Business model developments for the PC-based massively multiplayer online game (MMOG) industry

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(MMOG) INDUSTRY

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FACULTY OF COMMERCE

2005
CERTIFICATION

I, Wei-hsiang Hsu, declare that this thesis, submitted in fulfilment of the requirements for the award of Master by Research, in the School of Economics and Information Systems, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

(Signature)

Wei-hsiang Hsu

4 March 2005
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<th>Description</th>
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<tbody>
<tr>
<td>A I</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>AOL</td>
<td>America Online Line</td>
</tr>
<tr>
<td>ATM</td>
<td>Automated Teller Machine</td>
</tr>
<tr>
<td>B2C</td>
<td>Business to Customer</td>
</tr>
<tr>
<td>BBS</td>
<td>Bulletin Board System</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CESA</td>
<td>Computer Entertainment Supplier's Association</td>
</tr>
<tr>
<td>COLS</td>
<td>Commercial Online Services</td>
</tr>
<tr>
<td>CRC</td>
<td>Cyclic Redundancy Check</td>
</tr>
<tr>
<td>DSL</td>
<td>Digital Subscriber Lines</td>
</tr>
<tr>
<td>EA</td>
<td>Electronic Arts</td>
</tr>
<tr>
<td>ESA</td>
<td>Entertainment Software Association</td>
</tr>
<tr>
<td>HTTP</td>
<td>Hyper Text Transfer Protocol</td>
</tr>
<tr>
<td>IAB</td>
<td>Interactive Advertising Bureau</td>
</tr>
<tr>
<td>IDSA</td>
<td>Interactive Digital Software Association</td>
</tr>
<tr>
<td>IFPI</td>
<td>International Federation of the Phonographic Industry</td>
</tr>
<tr>
<td>IGDA</td>
<td>International Game Developers Association</td>
</tr>
<tr>
<td>IS</td>
<td>Information System</td>
</tr>
<tr>
<td>ISP</td>
<td>Internet Service Provider</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
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<tr>
<td>OEM</td>
<td>Original Equipment Manufacture</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>OS</td>
<td>Operation System</td>
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<tr>
<td>P2P</td>
<td>Peer to Peer</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
</tr>
<tr>
<td>POS</td>
<td>Point of Sale</td>
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<tr>
<td>PW</td>
<td>Persistent World</td>
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<tr>
<td>MMOFPS</td>
<td>Massively Multiplayer Online First-Person Shooters</td>
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<td>MMOG</td>
<td>Massively Multiplayer Online Game</td>
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<td>MMORPG</td>
<td>Massively Multiplayer Online Role-playing Game</td>
</tr>
<tr>
<td>MMORTS</td>
<td>Massively Multiplayer Online Real-Time Strategy</td>
</tr>
<tr>
<td>MUD</td>
<td>Multi-User Dungeon, or Domain</td>
</tr>
<tr>
<td>RAID</td>
<td>Redundant Array of Independent (or Inexpensive) Disks</td>
</tr>
<tr>
<td>ROI</td>
<td>Return On Investment</td>
</tr>
<tr>
<td>SOE</td>
<td>Sony Online Entertainment</td>
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<tr>
<td>SSL</td>
<td>Secure Sockets Layer</td>
</tr>
<tr>
<td>TCP</td>
<td>Transmission Control Protocol/Internet Protocol</td>
</tr>
<tr>
<td>TGS</td>
<td>Tokyo Game Show</td>
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<tr>
<td>TLS</td>
<td>Transport Layer Security</td>
</tr>
<tr>
<td>TTP</td>
<td>Trusted Third Party</td>
</tr>
<tr>
<td>UDP</td>
<td>User Datagram Protocol</td>
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<tr>
<td>UI</td>
<td>User Interface</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<td>VOD</td>
<td>Video On Demand</td>
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ABSTRACT

The development of information technologies brings innovations into traditional entertainment, and this development allows for the creation of a new leisure style: online entertainment. Online entertainment is an emerging industry, and increasingly, companies are pursuing this new trend with profit motives. However, the struggle of online-music industries shows that the market is not yet mature, and is still seeking viable business models. Online-game industries are also going to face similar problems that those online-music industries have already experienced.

The purpose of this thesis is to study business model developments for the online-game industry. The focus will be the PC-based Massive Multiplayer Online Game (MMOG). By utilizing the structure of the digital content value chain as a conceptual framework, this thesis will use this framework to analyse the structure of current business models. In order to improve current business models, analysing case studies and investigating key issues, which have a potential to influence the business development, are important in this thesis. The research will focus on three areas: marketing, game-play and financial issues. By seeking practicable solutions for key issues, these proposed solutions will be applied to create viable developments and restructure business models.

The research method will review the last five years of research literature, explorations and case studies. This thesis mainly focuses on the case studies of Asian online-game developments, with a focus on Japanese and Korean game industries because their industries are the major players in the online-game market. In addition, the survey methods will include the use of the online questionnaire in order to obtain experiential...
resources and to increase the accuracy of this research. The contribution of this thesis is to establish viable business models based upon the experience of Japanese and Korean online-game developments as patterns, for Chinese and Western online-game industries.
ACKNOWLEDGMENTS

Firstly, I greatly appreciate my supervisor, Mr. Joseph A Meloche, for his guidance, encouragement and constant support during the course of this research. This research was successfully carried out under his supervision and assistance. I also appreciate Dr. Helen Hasan for her support to examine the structure and content of my thesis. This makes my thesis better and wonderful.

I express my gratitude to my classmates of Feng-Chia University and the University of Wollongong, and my friends in online communities: Gamer.com, Gamebase.com, and Boom8.com. Without the support and suggestions of these people, it would have been difficult to finish the online survey for my research.

I would like to thank my dear friend, Ms. Qin Zhao, for her support and encouragement in my daily life. Her suggestions really benefited my research, and her enthusiasm gave me more energy in my research and life.

Finally, I thank my parents, Mr. Hsu and Mrs. Yang, for their encouragement and financial support. I also thank my young sisters, Chih-Shan and Ya-Lin, for their suggestions regarding living in Australia.
1. Introduction

1.1 Background

Work and leisure comprise the daily lives of most people. People have to work for their livelihood and to endure the pressures from their employment. In order to reduce the pressure, people increasingly attach importance to leisure, and spending time on entertaining themselves. A significant development for the entertainment industry is the introduction of the information technology and the Internet. The development of information technologies brings innovations into traditional entertainment, and this development allows for the creation of a new leisure style: online entertainment.

Online entertainment is an emerging industry, and increasingly, companies are pursuing this new trend with profit motives. One significant example of online-entertainment market is the rapid growth of online-music industry. The consulting company, Ernst & Young and Cap Gemini Ernst & Young indicated that the online-music download service has captured users at a rate far exceeding Internet adoption in general. The emerging online entertainment has become a focus in the entertainment field.

The online-entertainment markets are extremely attractive for both companies and consumers; however, the markets are still fragmented and not yet mature (Pastore, 2000). The key point claimed by Palumbo is the establishment of the business model and the long-term benefit of the investment effort. One noteworthy example is the struggle of the online music industry. A representative online-music company, Napster, has been ridiculed that it was out of touch with reality and tried to stop an unstoppable technology
(Donaton, 2001, p17). Serious piracies have caused online-music industries to lose a lot of revenue. In addition, fierce competition among major online-music providers and new strategies for the advance of competition abilities, and the prevention of illegal distribution show the dilemma of online-music industries (Eliscu, 2003, p19).

Recently, a noticeable online-entertainment development is that the emerging online games and mobile entertainments seem to be poised for growth; especially the PC-based massively multiplayer online games (MMOGs) which continue to be a major form of entertainment in 2003 (IGDA, 2004, p9). However, online-game industries are also going to face similar problems that online-music industries have already experienced. Traditional business models based on retail sales have been greatly affected by serious piracies. Game industries not only lose money by illegal distributions, but also have to face fierce competitions among game markets. The traditional business models cannot bring more revenue for game industries. Therefore, the development of viable business models for online-game industries has become a vital issue.

