calculations, U.S. game designers exported \$2.1 billion in entertainment software to foreign countries in 2004. They estimate that U.S.-based entertainment software producers earned one-third of their revenues in 2004 from foreign markets; see the following table for a summary of their analysis:

TABLE 1
EXPORTS BY U.S.-BASED ENTERTAINMENT SOFTWARE PRODUCERS IN 2004 (\$MILLIONS)

Source: Company Annual Reports, Crandell & Sidak

SOFTWARE PRODUCER	INTERNATIONAL SALES
ELECTRONIC ARTS	1,347.0
TAKE-TWO INTERACTIVE	310.4
ACTIVISION	218.9
THQ	187.4
MIDWAY	29.5
ATARI	28.7
TOTAL	2,121.9

According to a report by PricewaterhouseCoopers (PWC), three broad themes will emerge in the U.S. market over the next five years:³⁷

- The introduction of the next generation of technologically advanced consoles will invigorate and dominate the game market in 2006 and 2007. Console/handheld games will increase by a compound annual rate of 5.6 percent to \$7.9 billion in 2010 from \$6.0 billion in 2005.
- PC games will continue to decline, decreasing to \$784 million in 2010 from \$941 million in 2005.
- The migration to broadband, as well as to the next generation of consoles that are geared to online playing, will spur the growth of online games. Online games will grow by 19.1 percent on a compound annual basis from \$835 million in 2005 to \$2.0 billion in 2010.
- The introduction of new wireless phones capable of downloading games will boost the wireless game market, increasing from \$646 million in 2005 to \$2.3 billion in 2010, a 28.6 percent compound annual increase.

Market Trends - Worldwide

Worldwide, the video game market is projected to increase from \$26.2 billion in 2004 to \$46.5 billion in 2010, growing at an 11.4 percent compound annual rate. Asia Pacific, currently the largest market at \$9.6 billion in 2004, is projected to maintain its dominance, growing at a 12.3 percent compound annual rate through 2010 to reach \$17.4 billion. The United States has the second largest market and is expected to grow from \$8.4 billion in 2005 to \$13.0 billion in 2010, an 8.9 percent compounded annual

³⁷ PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid,370>.

growth rate. EMEA (Europe, Middle East, Africa) is projected to grow from \$7.6 billion to \$13.9 over the same period (13.0 percent growth), while Canada will grow from \$732 million to \$1.3 billion, a 12.5 percent growth rate. Latin America represents the smallest market, and is projected to grow from \$531 million to \$835 million, a 9.5 percent compound annual gain.³⁸

TABLE 2
2005 MARKET SHARE
BY SECTOR

Source: PricewaterhouseCoopers
LLP, Wilkofsky Gruen Associates

	UNITED STATES	EMEA	ASIA PACIFIC	CANADA	LATIN AMERICA
CONSOLE	22.2%	17.3%	19.6%	1.3%	1.6%
PC	3.5%	5.4%	5.2%	0.5%	0.4%
ONLINE	3.1%	2.4%	5.8%	0.6%	N/A
WIRELESS	2.4%	2.9%	5.6%	N/A	N/A
TOTAL	31.2%	28.0%	36.1%	2.7%	2.0%

TABLE 3
2010 MARKET SHARE
BY SECTOR (PROJECTED)

Source: PricewaterhouseCoopers
LLP, Wilkofsky Gruen Associates

	UNITED STATES	EMEA	ASIA PACIFIC	CANADA	LATIN AMERICA
CONSOLE	17.0%	15.3%	16.5%	1.1%	1.5%
PC	1.7%	3.2%	2.6%	0.2%	0.3%
ONLINE	4.3%	5.6%	9.4%	0.9%	N/A
WIRELESS	4.9%	5.8%	9.0%	0.6%	N/A
TOTAL	27.9%	30.0%	37.5%	2.8%	1.8%

TABLE 4
WORLDWIDE VIDEO GAME MARKET (\$ U.S. MILLIONS)

