TABLE OF CONTENT

Chapter 1. Introduction

I) History of Video Game
II) Overview of Industry Growth Trends

Chapter 2. Industry Analysis

Part I: Low interest Venture Captial investment sectors

- *Hardware*
- *Video Game Software*
- *Infrastructure*

Part II: High interest Venture Captial investment sectors

- *Video Game Software*
- *Infrastructure*

Chapter 3. Application of Emerging Technologies

Chapter 4. Conclusion

Chapter 1.
INTRODUCTION

Our goal in this report is to describe and analyze the video game industry. We do so from the point of view of a venture capital firm, and therefore look to identify opportunities where new entrants, such as venture-backed startups, can gain market leadership or have a significant impact.

Our methods and approach

We start with a recap of the industry's history and then break the industry into four major sub-sectors: hardware, software, infrastructure and enabling technologies. Each of these sub-sectors itself has segments that vary in maturity and interest level for venture investing. We have developed a framework to analyze each component and determine how strong the potential is for startup and VC investor success. For example, personal computers, which serve as the core hardware for much of today's online and offline gaming, is a mature, highly competitive and capital intensive industry, which led to a low interest level. In contrast, wireless gaming is a less established industry where opportunity still exists for a number of reasons, including technology change, lack of market leadership and overall market growth.

We detail the low interest segments first and then proceed to those that present an opportunity for VC investment. Each segment that has a high interest level is then examined to detail market drivers and potential sources of competitive advantage. We profile interesting companies in each segment and present what we believe are the key factors that will eventually determine the winners in a segment and identify those companies where appropriate.

HISTORY OF VIDEO GAMES

Early history and eventual entrance of Nintendo

The idea for the first video game was sparked in 1951 when Ralph Baer, then an engineer with Loral, was given the task of developing the best television in the world. Baer's idea was to include some interactive game with the television, but management did not wish to pursue the idea. In the late 1950's and early 1960's the first video games were developed in laboratories and universities during scientists' and students' spare time. Willy Higinbotham designed a table tennis game to keep visitors at the Brookhaven National Laboratories entertained, while at a similar time MIT student Steve Russell developed Spacewar on a minicomputer. During the late 1960's Ralph Baer resumed his pursuit to develop a game, this time succeeding in creating an interactive game that could be played on a television screen. In 1968, Baer's game was patented.

Arcade games usher in the "video game" age

Two different events in the 1970's were catalysts that moved the video game industry towards mainstream America. In 1971 the first arcade game was released. While the game was considered difficult to play, a seed was planted with the public. In 1972 Magnavox began producing the Odyssey, which was the first home television game system.

The Odyssey system came with several game cartridges, all playing some version of table tennis. More importantly, however, Pong was released in 1972. The Pong "stand alone" units that were placed in bars and taverns were tremendously successful. In 1977 Atari released their Video Computer System (later called the 2600) to great results. Finally, in 1978, Nintendo entered the industry with the release of several arcade games.[1] The nascent console age had begun.

The first large wave of American adoption

The 1980's were the start of the modern video game era with the release of two hugely popular and successful games – Namco's Pac Man and Atari's Space Invaders. One factor that

contributed to the success of the home gaming system was the triumph of the arcade. Specifically, US arcades generated revenues in excess of five billion dollars in 1981 alone.[2] The next major console was released in 1982 with the debut of Colecovision.

A large part of Colecovision's success can be attributed to the game licenses obtained from Nintendo, specifically Donkey Kong and Donkey Kong Junior. Following a lull through much of the mid-1980's, Nintendo shook up the video game industry with the release of their 8-bit Entertainment System (NES) in 1986.

Following the release of NES, Nintendo dominated the industry through the rest of the 1980's with huge hits like Super Mario Brothers and Tetris. In 1989 Nintendo created a new market segment with the release of a hand held gaming system called Game Boy. However, as 1990 was approaching, Nintendo was facing new competition from Sega and the release of their 16-bit Genesis system.

The year 1995 was a turning point in the console space as Sony entered the market with their 32-bit Playstation one. Sony entered the space with a price of $299 and quickly became the market leader. The following year the 16-bit system lasted about five years, until 1994 when Sega released the 32x, which was an adapter placed on the Genesis that allowed it to run 32-bit cartridge games. For the most part, however, console companies decide to largely bypass the 32-bit machine, and work towards the release of 64-bit consoles in the mid-1990's. The one notable exception is the 3DO, which was developed by a company called 3DO, but licensed and manufactured by Panasonic, Goldstar and Sanyo. While the 3DO initially received strong reviews, the $699 price target proved prohibitive and resulted in limited success for both the 3DO company and its licensees.[3] ***Nintendo and Sega are marginalized by more advanced technology*** Nintendo released the N64 following tremendous success in Japan. The cycle of improved consoles continued to move quickly as Sega released the Dreamcast, a 128-bit system in 1999.

Sony and Microsoft push the technology further

The release of the 128-bit Playstation 2 in 2000 and Microsoft XBox in 2001 brought the console market to its current state. The Playstation 2 released in 2000 was met with unbelievable frenzy and anticipation. Due to tremendous demand, consoles were extremely difficult to find in stores. As a result the $299 game could be found on eBay for over $1,000.[4] In less than a year, Sony sold over ten million Playstation 2 consoles.

The release of XBox was noteworthy because it signified software giant Microsoft was serious about entering the console gaming space. XBox was also met with success. In the 128-bit console space in early 2005, Playstation is the dominant player, followed by XBox then Nintendo. It is interesting to note that the console industry has evolved into a relatively predictable four to five year cycle of renewal.

As this paper is being written in early 2005, rumors swirl about the release of the next XBox (expected in late 2005) and Playstation 3 (expected in early 2006). Clearly, Microsoft hopes to gain some ground on Sony by releasing their next generation console earlier.