1.2 Research Questions

For this thesis, several research questions will be presented and examined. The questions list as follows:

1. What aspect of the existing business models will work in the online-game industry?
2. What are the key issues in the development of online-game business models?
3. If the business model specific to online-game industries can work, what if any are the additional potential developments?
1.3 Scope
This research primarily focuses on the current environment of the online-game industry, particularly in the area of PC-based Massively Multiplayer Online Game (MMOG) industry. Increasingly, game companies are likely to develop MMOGs, because this kind of the game can obtain more profits from customers. In this research, online gambling is not considered because of legalization issues that are not related to the IS research field. Moreover, online gambling is forbidden in the U.S., and American companies are going to turn to the games of skills, in order to avoid being against the law. (Tedeschi, 2004, p5). The issue about the legalization of online gambling is preferred to be discussed in the legal field.

1.4 The Purpose of this Research
There are two purposes for this research. The first one is to research and investigate effective business models for the online-game industry. The second one is to propose viable business models with proposed solutions to key issues, which have influenced the operation of business models, and identify future developments. The contribution of this thesis is to establish viable business models based upon the experience of Japanese and Korean online-game developments, as patterns for Chinese and Western online-game industries.

1.5 Research Methodology
This study reviews the last five years of research literature, exploring the existing industry and reviewing case studies. The reason for this is that the information technology is still rapidly growing and developing. As a result, the business models will be
influenced by the changes in the technology developments. The time limitation can increase the accuracy and relevance of the business models being examined.

This thesis mainly looks at the case studies of Asian online-game developments, with a focus on Japanese and Korean game industries because their industries are the major players of the online-game market. In addition, the survey methods include the use of a questionnaire in order to obtain experiential resources and to increase the accuracy of this research.

In order to improve current business models, the approach undertaken here is to analyse case studies and investigate key issues that have a potential to influence the business developments. By seeking practical solutions for key issues, these proposed solutions will be applied to create viable developments and restructure existing business models. Table 1 lists the methodology which was used in this study.

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Definition</th>
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<tr>
<td>Library Research</td>
<td>Research relevant literature to develop essential concepts of this research</td>
</tr>
<tr>
<td>Database Research</td>
<td>Research journal articles related to recent developments of online-game industries</td>
</tr>
<tr>
<td>Conceptual Model</td>
<td>Research relevant literature to develop a framework, or a conceptual model for the structure of MMOG business models</td>
</tr>
<tr>
<td>Literature Analysis</td>
<td>Investigate key issues that directly or indirectly influence the business operations of online-game industries</td>
</tr>
<tr>
<td>Case Study</td>
<td>Focus mainly on case studies of Asian online-game industries</td>
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developments, especially with a focus on the Japanese and Korean game industries

Survey

Utilize an online questionnaire to obtain experiential resources, and adopt a forced-choice question style as the survey instrument. Results will be collected by the My3Q server, and analysed by a statistics analysis system (SPSS).

Secondary Data

Utilize existing organizational and business data, e.g., financial and accounting reports, archival data, published statistics, etc.

Table 1. Table of research methodology

1.6 Limitations of this Research

There are four main limitations for this research:

Firstly, this research concentrates on three significant issues: marketing, game play and financial issues. There are many direct or indirect issues that influence the business operations of the online-game industry. In order to improve the contribution of this research, the numbers of issues for this research are necessarily limited.

Secondly, this research concentrates on the PC-based MMOG platform. There are other gaming platforms, such as the mobile phone and the console. Currently, few mobile phone-based games go online, because of the limitation of the hardware performance and the insufficient bandwidth. Many console-based games have started to develop for online gaming, but the numbers of game titles are less than PC-based MMOGs.
Thirdly, online gambling is not considered, because online gambling is forbidden in the U.S. (Tedeschi, 2004, p5). These legalization issues are not directly related to the IS research field, and are more closely related to the legal field.

Finally, some culture factors which are not related to IS research are excluded in this research. For example, online gaming has become popular in China, because residents are powering the growth of online gaming, especially in the entertainment-starved countryside (Bolande, 2003). In contrast to Western countries, most people enjoy outdoor activities as their entertainment. This difference in comparing various entertainments depending upon culture behaviours is beyond the scope of this research.

1.7 Structure of this thesis

This thesis is structured in nine parts:

Chapter 1 presents the purpose of this research, research procedures and methodologies for data collections and analyses; and limitations that are focused upon or excluded in this research.

Chapter 2 introduces MMOG definitions, categories and its technological infrastructure.

Chapter 3 explores the (some) forces driving change in existing industry value chains, in order to construct conceptual framework business models.

Chapter 4 gives an overview of current business model structure and major revenue streams in online game industries.
Chapter 5 starts to examine problems of current business-models, and identifies key issues which have influenced business operations.

Chapter 6 utilizes a survey to identify customer attributes and behaviours in online gaming that relates to key issues.

Chapter 7 presents solutions and recommendations for key issues by literature reviews.

Chapter 8 presents viable business model developments with a basis of proposed solutions, and restructures the MMOG value chain to identify future developments.

Chapter 9 is the conclusion of this thesis, which includes the key review points of this research.

Chapter 10 gives an outlook on possible future research and applications of MMOG industries.
2. Introduction of the MMOG

2.1 Definition

2.1.1 Massively multiplayer online game (MMOG)

According to the definition of *wordIQ.com*, a massively multiplayer online game (MMOG) is a type of computer game that enables hundreds or thousands of players to simultaneously interact in a game world, which they are connected to via the Internet. Typically, this kind of game is played in an online, multiplayer-only persistent world.

2.1.2 Massively multiplayer online role-playing game (MMORPG)

According to the definition of the *wordIQ Dictionary and Encyclopaedia*, a massively multiplayer online role-playing game (MMORPGs) is a type of computer game where players join virtual persistent worlds located on the Internet. It is a specific subset of massively multiplayer online games in which players interact with each other through avatars. The avatars are graphical representations of the characters they play.

2.1.3 Business Model

There are several definitions for the term of the business model. Firstly, a business model, or a commerce model, is a basic process by which a business obtains its inventory, produces its products or services and delivers them to its customer (Kleindl, 2003, p137). This definition explicates the essential concept of the business model. A more detailed definition is that a business model is the architecture of a firm and its network of partners.
for creating, marketing and delivering value and relationship capital to one or several
segments of customers in order to generate profitable and sustainable revenue streams
(Dobosson-Torbay, Osterwalder, and Pigneur, 2002, p7). This definition illustrates the
structure of business models including generating value and obtaining revenue. A
simple definition of a business model is to explain who your customers are and how you
plan to make money by providing them with value (Magretta, 2002, p2). This definition
clearly explains purposes of business models for business companies.

2.1.4 Value Chain

The value chain can be referred to as a chain of adding value in creating and delivering a
product (Treese & Stewart, 1998, p15). Typically, a value chain consists of a few
primary value suppliers and many other suppliers that add on to the value that is
ultimately presented to the buying public. Walters and Lancaster claimed that a value
proposition is a statement of how value is to be delivered to customers. It is important
both internally and externally. Moreover, Brown has offered a succinct definition of a
value chain: A value chain is a tool to disaggregate a business into strategically relevant
activities (Walters, 2000, pp. 160-178). The value chain is implemented by the members
of channel-suppliers, distributors and customers. In addition, Owens said that a value
chain is to reach infinity in that it optimizes all of the supply chain functions across
trading partners and customers, in order to maximize efficiency and value for the
customer (Owens, 1998).
2.2 History of Online-Game Industry Developments

2.2.1 Academic Beginnings

According to the article by Costikyan, the name of the first true online-game was *SpaceWar* made by Rick Blomme. The game was a two-player version for Xerox PARC’s experimental PLATO system in 1969. In 1978, Richard Bartle and Roy Trubshaw launched the first working MUD (Multi-User Dungeon, or Domain) on a VAX at Essex University in Colchester. A significant contribution for the online-game development is that Bartle shared the code of the MUD. As a result, the free MUDs sprung up in universities across the world, and attracted many people to play them regularly. Most MUD games were developed on academic computers, but some games were developed as commercial online gaming.