Source: PricewaterhouseCoopers LLP, Wilkofsky Gruen Associates

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
CONSOLE	\$14,466	\$16,297	\$17,005	\$18,248	\$16,795	\$18,551	\$21,911	\$23,349	\$23,754	\$23,903
PC	\$5,776	\$4,838	\$4,413	\$4,078	\$4,031	\$3,965	\$3,840	\$3,753	\$3,737	\$3,744
ONLINE	\$369	\$808	\$1,404	\$2,223	\$3,206	\$4,260	\$5,411	\$6,791	\$8,091	\$9,395
WIRELESS	\$20	\$272	\$762	\$1,644	\$3,022	\$4,340	\$5,672	\$7,058	\$8,427	\$9,420
TOTAL	\$20,631	\$22,215	\$23,584	\$26,193	\$27,054	\$31,116	\$36,834	\$40,951	\$44,009	\$46,462

³⁸ PricewaterhouseCoopers (n.d.). *Global Entertainment and Media Outlook: 2006-2010*. Retrieved July 13, 2006 from <http://www.pwc.com/extweb/pwcpublications.nsf/docid>.

Economic Impact of Gaming & Digital Media Sector in Austin

As part of this study, TXP surveyed the local gaming and digital media industry to gather the most current data regarding local employment and wages. The purpose of the study was to measure the size of this important sector and to solicit industry-based strategies to improve Austin as a location for gaming and digital media. Companies were also asked to provide a forecast of local employment.

The information obtained in the survey served as the basis of calculating the current and potential economic impact of this sector. For purposes of this analysis, the local gaming and digital media industry was defined as firms primarily engaged in creating console, online, or handheld video games. In addition, closely related supplier firms such as studios and publishers were also included. Traditional advertising and marketing firms (even those who create websites, e-mails, and flash animation) were excluded from this analysis. In general, one can readily obtain employment and payroll information on the overall technology sector. TXP focused its survey efforts on a fast growing sub sector that is more difficult to measure.

Survey Overview

With the assistance of the City of Austin and Opportunity Austin of Commerce, and information obtained from local news sources, TXP developed a database of approximately 75 Austin-based gaming and digital media companies to survey. The list began with a sample of firms provided by local economic development officials. This list was augmented by names of firms found in Austin American-Statesman and Austin Business Journal articles. In addition, TXP contacted the major trade associations such as the Entertainment Software Association and the International Game Developers Association to obtain contact information for local firms, but unfortunately no databases were available. Once the preliminary list of firms was created, TXP reviewed each firm's website to determine if the company matched the study's definition of gaming and digital media and to obtain contact information. The end result of the process was a database of 50 Austin gaming and digital media companies.

An online survey was created using Survey Monkey (www.surveymonkey.com). In addition, a few local digital media representatives beta-tested the online instrument prior to the actual solicitation of responses from firms. The online survey was active for a four week period (mid-June through mid-July) which allowed access 24 hours per day, seven days per week. Survey respondents were not required to answer each question.

Each of the firms selected was sent an e-mail which provided a brief background of the study, an overview of the survey, and survey instructions. After two weeks, a follow-up e-mail was sent to non-responders. If an e-mail was returned, attempts were made to determine if the firm was still in business or to identify the correct contact information.

The survey solicited general company information such as primary business activity, physical headquarters location, and follow-up contact information. The respondent was asked to provide total local employment and salary information by job classification. Specifically, each respondent was asked to provide data on the total number of employees in each of the job classifications, average hourly wages, and the value of fringe benefits. The survey concluded by asking the respondent to rank the

importance of a number of issues related to the continued development of the gaming and digital media industry in Austin.

The final task was to analyze the information obtained during the four week survey period and estimate total Austin MSA sector output, employment, and earnings. As part of this task, TXP reviewed a series of state and federal employment estimates by occupation. Based on publicly available datasets such as the U.S. Bureau of Labor Statistics’ Occupations Employment Statistics (OES) and Current Employment Statistics (CES), the U.S. Census Bureau’s County Business Patterns, and insights gained from individual surveys with local entertainment and digital media companies, TXP was able to estimate the total regional sector activity. These estimates were then used to establish the current economic impact of the gaming and digital media sector.

Survey Findings & Results

A total of 23 firms employing over 600 workers participated in the survey (nearly 50 percent of companies surveyed). The average wage in Austin’s gaming and digital media sector is \$69,863. More impressive is the fact the survey respondents expected to increase local employment 250 percent by 2010. The exhibits on the following pages provide a high-level overview of aggregate survey responses. Since not every company responded to each question or the number of question responses was small, TXP has released select information to protect confidentiality.

TABLE 5
FIRM’S MAIN
HEADQUARTERS LOCATION

Source: TXP

LOCATION	QUANTITY
AUSTIN	17
ASIA	2
EUROPE	0
NORTH AMERICA	4
OTHER	0
TOTAL RESPONDENTS	23

TABLE 6
YEAR FIRM WAS FOUNDED

Source: TXP

YEAR FOUNDED	PERCENTAGE
PRIOR TO 2000	40%
2000–2005	60%

TABLE 7
THE PERCENTAGE OF RESPONDENTS WHO SELECTED A BUSINESS ACTIVITY AS THEIR FIRM'S PRIMARY LINE(S) OF BUSINESS (COMPANIES COULD SELECT MORE THAN ONE OPTION)

Source: TXP

PRIMARY LINE(S) OF BUSINESS	PERCENTAGE
COMPUTER (HARDWARE)	0%
SEMICONDUCTOR-RELATED	0%
STUDIO(S) ASSOCIATED WITH A PUBLISHER	4%
WIRELESS	4%
OTHER (PLEASE SPECIFY)	9%
SUPPORT TO THE GAMING INDUSTRY (PROVIDER OF SERVICES AND/OR TECHNOLOGY)	22%
GAME PUBLISHER	35%
GAME DEVELOPER (SOFTWARE)	83%

TABLE 8
CURRENT HEAD COUNT FOR EACH BROAD EMPLOYMENT CATEGORY (INCLUDING CONTRACTORS)

Source: TXP

CATEGORY	PERCENTAGE	EMPLOYEES
CUSTOMER SERVICE/PRODUCT TESTING	19%	95
GRAPHIC DESIGNERS	14%	71
MANAGEMENT/ADMINISTRATION	8%	40
MARKETING/BUSINESS DEVELOPMENT	4%	20
MUSICIANS	2%	9
OTHER	28%	140
PROGRAMMERS	21%	108
WRITERS	4%	22
TOTAL RESPONDENTS	100%	505

TABLE 9
AVERAGE ANNUAL
COMPENSATION PER WORKER
FOR EACH BROAD CATEGORY
(INCLUDING BENEFITS)

Source: TXP

CATEGORY	COMPENSATION
CUSTOMER SERVICE/PRODUCT TESTING	\$39,553
GRAPHIC DESIGNERS	\$59,164
MANAGEMENT/ADMINISTRATION	\$98,395
MARKETING/BUSINESS DEVELOPMENT	*
MUSICIANS	*
OTHER	\$77,108
PROGRAMMERS	\$84,759
WRITERS	*
AVERAGE	\$69,863

* To protect the confidentiality of firms providing information, an "*" was used when fewer than five firms provided information and/or employment was less than 20 workers.

To put the Austin survey results into context and test for validity, TXP compared its findings to the 5th Annual Salary Survey (2005) conducted by Game Developer Magazine. While the survey methodology and approach differed (Game Developer Magazine's survey is focused heavily on attendees of the Game Developer Conference), the results were similar.