2.2.2 The Commercial Online Services

Commercial online games began on CompuServe in the early 1980s. Kesmai developed a game- *Stellar Warrior* on GEnie (GE’s commercial online service) in 1986. This was GEnie’s first multiplayer online game. After a few years, a series of new games were developed by different services, and the developments of online games grew.

A vital development for MMOG is the launch of *Habitat*, developed by F. Randall Farmer and Chip Morningstar in 1986. *Habitat* was not a game, but the graphical chat environment that allowed some interaction with the environment and supported ‘objects’ that people could trade and use. This system led to the development of later MMOGs, like the famous game Ultima Online.
In 1988, Electronic Arts (EA) released the first retail product *Modem Wars*. The game was specially designed for head-to-head modem play, but few players had modems at the time. The first online game service devoted primarily to online games was the launch of the Multiplayer Game Network (MPG-Net) in 1989. Due to the lack of capital resources, the development of the MPG-Net was limited, but it still developed some very creditable games.

The first popular online-game is a revised version of an earlier game: *MadMaze* launched by IBM on Prodigy in 1989. The Prodigy was remarkably ill-designed for gaming: it had no facility to allow real-time communication among players, so all the games on Prodigy needed to be updated every day or week, with player communication via e-mail (Costikyan, 1999, p5).

However, the CompuServe and Prodigy systems, were not primarily designed for games. CompuServe could be viewed as a service for business people, and Prodigy was used as a shopping and consumer information service, games were a good fit with these systems at that time.

### 2.2.3 Enter the Internet

Undoubtedly, the introduction of the Internet brought great contributions to the development and diffusion of online games. The WWW technology and Bulletin Board System (BBS) attracted numerous Internet users to have discussions about games, and these discussions also contributed key ideas for game companies in the design of games.
In 1993, the release of *Doom* was sold initially over the Internet. The gaming style of the networked death-match play, attracted enormous numbers of people to play the game over networks. Increasingly, companies viewed Internet play as a profitable feature that could attract more customers and bring more profits for companies. More and more CD-ROM titles began to offer net-play options.

However, *Doom*’s net-play option had been designed for LAN play. The players could not play the game with other players on the Internet. At that time, the online aggregator, DWANGO, launched a for-fee service to allow multi-players to play the game on the Internet. This enabled Internet play; they charged by the hour for the service.

Over the next few years, the growth of the Internet led to the decline of all the commercial online services (COLS) except America Online. This is because most COLS had old-fashioned command-line-driven interfaces that were far less easy to use than a web browser (Costikyan, 1999, p7). Moreover, these COLS had no adequate support. Genie, Prodigy and CompuServe were spun off because of the increasing loss. As a result, the role of the Internet Service Provider (ISP) became important, because the ISPs provided a flat fee for connection to the Internet. This satisfied customer demands, and ISPs could charge the fee quickly, based on connect-time. The influences of ISPs also accelerated the growth and diffusion of the Internet. Increasingly, people go to the Internet to play the online game.
2.3 Online Entertainment and Online-Game Market

The online-entertainment market has great potential development. According to a survey conducted by PricewaterhouseCoopers, it predicts that the global Media and Entertainment industry would increase from $1.1 trillion in 2001 to $1.4 trillion in 2006, growing at an average rate of 5.5% (M2 Presswire, 2003, p1). Statistics from *Online Paid Content Demographic and Usage Report 2003*, indicate that Asia, North America and Europe are the major online-entertainment market. The Korean online-entertainment industry produces an revenue in excess of $50MM USD and has net profit margins of between 30-40% (IGDA, 2004, p12).

A survey conducted by Ipsos-Reid found that, "online gaming is significantly more popular in China, South Korea and Taiwan than anywhere in the world." (News Factor Network, 2001). Statistics from the Computer Entertainment Supplier's Association (CESA) presented the consumer demographics in Japan and Korea. The study found the ratio of game players in Japan has increased from 25.6% in 2002 to 37.6% (of the entire national population) in 2003. However, 61.8% of Koreans play games, and 66.3% of them spend time doing online gaming. This statistic shows that the Korean online-game market and its development is in a predominant position in Asia and the world.

In addition, An IDC statement indicated that Korea and Taiwan formed two of the world's largest online-gaming markets, and showed that Korea had the single biggest online gaming market in the region with a 54% market share, while Taiwan had 26% (Lumpur, 2003). The foreign revenue of Korean online-game companies will jump to $143 million in 2004, up from $15 million three years ago (Ihlwan, 2004).
Online gaming is expected to represent the future of the computer-game industry. A research report from the IDC predicted that the value of the industry is expected to reach $1.8 billion by 2005, up from $210 million in 2001. Moreover, the projection from the consulting firm Forrester Research showed that online-game revenue will reach $4.3 billion in 2005 (IGDA, 2003, p28).

2.4 MMOG Categories and Attributes

2.4.1 MMOGs Compared to other Computer Games

There are a number of differences between MMOGs and other computer games. The MMOG creates a persistent world where players can join in and play regardless of whether or not anyone else is playing. The MMOG allows a lot of players to play, the game in a single persistent world at the same time. The players can interact with each other, such as chatting or making a team for a competition. However, the MMOG should work on company servers. It is different with other games, because most games just run in the personal computer without the Internet connection. In addition, most MMOGs charge players a monthly fee, when the players would like to play the MMOGs. The players also can trade the virtual items in the MMOG worlds, or on the Internet. This virtual economy is special to MMOG gaming, and the common games do not have this characteristic. Moreover, most MMOGs are restricted to the computer-game market. There are few MMOG games on console-game systems.
2.4.2 MMOG Categories

According to Egenfeldt, there are ten types of online games. In this thesis, the types of online gambling and edutainment are not studied, because these type are not related to this study, and the market of the edutainment is little. Hence, there are five major types of MMOGs. These are listed in Table 2.

<table>
<thead>
<tr>
<th>Genre</th>
<th>Activity</th>
<th>Competence</th>
<th>Characteristic</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>Fast reflexes and quick thinking</td>
<td>Swiftness, hierarchy, competition</td>
<td>Compete against other human players</td>
<td>Quake, Counter-Strike</td>
</tr>
<tr>
<td>Adventure</td>
<td>Problem solving and patience</td>
<td>Play with opposite, exploration, social skills</td>
<td>Meet other people and explore an unknown universe together</td>
<td>Everquest, Ultima Online</td>
</tr>
<tr>
<td>Strategy</td>
<td>Overviews, analysis and prioritising</td>
<td>Rules, conflicts and use of resources</td>
<td>Compete against other human players</td>
<td>Age of Empires, Warcraft</td>
</tr>
<tr>
<td>Simulation</td>
<td>Master complex principles</td>
<td>New object, roles and possibilities</td>
<td>Play with other enthusiasts</td>
<td>Flight Simulator</td>
</tr>
<tr>
<td>Simple/Classic/Casual games</td>
<td>Typically activity from action and strategy genre</td>
<td>Depends on the genre</td>
<td>Fast and easy play with other people</td>
<td>Chess, MSN game room</td>
</tr>
</tbody>
</table>

Source: Egenfeldt, 2003

Table 2. MMOG categories and characteristics
2.4.2.1 Action

This type of MMOG is also called MMO first-person shooters (MMOFPS). This kind of game is popular in the Western countries. Fighting, battle and other highly intense physical drama are the major characteristics for these kinds of games. The virtual world of the action game is large-scale, and is full of team-based combats and competitions. For example, you have to fight with opponents to survive in the world, or drive faster than the other players to win the competition. Sports, racing and first person shooters are the major genres of action games. The most popular are the violent-driven action games like Quake and Counter-Strike. These kinds of games are based on the open source game engine. It is not hard to set up severs to host games. However, there is still no durable revenue model to get money from players. Most MMOFPSs are free for players to play the game on the Internet.