TABLE 10
GAME DEVELOPER SALARY
COMPARISON

Source: TXP,
Game Developer Magazine

REGION	AVERAGE INDUSTRY WAGE
AUSTIN, TX (TXP SURVEY)	\$69,863
TEXAS	\$71,417
CALIFORNIA	\$79,619
ILLINOIS	\$73,326
MASSACHUSETTS	\$67,868
NEW YORK	\$78,289
NORTH CAROLINA	\$71,974
WASHINGTON	\$77,219

Economic Impact Analysis

Based on the survey results, interviews with local industry leaders, and existing national surveys, TXP estimates the current Austin MSA's gaming and digital media sector directly accounts for almost \$200 million in annual economic activity, pays almost \$78 million in earnings, and employs over 1,100 people. To put these figures in context, gaming per se is slightly smaller than more established local industries such as music and film. However, the line of demarcation between creative sectors is becoming increasingly blurry. For example, some games are based on films, some films are based on games, and everybody uses musicians, designers, and state of the art technology to tell the story.

TABLE 11
ESTIMATED 2006 AUSTIN
MSA ENTERTAINMENT
AND SOFTWARE SECTOR

Source: TXP

	SALES	EARNINGS	EMPLOYMENT
GAMING & DIGITAL MEDIA SECTOR	\$195,300,000	\$77,967,517	1,116

The measurable economic impacts extend beyond the direct activity outlined above. In an input-output analysis of new economic activity, it is useful to distinguish three types of expenditure effects: direct, indirect, and induced. Direct effects are production changes associated with the immediate effects or final demand changes. Video game sales generated by Austin companies are an example of a direct effect. In addition, venture capital funding and production advances spent in the local economy may also represent a direct change in final demand. This translates into the values in the table above.

Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries – typically, additional purchases to produce additional output. This is the initial secondary effect, as the direct activity begins to move through the local economy. When a software company contracts with a local musician, writer, or freelance developer to provide content for an upcoming release, the money is said to “ripple,” as these downstream purchases affect the economic status of other local merchants and workers.

Induced effects (the final ripple) are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. Both the contractors/freelancers and the direct employees experience increased income. Induced effects capture the way in which this increased income is in turn spent by them in the local economy.

Once the ripple effects have been calculated, the results can be expressed in a number of ways. Two of the most common are “Output,” which describes total economic activity, and is equivalent to a firm’s gross sales, “Earnings,” which represents the compensation to employees and proprietors, and “Employment,” which refers to permanent jobs that have been created in the local economy. The interdependence between different sectors of the economy is reflected in the concept of a “multiplier.” An output multiplier, for example, divides the total (direct, indirect and induced) effects of an initial spending injection by the value of that injection – i.e., the direct effect. The higher the multiplier, the greater the interdependence among different sectors of the economy. An output multiplier of 1.4, for example, means that for every \$1,000 injected into the economy, another \$400 in output is produced in all sectors.

The results of running the increased output, employment, and wage levels through the Regional Input-Output Modeling System (RIMS II) are delineated in the following tables. For greater detail, see the Appendix.

TABLE 12
2006 SUMMARY ECONOMIC
IMPACT OF THE AUSTIN
MSA ENTERTAINMENT
AND SOFTWARE SECTOR

Source: TXP

ECONOMIC IMPACT	OUTPUT	EARNINGS	JOBS
DIRECT	\$195,300,000	\$77,967,517	1,116
INDIRECT & INDUCED	\$203,678,370	\$43,561,033	1,717
TOTAL	\$398,978,000	\$121,528,550	2,833

Survey respondents were also asked to forecast their Austin employment in 2010. Most companies expected to double or triple their current employment levels. This is not surprising given the high-growth of this sector. Assuming the companies reach their growth employment projections, TXP has estimated the economic impact of the gaming and digital media sector in 2010 (using 2006 output and earnings estimates – no inflation adjustment).