2.4.2.2 Adventure

This type of MMOG also is called, MMO role-playing game (MMORPG), and is the most famous type of MMOG. All MMORPGs have their own stories and backgrounds that can be real or fictional. The most type of stories is based on the mythical or ancient world, where good and evil fight for supremacy. The player has to choose which side to play on, and must have great patience to explore the world and do a great deal of thinking. Some stories are also based on horror fictions; in these, players can have a special adventure in haunted houses.

The world created by MMORPG is called the persistent world (PW, that is, a virtual environment that is available every minute of every day. Players can join the PWs at any time while they connect to the game server on the Internet.
The PWs are full of adventures in which players can explore the world with the avatars created by the player in the game. MMORPG developers design avatars, and provide multiple races or characters for players to choose. In the beginning of MMORPG development, the game was characterised by more player and non-player interaction. The MUD was the popular model for players to interact with other players. However, this type of platform seems hard to get working.

The introduction of the graphic interface allows for an increased range of activities. In the PWs based on the graphic interface, players can engage in a variety of activities with other players who are accessing the game in the same way from all over the world. These activities can be fights, explorations, team making, chats, buying and selling, and even special events or marriages. Players also can hack and slash the enemies away, and enjoy killing of monsters and level chasing.

Currently, most famous MMORPG need to charge players fees when players would like to play the game on the Internet. Hence, MMORPG developers are in charge of supervising the virtual world and offering the users a constantly updated set of new activities and enhancements to guarantee the interest of players. The virtual world of games should be run on the servers and sites. However, these resources cost game companies a lot of money.
2.4.2.3 Strategy

This type of MMOG is also called *MMO real-time strategy (MMORTS)*. The story background of most MMORTSs is about war. The father of all strategy games is chess, but in new strategy games the playing experience is far less abstract and the complexity is usually higher (Egenfeldt, 2003).

In MMORTS, players can choose different pieces or sides to move. There are two major types of MMORTS in the genre. One is old turn-based games where players cannot employ any strategy until the opponent finishes his turn. Another type is synonymous with real-time strategy games. Players need to have a high level of attention and reflex to win the game. They also need to consider development strategies, and control the economy and the military affairs in either old turn-based games, or new, real-time games. However, in the turn-based games, the disadvantage is that the player cannot control how much time he wants to play and when he wants to play. This is because he needs to wait till his opponent moves. As a result, the turn-based games usually require players to spend a lot of time.

It is difficult for the online-game industry to charge players monthly fees in the MMORTS, especially as the situation of the real-time game is similar to the action genre. There are many free websites and platforms for players to play real-time games. As a result, players have no desire to pay any fee for to game company. Therefore, the revenue stream for the online-game industry will probably be through ads.
2.4.2.4 Simulation

The major characteristic of the simulation game is to make the game environmentally realistic. These kinds of games have high requirement in order to result in a great performance. It would be better for players to have related or professional knowledge, to master the game smoothly. Hence, the game is not very attractive for the general public. A good example of simulation games is the Flight Simulator series from Microsoft. The player should have some knowledge about the flight such as how to control correctly and how to land safely. Hence, there are few games, and some are online. As a result, there are not many players to play these kinds of games, but these players have high loyalties and passions for it.

2.4.2.5 Simple/Classic/Casual Games

The major characteristic of the simple games is that the game is simple, so any one can easily have fun with it. These games are usually well-known to everyone, so it is not difficult to play it the first time. The popular game types are Chess, Go, Hearts etc. Most simple games are free, in order to attract players and traffic to a site.

Developing simple games is not difficult for game companies. It does not require high techniques to develop the game, and the developing cost is low. However, the simple games are the hardest genre to make money on, because people are used to playing them in all kinds of places (Egenfeldt, 2003). Hence, the major revenue stream will come from advertising profits.
2.5 MMOG Technological Infrastructure

The basic requirement to play MMOGs is that the player needs a computer with the installed game, and a connection to the game server/site on the Internet via the ISPs. There are two types of MMOGs: single-session multiplayer games and persistent world multiplayer games.

2.5.1 Single-Session Multiplayer Games

Chess, card games, casino games, first-person 3D shooters and sports arcade games represent the universe of single-session multiplayer games. These kinds of games usually allow two or more players to join in play over a network connection. The games only save a little information, such as the user’s basic data, between sessions. After finishing the games, the session will close and will not open until the creation of a new game. The basic information can be either stored on the end-user’s machine, or on the server.

An important design component of multiplayer games is the lobby system. A successful lobby system allows users to socialize, such as chatting and making friends before entering a game. In addition, players also can choose their opponents, who may be friends or strangers. The development environments and the client environments usually are developed by Director/Shockwave, Flash, Java, C and C++. The server development options can be the in-house development, open-source core architectures, or closed-source commercial packages. The most used server programming languages are in Java, C and C++ (IGDA, 2003, p62).

There are two kinds of game logic between clients and servers. The first one is that the client handles all game logic. The server only performs sign-on and lobby logic when
players connect to the server. The server can route the game message from clients, or send the message between clients in a peer-to-peer manner. The second game logic is that the server handles all logic. Clients present the basic information such as the game’s states, or player’s information through the UI. The game messages only send/receive between the server and the client (IGDA, 2003, p62).

The method for communications among clients and servers is the application of the network protocol. Generally speaking, the common protocols are UDP and TCP. UDP is faster but does not guarantee message delivery. In contrast, TCP is more reliable but the delivery speed is slower.

### 2.5.2 Persistent World Multiplayer Games

The most representative genre for the persistent world multiplayer game is the massively multiplayer online game (MMOG). The complexity of the technology and requirements of the resource are higher than the single-session multiplayer games. This is because current MMOGs need a strong processor to handle large numbers of graphs and the message delivery between servers and clients. Players connect via client software to a central server array where the game world is stored and managed. Due to the great amount of maintenance required of the game world, or servers, specialized engineering and operational capabilities such as up-time and customer supports are needed (IGDA, 2003, pp. 62-63).

### 2.5.3 MMOG Architecture

Different game companies may have different MMOG architecture designs. Figure 1 presents a basic concept for the architecture. Most MMOGs adopt web interfaces for
account managements. Players can check their status on this website. Increasing numbers of companies add more functions into the account login Web page of the account login-in. One common function is customer services, such as the help desk and guides for the beginner. After the account login server authorizes the player’s user name and the password, the server will send clients to appropriate zones of the game world.

The client sends messages to the game server, and the server queues the requested messages in a separate process to the game logic. When the client gets responses from the server, the relevant section of the game world will be updated. As a result, the client may see the changes of the game-world view, such as some actions happen, or data update.
The game worlds are managed by different server clusters. Due to the game world being large-scale, to accomplish the actions of different game worlds needs varied techniques. These techniques are complex, and different companies use different techniques to balance players in one continuous world between physical servers. The most common technique is to locate different world “zones” on separate servers, with limited interaction between players on distinct zones. The game world can be held in memory or in a database. This depends on the importance of the data. For example, important transactions such as the gold wins are stored in the database. Other non-critical data, such as the position of the player are in memory. After the player finishes the game and the session closes, this data can be stored into the database if the data is critical for updating player status.

The function of the game logic server is to accomplish all the tasks associated with managing the game world model. These tasks usually are chats, player options and A.I. Therefore, players can have interactions with people in the game world. Other common technology components include a patch download server, along with patching tools on the client.

2.5.4 Server Hardware and OS

Most of the major MMOGs, with the exception of those published by Microsoft, have chosen the Linux system as the operating system, because the Linux system costs less and also performs well. In addition, the hardware configuration for servers is very important. The MMOG strongly requires high performances from servers to handle a lot of data deliveries and operations. A common pattern is to be a one set of login/director servers per shard, with around ten “zone” servers handling the world states, connecting to a single
large database server with RAID storage for critical transactions (IGDA, 2003, p64). Most servers are written in C++, because the language is familiar for overall programmers. Recently, Java, and especially Python, are worth considering because the languages provide better mechanisms in the programming environment. Increasingly, programmers learn these new languages. Therefore, these languages provide new choices for building and maintaining server environments.

In addition, the establishment of server environments can use middleware platforms that are specific to design for MMOG developments by companies such as Butterfly.net, Turbine, Zona, and Global Gaming Innovation. These companies can provide professional solutions for game companies to improve the MMOG design and development.
3. The Forces of Driving Change in Existing Industry Value Chains and Market Structures

In the traditional markets, digital-content industries have been controlled by a few powerful downstream distributors, such as large media firms and electronics game publishers. However, the advent of broadband developments has a great potential to change the industry distribution channels and market structure; it will even create new opportunities for digital content and application developers to bypass distributors, or find new alternative distribution channels. The core of online gaming is the digital content. This implicates the advent of the broadband development and also can create new opportunities for the content developers of online-game industry to create alternative distribution channels. Therefore, these opportunities could change or influence current markets. The forces driving changes in existing industry market structures can be divided into four parts: network access, customer needs, supply chain interdependencies and linkages, and business models (Convergent Consulting, 2003, pp. 3-4). This thesis will discuss these four parts to build the prospect of the online-game industry.

3.1 Network Access

The key factor of regarding online-game developments is the Internet trend, particularly the vital role of broadband penetration, plays in the diffusion of the online game. Fitzpatrick claimed the lack of broadband may hinder the online-entertainment industry, because most homes do not yet have high-speed, broadband connections to the Internet that permit the delivery of movie-style video and high-quality music. According to the Ernst & Young study, nearly two-thirds of the CEOs surveyed in the study cite broadband connectivity as the most significant immediate factor influencing the way customers will
experience entertainment and communications and utilize technology over the next few years. Therefore, the broadband development can influence the development of the online-game industry.

Figure 2 presents statistics from *International Telecommunication Union (ITU)* in the UNCTAD report. It shows that the major Internet users are distributed in three regions: Asia (34%), North America (29%) and Europe (28%).

![Internet users by region, 2002](source: ITU)

A worthy finding is the broadband penetration. Figure 3 indicates that the Republic of Korea is in the leading position of broadband penetration in the world.
Statistics from *IGDA Web and downloadable games white paper* shows the drastic growth of broadband in Korea. The household’s broadband penetration rate of North America reached 20%, but there is 73% in Korea (2004, p10). The high rate of broadband penetration has greatly supported and driven Korean online-game developments, and Koreans are expecting that their network games will become the industry standard once high-speed Internet becomes more widespread (Ihlwan, 2004). An IDC study confirmed that online gaming will be a main market driver for broadband adoption (Chai, 2003). The broadband penetration becomes high. As a result, the Internet users have great potential for online gaming.

### 3.2 Customer needs

It is important for many companies to understand what the customers need, and then they can make the appropriate marketing strategies to meet the customers’ demands. The key to a successful marketing strategy, both domestically and globally, is often based on a thorough understanding of consumer behaviour, that is, an understanding of how and why
consumers purchase (or do not purchase) products and services. Moreover, understanding consumer behaviour is essential for appreciating how various societies function, as consumption is an important activity in all cultures (Neal, 2002, p4). For instance, the ardent consumers of pop culture, known as ‘Oatku’ in Japan, spend $2.35 billion a year on comics, animated films and computer games, according to a recent report by the Tokyo-based Nomura Research Institute. These legions of hard-core hobbyists have created a big money market called ‘mania’ economy (Pearson, 2004, p4).

Therefore, in the MMOG industry, it is critical to understand why customer desires and behaviours are focused on online gaming. It is also necessary to investigate customer demographics, and their preferences in the purchase of game products.

### 3.3 The digital-content value chain architecture

The digital-content value chain for the generic broadband industry consists of four elements: content and applications, aggregation, network access and user device (Convergent Consulting, 2003, p4). This chain can also be applied in the value chain of the online-game industry, because the core of online game products is in the digital content. According to the report of Cutler & Company, a digital-content value chain consists of four parts: creation production, content aggregation, distribution and networking, and usage (2002, pp. 48-50). This concept can be integrated with the points of Convergent Consulting to present the value chain architecture of the online-game industry. Table 3 presents the structure of the digital-content value chain.

From creation production to content aggregation, the content provider creates digital-content products, and the role of aggregation distributes the products with
distribution channels. The introduction of broadband technologies creates a new way for distributing products to customers via the Internet rather than physical distribution channels. Network access can be viewed as a virtual distribution channel. The function of a user device is to receive the digital content and use it on the device. Usually, the user device is a personal computer.

<table>
<thead>
<tr>
<th>Chain</th>
<th>Content &amp; Applications</th>
<th>Aggregation</th>
<th>Network Access</th>
<th>User Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Creation; Production</td>
<td>Encoding; Storage; Retrieval</td>
<td>Distribution; Networking</td>
<td>Usage</td>
</tr>
</tbody>
</table>

Table 3. The digital content value chain

### 3.4 Business Models

A key issue for many digital content and application developers preparing to exploit the broadband distribution system is how they establish viable online business models (Convergent Consulting, 2003, p25). Online gaming is gradually growing, and the demand for broadband services is drastically increased. Hence, building viable business models for the online-game industry has become important.

The product distribution channel of most traditional game industries relied on the physical distribution. The game-content was encoded into the physical products, and the providers/publishers distributed the products to wholesalers and retails, or directly delivered to customers depend on the characteristics of the product. Therefore, the major revenue was from retail sales.
The traditional business models have been affected and reformed by the introduction of the Internet and e-business technologies. Increasingly, companies have adopted the e-business model to enhance their competitive advantages. An e-business model is an approach to conducting electronic business through which a company can sustain itself and generate profitable revenue growth. The business model spells out how a company plans to make money online and how it's competitively positioned in an industry (Trombly, 2000). One of e-business’s strategies is the first-to-market strategy. The strategy is to get the ideas out ahead of the market. Consumers would then develop brand loyalty before competitors arrived. However, this strategy failed because most competitors adopted similar business models. For example, Yahoo Inc. operates a successful site, but other portal sites, such as Go.com and AltaVista.com, have fallen on hard times.

The online-game industries also are going to face similar situations. The Internet has brought the emergence of online gaming. Online-game companies not only obtain profits from retail sales, but also generate profits form online gaming. It is not surprising to see the games industry taking advantage of new models made possible by the Internet, with online revenue becoming an increasingly important factor (Reynolds, 2004, p1). In addition, the introduction of the Internet creates possibilities of virtual distribution, because the digital content can be delivered by the Internet. Increasingly, game companies also use online advertising to promote their products, or attract potential customers for online gaming.

However, the market still is not mature, and business models still are in the early development stage. The early stage of online gaming was free for players. The revenue
relied on advertising support, but the market has shrunk over the last two years. Moreover, these advertising sites faced competition from other online content providers; they are scrambling to find ways to make a consistent profit (Becker, 2002). Hence, seeking viable business models has become important for MMOG industries.
4. Current Business Model Structure for the Online-Game Industry

Different companies and services have different business models, and these models are abstract. Although the MMOG is one kind of online game, there are still differences between the business models of the online-game and the MMOG industries. In this thesis, it is important to construct business models as patterns. These patterns will not only help researchers to have comprehensive concepts on the business models of the MMOG industry, but will also be helpful for conducting the discussions in later chapters.

Before constructing concepts of business models, three viewpoints will be discussed: the digital value chain, the distribution channel and the revenue stream. By identifying the digital content value chain for the MMOG industry, we will understand each component involved in this chain. Then, a basic pattern will be depicted by analysing current distribution channels and the revenue stream.