TABLE 13
PROJECTED 2010 SUMMARY
ECONOMIC IMPACTS OF THE
AUSTIN MSA ENTERTAINMENT
AND SOFTWARE SECTOR

Source: TXP

ECONOMIC IMPACT	OUTPUT	EARNINGS	JOBS
DIRECT	\$488,250,000	\$194,918,792	2,790
INDIRECT & INDUCED	\$509,195,925	\$108,902,582	4,293
TOTAL	\$997,445,925	\$303,821,375	7,083

Fiscal Impact

Beyond the direct, indirect, and induced economic impacts detailed above, activity associated with the entertainment software/digital media industry could generate a significant amount of tax revenue for local taxing jurisdictions, including the City of Austin. There are two areas of fiscal impact: activity associated with changes in clearly defined tax bases (such as transaction and payroll taxes) that occurs due to the spending of both firms and individuals within the industry, and increased public sector revenue from a variety of sources (fees, etc.) that accrues due to the indirect and induced activity (the ripple effects) that occur within the regional economy.

TABLE 14
ESTIMATED TAX REVENUE
IMPACT OF AUSTIN'S
ENTERTAINMENT AND
SOFTWARE SECTOR

Source: TXP

YEAR	TAX REVENUE
2006—CURRENT	\$486,114
2010—PROJECTION	\$1,215,285

Findings and Recommendations

Key issues and observations

1. **The economic impact of digital media/entertainment software, as with many creative industries, extends beyond the calculations.**

As outlined earlier, digital media and entertainment software are significant elements of the creative economy of Austin, especially when the potential impact of a reorientation toward gaming applications among local device manufacturers is factored into the equation. Meanwhile, gaming also has an impact on tourism, as the digital media element of SXSW and several gaming-specific conferences help bring tourist dollars to town.

There are benefits beyond the measurable impacts outlined above. The lines of demarcation between much of the creative economy are blurring, as music, film, and games are increasingly “mashed-up” under the broad digital entertainment umbrella. To the extent that each has a strong local presence, the opportunity for synergy and overall growth is enhanced. This in turn enhances the ongoing appeal for the proverbial creative class, including both existing and potential residents.

2. **Devices and content are both created locally, but on parallel tracks, as there is little interaction and/or synergy between these sectors.**

While Austin is fortunate to have both content creators and device manufacturers in the local economy, the connection between the two is somewhat tenuous. There are signs of greater integration, such as Dell’s purchase of Alienware, but the two have yet to fully meet. However, the margins associated with gaming applications are attracting greater interest, which could in turn lead to a higher level of vertical integration.

3. **While Austin is a center of entertainment software development, the business side of the equation is elsewhere.**

There is no question that Austin is one of a handful of communities in the U.S. with a concentration of entertainment software developers. However, the business side of the equation is somewhat under-represented locally, especially among publishers. This means that much of the value created by the intellectual capital developed in Austin is realized elsewhere (a situation that is analogous to the music industry). As a result, recruitment of publishers is a top priority for the continued development of the industry in Austin.

4. **Education, finance, and market development all remain issues for the local entertainment software sector.**

The basis of value-creation for entertainment software is largely a function of people, as other factors of production are significantly less important than the skills and creativity of programmers, designers, artists, and others who actually create games and other entertainment software. While Austin has a number of advantages related to attracting and retaining talent (encapsulated primarily in quality of life and relative cost of living compared to the West Coast), there are several areas where local stakeholders expressed concern. From an educational perspective, gaming can require an unusual skill set that does not fit neatly into traditional academic disciplines, creating

challenges in adequately preparing a labor force. Meanwhile, money and markets are concentrated elsewhere which means that Austin can tend to suffer from being off the radar screen. These areas (educational infrastructure and market development) should be a point of focus for ongoing efforts to develop the industry in Austin.

5. The competitive environment for digital media and entertainment software is growing. As a result, Austin should be as proactive and coordinated as possible in marketing itself to the digital media/entertainment software community.

In spite of Austin's current relative concentration in entertainment software production, the future is by no means secure. As with any industry that creates intellectual capital, the barriers to relocation are low. Communities, countries, and regions all over the world are actively competing to attract and retain firms in this sector. One interview done locally illustrates the point especially well. The founder of a firm that creates casual games lives in Austin, while his CFO lives in Dallas. The balance of the company (approximately 30 employees) is in Asia, where the cost of production is lower and the market for the firm's games is strong. When asked what it would take to move those efforts to Austin, the answer was based on the bottom line – if overall costs could be lowered, then Austin would make more sense. However, that is not likely at least in the foreseeable future.