4.1 The Digital Content Value Chain for the MMOG Industry

As the previous chapter mentioned, the digital content value chain consists of four elements: the content and applications, the aggregation, the network access and the user device. In the MMOG industry, the game developer including the game-design team can be as a content and application provider. The function of the game developer is to create game content as products to the aggregator. The aggregation role of the MMOG industry is the game publisher, i.e. Electronic Arts (EA) and Microsoft. These publishers
distribute the game products to the customers with distribution channels. These customers are usually game players who have interest in online gaming. In the aspect of the distribution channel, it consists of the physical distributors like retailers, and virtual distributors such as ISP and online websites.

Hence, Table 4 lists the components of the digital value chain for current MMOG industry.

<table>
<thead>
<tr>
<th>Chain</th>
<th>Content &amp; Applications</th>
<th>Aggregation</th>
<th>Distribution Channel</th>
<th>User Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Creation; Production</td>
<td>Encoding; Storage; Retrieval</td>
<td>Distribution; Networking</td>
<td>Usage</td>
</tr>
<tr>
<td>Role</td>
<td>Game Developer</td>
<td>Game publisher</td>
<td>Retailer; ISP; Online websites</td>
<td>Player</td>
</tr>
</tbody>
</table>

Table 4. Components of digital value chain for the current MMOG industry

### 4.2 Distribution Channels and Marketing Models

In the digital value chain, the *network access* is the major distribution channel to distribute digital content. The capacity of network access strongly depends on the network bandwidth. Table 5 examines the transfer time of different bandwidths for various file sizes.

The current main bandwidth is DSL 512Kbps to 1.5 Mbps in the developed countries (Shinichi, 2003). One example in obtaining the digital content via network access is online-music downloading. Most online-music downloading is less than 100Mb and needs less than 30 mins. However, the file sizes of the most famous online games are more than 1000Mb, and need more than 1 hour for downloading. As a result, these large
size games should be delivered only by the physical channel, because the customers cannot tolerate the long time downloading. Although the core of the game product is the digital content, the distribution for MMOG products still relies on the physical distribution channels such as retailers. The calculations shown in the table below indicate that insufficient network bandwidth may hinder the MMOG distribution via the Internet.

<table>
<thead>
<tr>
<th>Category</th>
<th>Bandwidth</th>
<th>5Mb</th>
<th>50Mb</th>
<th>100 Mb</th>
<th>1000Mb</th>
<th>2000Mb</th>
</tr>
</thead>
<tbody>
<tr>
<td>56K Model</td>
<td>56 Kbps</td>
<td>10.65</td>
<td>106.67</td>
<td>213.33</td>
<td>2133.33</td>
<td>4266.66</td>
</tr>
<tr>
<td>xDSL</td>
<td>128 Kbps</td>
<td>5.33</td>
<td>53.33</td>
<td>106.67</td>
<td>1066.67</td>
<td>2133.34</td>
</tr>
<tr>
<td>xDSL</td>
<td>256 Kbps</td>
<td>2.67</td>
<td>26.67</td>
<td>53.33</td>
<td>533.33</td>
<td>1066.66</td>
</tr>
<tr>
<td>xDSL</td>
<td>512 Kbps</td>
<td>0.13</td>
<td>13.33</td>
<td>26.67</td>
<td>266.67</td>
<td>533.34</td>
</tr>
<tr>
<td>xDSL</td>
<td>1.544 Mbps</td>
<td>0.43</td>
<td>4.32</td>
<td>8.64</td>
<td>86.4</td>
<td>172.8</td>
</tr>
<tr>
<td>Ethernet</td>
<td>10Mbps</td>
<td>0.06</td>
<td>0.67</td>
<td>1.33</td>
<td>13.3</td>
<td>26.6</td>
</tr>
<tr>
<td>Wireless</td>
<td>11Mbps</td>
<td>0.06</td>
<td>0.61</td>
<td>1.21</td>
<td>12.1</td>
<td>24.2</td>
</tr>
<tr>
<td>Fast Ethernet</td>
<td>100Mbps</td>
<td>0.01</td>
<td>0.07</td>
<td>0.13</td>
<td>1.3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Table 5 Examinations of the transfer time for various file-sizes in different bandwidth

Therefore, the major MMOG distribution is still on the physical channel. In this distribution system, intermediaries and facilitators enable a transaction to take place between producers and customers (Kleindl, 2003, p112). In the value chain of the MMOG industry, the game developer and publisher work as producers to provide game content, and then customers purchase the game for online gaming.
Intermediaries, such as game wholesalers and agents, get products from the game publishers and split them into small amounts to retailers and consumers. Facilitators play a role in helping the flow of transactions through the distribution channel between publishers and consumers. Examples of facilitators include credit card companies and banking institutions.

Figure 4 illustrates the traditional MMOG distribution system. The intermediary obtains and aggregates game products from different game producers, and creates an assortment for retailers. Facilitators aid in the transaction among the producers, intermediaries and retailers. A customer can have various choices from retailers, and then transactions are fulfilled between retailers and customers. This diagram presents a pattern for a MMOG distribution system.

Source: Kleindl, 2003, p114
Figure 4. The traditional MMOG distribution system
In the MMOG industry, there are three marketing models with the physical distribution channel: Point-of-sale (POS) model, Magazine Cover Mounts model and Original Equipment Manufacture (OEM) Bundling model (Patrovsky & Mulligan, 2003). The POS model is to display products in grocery stores, software stores and every other brick-and-mortar retail shop. This is a common way that customers go to retailers to purchase the product that they want. The Magazine Cover Mounts model distributes the products to game magazines such as *Computer Gaming World* and *PC Gamer*. However, most of the products are trial softwares, or demo versions that have time limitations. This model is a cost-effective way, and can distribute the new product into the game market within a short time. The OEM bundling model is to bundle the game with hardware sales such as a joystick, video cards, or on the hard drives of new computers. The value-added strategy can attract potential customers.

These package models have dominated the business model of the traditional game industry; however, the introduction of the Internet creates a virtual distribution channel, and is going to change the traditional structures of business models. Increasing game products are put on the website for customer download; as a result, the package models seem not to be suitable for the online business model. Thus, there is a need for new business models within the game industry.

Figure 5 illustrates the new distribution system. The E-commerce intermediaries become important in this system, and they provide more functions for customers, such as Internet shopping. Customers can have more efficient choices from a number of different suppliers of products or services through the E-commerce intermediaries. One example for E-commerce intermediary is game information websites. The websites provide not
only game information for players, but also online shopping for game products from different publishers. The function of retailers in this system will be reduced; even the game publishers do not need the retailers to distribute its products because they can directly sell products to customers. Therefore, the overall transaction costs can be reduced and the relationship between producers and customers becomes closer.

Source: Kleindl, 2003, p116

Figure 5. Intermediaries and the new distribution system

4.3 Revenue Streams

There are several revenue streams in the MMOG industry: retail, advertising, subscription, pay-for-play and other revenue models. These streams are listed in the following section.
4.3.1 Retail

Retail sales have been the major revenue stream for the game industry. The income for retail sales is useful to offset development costs. The current MMOG products are also distributed with the retail channel, because of the insufficient bandwidth for game downloading. The strategies for the game publisher to retain a presence of the game in the retail channel are to issue expansion packs and special editions. These strategies can extend the game lifetime and bring extra income for the game publishers and providers. Generally, retail packages of MMOGs are packaged with a month of 'free' play, but require activation with a credit card number for later monthly subscriptions.

4.3.2 Advertising

Advertising has served the print industry for 200 years, and was applied to the Internet with every expectation of success. Several categories of banner ads were designed to generate traffic, increase brand awareness and generate leads and sales (Marcus, 2000). There are several online-advertising types: banner ads, interstitial advertisements, pop-ups, rotating sponsorships, or other types of online advertising (IGDA, 2003, p34). Whatever the ad type is, the simple websites usually use unusual, attention-grabbing ad forms to grab the player’s attention in order to increase the ad hits. Hence, experienced advertisers and game publishers know how to add significant value to the ad in order to promote products and maximize the profits in the website.