Austin has advantages that can offset some of these international cost considerations, especially in comparison to other U.S. markets. However, it is crucial that these advantages are clearly communicated. In that light, emphasis should be placed on marketing in the broadest sense, with relationship-building a key focus.

6. Connection, collaboration, and catalyst best describe the role for the City of Austin in developing the entertainment software/digital media industry.

As stated earlier, entertainment software/digital media is a rapidly evolving global industry whose fundamental basis of creating value lies in talent, distribution channels, and access to financing. Given the emphasis on human and financial capital, development efforts are likely not to fall under the primary purview of a local government. Instead, the City is perhaps best positioned to play a catalytic role in supporting the efforts of those working on developing the industry locally; either in specific areas (such as workforce) or more generally (such as marketing and recruitment).

Specific recommendations for the City of Austin

MARKET DEVELOPMENT

- Consider connecting at least a portion of City funding for Opportunity Austin to a joint marketing and recruitment effort related to entertainment software. The specifics of this effort could include (but are not limited to): coordinated, active participation at industry events and conferences, proactive solicitation of game publishers to create a presence in Austin, and recruitment of external sources of entertainment software investment capital.
- Facilitate ongoing interaction (regular meeting, forums, etc.) between firms connected to the film industry, technology-related companies, animation and special effects firms, and the entertainment software/digital media sector in the interest of synergy.
- Consider connecting at least a portion of City funding for the Austin Technology Incubator to creating a greater presence related to entertainment software.

FINANCE

- Assist those interested in working with venture capital and angel investor networks to find ways to get them to invest in Austin digital media companies. Burnt Orange Productions could offer a model for the development of a similar structure focused on entertainment software.
- Increase awareness among local entertainment software/digital media companies of the scope and requirements of potential public sector funding (from sources such as the Texas Emerging Technology Fund, National Science Foundation, SBIR grants, etc.). Work with stakeholders to secure additional funding from other sources, such as corporations and charitable giving.

EDUCATION

- Assist with putting emphasis on workforce development – working with WorkSource, Skillpoint Alliance’s Digital Media Council, the University of Texas, St. Edward’s Digital Media MBA program, ACC’s gaming industry program, and others to refine curriculum/training programs.
- Explore the recruitment of new education service providers (such as Full Sail) to create a presence in Austin.

OTHER ISSUES

- City shared investment policy could include digital media production facilities.
- Become a “portal” for information related to the entertainment software/digital media industry (i.e., workforce programs, industry events, grants/financing programs, etc.). This could be accomplished through designating a single point of contact and/or creating/enhance a web presence.

Conclusion

The growing role of entertainment software/digital media in the profitability of many firms and the overall prosperity of the nation is clear. To quote Crandall and Sidak:³⁹

The video game industry has grown into a vibrant business that creates thousands of jobs, improves the performance of other industries, and spurs technological advancement. Policymakers should be cognizant of the industry's importance to our country's economic future, and they should seek opportunities to ensure its continued ability to innovate and grow.

As it is in so many creative industries, Austin is on the global map when it comes to this important sector. To some extent, this is not surprising; in an industry where talented people are the core of value creation (especially related to content), it makes sense that Austin would join North American regions such as Seattle, the Bay Area, Los Angeles, Vancouver, and Montreal as centers of gaming and game development. However, our position as part of this elite group is fragile. On the plus side, quality of life and lower relative costs make Central Texas attractive, as does potential synergy with other local creative sectors such as film (which, at this point, is largely unrealized). On the other hand, the business side of the industry is based elsewhere, a situation not helped by Austin's relatively remote location from both major markets (such as Asia) and centers of finance (principally on the West Coast). Moreover, other areas are becoming increasingly aggressive in investing in the educational infrastructure necessary to create the workforce of tomorrow's entertainment software/digital media industry. Electronic Arts (EA) multi-million dollar investment in training in Montreal (with public sector support from Quebec) is an example, and is echoed by the Florida Interactive Entertainment Academy, a partnership of EA, the University of Central Florida, the Florida High Tech Corridor Council, Orlando area economic development officials, and the state of Florida that is focused specifically on training the next generation of advanced game developers. Initiatives of this type challenge Austin to respond, with the City perhaps best-suited to play a catalytic role among different stakeholders. In the process, success may well be a function of our capacity to apply creativity to economic development in the creative sector. Given the emergence of efforts such as Burnt Orange productions, we may well be up to the task.