4.3.3 Subscription

Subscription is the major revenue model for current MMOGs. The common subscription model is that players pay a monthly fee that allows them to play MMOG on the Internet
with unlimited usage during that month. This way is simple and controllable for the MMOG industry, and similar to what ISPs charge. It’s reasonably well suited to most MMOGs, which have no end, no conclusion and no-win criteria. Thus, there’s an incentive for people to be online in the game a lot; the online time for playing the game depends on the amount the player pays (Costikyan, 1999, pp. 23-24).

The payment mechanism for playing MMOGs includes the billing method and payment method. There are four billing methods: bill by minute with the usage rate, bill by hour with the time coupon, bill monthly with a prepaid monthly fee and bill by minute through third party companies such as ISPs and mobile phone operators. In the aspect of payment methods, the popular methods in Western countries are the online credit card payment and ATM or Internet banking payment. In Asian countries, the common payment method is the purchase of a scratch coupon that is sold at the retailers, such as a computer shop, a network café, or an online-shopping website (iResearch, 2004d, p17). In addition, the payment can be bundled with the monthly bills of mobile phone operators and ISPs. This way is becoming popular in Asian countries.

**4.3.4 Pay-For-Play**

Under this model, a player pays a small fee to play a game to completion. Most of these kinds of games limit the number of players, and the players are less likely to drop out in the middle of the game. This is because the completion will have a result. If the player wants to continue playing next competition, the player should pay a additional fee for gaming. This model does not work for MMORPGs, because most MMORPGs have no end and conclusion. Generally, the skill-based game works this way, such as online gambling.
4.3.5 Other Revenue Models

The revenue streams of the MMOG industry are based on the above four models. Recently, the MMOG companies have started to seek alternative revenue streams. Two emerging models are noticeable: premium servers and customer services, and revenue from character and object sales.

4.3.5.1 Premium Servers and Customer Services

Some MMOG provides a premium server for players. The players can pay an increased monthly fee and gain access to additional content, or special quests and events. The famous MMOG, *EverQuest*, is the first of the graphical games to offer a premium server (IGDA, 2003, p29). Some MMOG companies provide special customer services for players. For example, a player can arrange a personalized in-game wedding ceremony with extra charges.

4.3.5.2 Revenue from Character and Object Sales

Revenue from character and object sales is an emerging revenue for MMOGs. Players can purchase the pre-made character, or special objects or abilities from the game operator. However, it is controversial and some players feel somewhat unhappy. That is because the player can directly reach the level by purchasing the pre-made characters. Other players would spend many hours of humdrum activity to build a character up to such levels if they do not purchase the pre-made characters (IGDA, 2003, pp. 29-30). About the object sales, the common pattern is to provide a free game to the player for “trail” gaming. If the player would like to play the game with more functions or some special game items, they would need to purchase the objects. In this model, players
cannot only have fun with gaming, but also purchase the special items to satisfy their demand in seeking status or more fun.

4.4 Business Models

Based on the above content, Figure 6 depicts the structure of the MMOG value chain that I developed which consists of four elements: the MMOG industry, the intermediary, the facilitator and the player.

This thesis will discuss the business model in developer and publisher relationships, and mainly focus on the models between the MMOG industry and players.

4.4.1 The business model in developer/publisher relationships

There are two kinds of relationships between the developer and the publisher. The developer and the publisher can be different companies, or the developer is funded by the publisher for developing specific MMOGs. For example, Turbine developed *Asheron's Call 2* for Microsoft; Cryptic developed *City of Heroes* for NCsoft; Climax developed
Warhammer Online for Games Workshop. In addition, the developer and the publisher can take on the same role. This usually happens in the foundation of a small game company.

Generally, with the revenue model, the developer receives royalties and/or development funding towards live support and expansion packs. The details of these financial relationships are not public, but one would expect that a standard development royalty deal of advances and 10-25% royalty applies (IGDA, 2003, p28).

4.4.2 The Business Model in Publisher/Customer Relationships

The major revenue for the MMOG industry is to gain income from game players. A successful business model can create a number of profits for the MMOG companies. Hence, studying the existing business models is very important. There are two categories of business models: the play-for-free model and the pay-to-play model.

4.4.2.1 Play-For-Free Models

The major characteristic of this model is that players can play an online game without any extra charge. There are two categories of business models: the retail-sale-based model and the advertising-based model.

4.4.2.1.1 The Retail-Sale-Based Model

The early MMOG adopted this model. The major revenue came from the profit of retail sales. The game company provided websites and servers to meet the customer’s demand.
for free online gaming. The Blizzard’s Battle.net is an example of this model. The Blizzard launched several famous MMOGs, such as Diablo, StarCraft and WarCraft series. For example, the Blizzard marketed DiabloII in 2000, and sold more than a million copies worldwide, at an average retail price of more than US $50. (Berenson, 2000). Moreover, Blizzard has sold 2 million units of StarCraft and Diablo II in Korea (Bloom, 2002, p1). The game was on track to be one of the top-selling computer games, and brought a lot of revenue in for Blizzard.

The game servers only serve the players that have the activation code to play the game on the Internet. The purpose of this strategy is to ensure the retail sales, and stop the piracy and illegal distributions. In order to retain a presence of the game in the retail channel and increase retail sales, the common strategy is to issue expansion packs and special editions to grab the player’s attention.

4.4.2.1.2 The Advertising-Based Model

Most simple game websites use this model. The representative websites are MSN Zone, Yahoo! Games, and Pogo.com. These sites provide simple and casual games such as chess and card games. Due to ‘free’ and simplicity characteristics of this kind of game, the game websites can attract tens of millions of players, and at any given time will each have 150,000 to 200,000 simultaneous online players (DFC Intelligence, 2004 June 30). Thus, advertising space on strong frequented game websites gets more and more expensive, which makes selling ad space a good revenue source.
There are two models for advertising. The first one is where the online service provides the client software, and can ensure that players continue to view ads during the course of the game. The game on Gamesville, *The Price is Right* Game, is an example of blending content and advertising into one. The second one puts the ads on the lobby of the website. Most simple games work this way, such as EA Pogo.com.

### 4.4.2.2 Pay-to-Play Models

#### 4.4.2.2.1 The Subscription-Based Model

The major revenue streams for the MMOG industry are from the retail sales and the supplementation of the flat monthly fee. The online role-playing games *EverQuest*, *Ultima Online* and *Lineage* are examples of this pricing model. Players have to pay a monthly fee to gain access to game servers for online gaming. The advantage of this model for the game player is that if the game ever loses its appeal then the player is free to stop paying. The game producer’s benefits are even more obvious: an addictive game ensures a regular monthly income (Reynolds, 2004, p1). For instance, Gravity is one of the leading online-gaming companies in Asia. The major product, *Ragnarok*, has created a lot of revenue for the company. Gravity pulled in $50 million in revenue with $13 million in net income for 2003. This year it expects its revenue to reach $70 million with earnings of $35 million. In addition, the revenue of the MMOG industry accounted for $650 million, but the subscription revenue will account for $355 million of the total (Kanellos, 2004). Obviously, the subscription fee has become a profitable revenue for the MMOG industry. In this model, attracting and retaining players is a challenge. It is strongly required for the game developer to create new content, or ‘special events’ to attract and retain players.
4.4.2.2 The Tier Model: the Mix of Advertising and Subscription Model

Another subscription model is called the ‘tier’ model: players pay a monthly fee for access to member-only games, or access to features such as tournaments, ladders and creating private game rooms. This model can be viewed as a mixture of advertising and the subscription model, because most simple game websites adopt this model. The Yahoo Games, Real.com, Pogo.com and Gamestorm work this way. They provide free games to attract customers for online gaming, and use advertising strategies to generate profits such as the sales of ad spaces. Recently, the Pogo.com has provided more benefits for subscribers of Club Pogo, such as no intermissions or pop-up ads, fast access to games and members-only rooms and badges. Moreover, the website not only provides free games for players, but also encourages players to win cash prizes in the game competitions. Hence, the number of potential consumers for online games is much higher than with the traditional package-model business, so less revenue per consumer is needed to make online games a really substantial industry (DFC Intelligence, 2004 June 30).