³⁹ Crandall, Robert W. & Sidak, J. Gregory (2006). *Video Games: Serious Business for America's Economy*. Retrieved June 22, 2006 from www.theesa.com/archives/files/2006_WHITE_PAPER_FINAL.pdf, 6-7.

Appendix: Detailed Economic Impact Analysis

TABLE A.1
2006 DETAILED ECONOMIC
IMPACT OF THE AUSTIN MSA
GAMING & DIGITAL MEDIA
SECTOR

Source: TXP

	OUTPUT	EARNINGS	EMPLOYMENT
Agriculture, forestry, fishing & hunting	\$976,000	\$115,618	14
Mining	\$214,830	\$28,904	1
Utilities	\$5,155,920	\$650,349	9
Construction	\$1,386,630	\$361,305	12
Manufacturing	\$14,706,090	\$2,088,856	49
Wholesale trade	\$10,897,740	\$2,485,778	53
Retail trade	\$18,963,630	\$4,610,252	226
Transportation & warehousing	\$4,941,090	\$1,344,055	51
Information	\$14,295,960	\$2,789,275	62
Finance and insurance	\$19,725,300	\$3,699,763	86
Real estate and rental and leasing	\$35,271,180	\$1,531,933	55
Professional & scientific services	\$209,127,240	\$82,146,305	1220
Management of companies & enterprises	\$1,367,100	\$491,375	11
Administrative & waste services	\$14,061,600	\$4,595,800	243
Educational services	\$5,448,870	\$1,820,977	88
Health care and social assistance	\$18,983,160	\$6,676,916	229
Arts, entertainment, and recreation	\$2,304,540	\$664,801	53
Accommodation & food services	\$11,522,700	\$3,193,936	253
Other services	\$9,628,290	\$2,312,352	118
TOTAL	\$398,978,370	\$121,528,550	2,833

TABLE A.2
PROJECTED 2010 ECONOMIC
IMPACT OF THE AUSTIN MSA
GAMING & DIGITAL MEDIA
SECTOR

Source: TXP

	OUTPUT	EARNINGS	EMPLOYMENT
Agriculture, forestry, fishing & hunting	\$2,441,250	\$289,044	35
Mining	\$537,075	\$72,261	1
Utilities	\$12,889,800	\$1,625,873	23
Construction	\$3,466,575	\$903,263	30
Manufacturing	\$26,765,225	\$5,022,140	123
Wholesale trade	\$27,244,350	\$6,214,446	133
Retail trade	\$47,409,075	\$11,525,630	566
Transportation & warehousing	\$12,352,725	\$3,360,137	128
Information	\$35,739,900	\$6,973,187	155
Finance and insurance	\$49,313,250	\$9,249,408	214
Real estate and rental and leasing	\$88,177,950	\$3,829,833	138
Professional & scientific services	\$522,818,100	\$205,365,762	3049
Management of companies & enterprises	\$3,417,750	\$1,228,437	27
Administrative & waste services	\$35,154,000	\$11,489,499	607
Educational services	\$13,622,175	\$4,552,443	220
Health care and social assistance	\$47,457,900	\$16,692,291	574
Arts, entertainment, and recreation	\$5,761,350	\$1,662,003	134
Accommodation & food services	\$28,806,750	\$7,984,841	632
Other services	\$24,070,725	\$5,780,880	296
TOTAL	\$997,445,925	\$303,821,375	7,083

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