The advantage of this model is that players can have various choices of game titles, and the diverse game types can attract potential players for online gaming. However, this model is difficult to ‘gateway’ services that allow players to access games provided by others. For example, players can play the Cyberstrike on the Zone website; however, the Cyberstrike also is owned and operated by the Simutronics. Revenue from customers accessing through the gateway service is shared between different companies that provide the game on the website. Thus the Zone would have difficult negotiations with these different companies. Because the revenue from the Cyberstrike is shared with
Simutronics, the Zone cannot make the same deal with other game providers (Costikyan, 1999, p23).
5. Issue Definitions

5.1 Discussions of Current Business Models

The introduction of the Internet created opportunities for the industry to obtain new revenue streams. In the early phase of the Internet business, most content was ‘free’ and ‘open’. Therefore, the game industry worked with advertising-based models, which is a play-for-free model, to attract potential customers and gain income from the ad sales. The flat-rate and pay-per-click model was popular, and created an ad-and dotcom-boom phenomenon. However, the development of advertising-based game industries are in a dilemma.

According to a report by the Interactive Advertising Bureau (IAB), U.S. Internet-advertising sales hit $5.55 billion for the first nine months of 2001, slipping 8.4 percent from the same period last year. Moreover, advertising revenue totalled $1.79 billion in the third quarter, off 4.1 percent from $1.87 billion in the previous quarter (Olsen, 2001). Recently, the online advertising market has greatly shrunk over the last two years; these advertising-dependent websites lost up to 80% of advertising revenue (Convergent Consulting, 2003, p26).

The idea behind portals and advertising-based game industries is the same as that behind television advertising: aggregating eyeballs and directing them toward advertisements. The television viewers are passive, because people need to wait through the ads to see the shows they want to watch (Trombly, 2000), but this model does not work in the
advertising-based game industries. Internet users can choose the ads that they are interested in; as a result, there are many ads on different websites, but the click-rate is low.

Traditional game industries worked retail-sale-based models, but the industries are facing serious piracy that other digital industries have faced, because of the advent of digital technology and the Internet. According to a recent study by the Business Software Alliance, for instance, the piracy rate in 2000 was estimated to be 37%, which can be translated into $11.75 billion dollar losses for software publishers. The piracy rates in Asia, especially China, Indonesia and Vietnam, represent in each case over 90% (Bae & Choi, 2002, p2). In addition, the piracy has become a major problem in online-music industries. The introduction of the P2P technology increased the level of the piracy and caused unpredictable losses for online-music industries. According to IFPI reports, global disc-piracy is still increasing, and presented a rise of 14% on 2001 (2003, p3) and a rise of 4% on 2002 (2004, p2). Similarly, the retail-sale-based game industry is going to face the piracy problem. The industry could obtain benefits from the Internet, but the sufficient broadband bandwidths may accelerate the piracy and illegal distribution via the Internet.

As a result, some companies began looking for alternative revenue streams as the Internet ad boom fizzled (Gaudiosi, 2003, p7). They also are struggling to seek solutions to reduce the piracy. More and more MMOG companies adopt the pay-to-play model that can generate more profits for game industries, since players have to pay an extra fee for online gaming. There are two categories in the business models: the subscription-based model and the tier model. These business models are still developing, because few companies have succeeded on these models, according to the chart depicted by Woodcock. There are clear and great distinctions among famous MMOGs.
game product especially has a leading position in the MMOG industry. However, few companies have succeeded in making a regional multiplayer game into an international product. While the MMOG leading company, South Korea’s NCSoft, had a great success in the Asian market, it still failed to market its product to the West. Similarly, the EverQuest, made by Sony Online Entertainment, was famous in the West, but the product was not successful in Asia. Moreover, some MMOGs, such as Motor City Online and URU Live, didn't attract enough subscribers to pay for administering the game site. As a result, they were forced to terminate the game operation (Chuang, 2004, p1).

Therefore, it is important to investigate key issues that directly or indirectly influence the operation of the business model. Moreover, these issues can be helpful to develop viable solutions for business models.

Source: Woodcock, 2004

Figure 7. MMOG active subscriptions, 1997-2004
In this chapter, Table 6 outlines the three categories of issues which will be discussed: marketing issues, game-play issues and financial issues.

<table>
<thead>
<tr>
<th>No</th>
<th>Category</th>
<th>Key Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marketing</td>
<td>Customer demographics and preferences</td>
</tr>
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<td></td>
<td></td>
<td>Distribution channels</td>
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<tr>
<td>3</td>
<td>Game-play</td>
<td>Game performance</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Security issues – online cheating</td>
</tr>
<tr>
<td>5</td>
<td>Financial</td>
<td>Revenue streams and alternative streams</td>
</tr>
</tbody>
</table>

Table 6. The table of key issues

5.2 Marketing Issues

For a generic value chain for Internet commerce, the first component of the chain is to attract customers. The point of this phase is to make an impression on customers and draw them in to the detailed catalogue or other information about products and services for sale. Based on this point, two important questions for any business are, ‘Who is the customer?’ and ‘How do we market on the Internet?’ (Treese & Stewart, 1998, pp. 17-24). Similarly, these points can be applied to the MMOG value chain. In the following section, two marketing issues will be discussed: Customer demographics and attributes, and distribution channels.

5.2.1 Customer Demographics and Attributes

Before exploring potential customers, the key question is to understand customer demographics and attributes. As the Internet has grown, the demographics have changed substantially. Generally, the male players were the major customers for MMOGs.
However, a recent AOL study about simple games found that men spend more time on the Internet each week than women (23.2 hours vs. 21.6 hours), but female game players spend more time on playing online games than men (9.1 hours vs. 6.1 hours). In addition, 70% of game sales come from females (IGDA, 2004, p11). This information implies that the male is not in as a predominant position in the online-game entertainment industry as women, especially in the area of simple games. It is valuable for online-game industries to have a focus on the female market.

In addition, there is a significant difference between Western and Eastern game-players’ attitudes. According to a IDSA report, the three top reasons Western game-players play games are that they enjoy the game because it is fun, the games are challenging and players like to play with friends and family (2002, p3). According to the CESA report, however, the top reason for Japanese game players is that playing games is a good chance to make a new friend and improve friendship among peers. Moreover, the top reason for Korean game-players is that playing games is a good chance to compete with a sophisticated veteran on the Internet, or in a specific competition. This information implies that there is a distinction of preferences of game genre between Western and Eastern nations.

In the advertising-based model mentioned in the previous chapter, the vital issue is the demographics of each individual online game. Due to the game content being free, the major revenue will depend on advertising to generate revenue. The advertisers, including developers and publishers, should research, on an ongoing basis, the most common and most profitable trends in online advertising, and research the customer demographics for
online gaming. If the advertisers do not research the market, they will likely make inappropriate ads and lose the money.

The above evidence clearly shows that the customer demographics have changed. For the MMOG industry, it is important to investigate the customer demographics and attributes in order to make attractive and profitable products or services. Hence, researching this issue in the marketing field can be helpful to make companies focus on customers.

5.2.2 Distribution Channels

In addition to the investigation of customer demographics, it is important for MMOG industries to deliver their products and services to customers via the appropriate distribution channel. As mentioned in the previous chapter, the traditional industry marketed its products via the physical channel. However, the introduction of the Internet has created opportunities for the industry to market its product via the virtual channel with the Internet; even the content providers can bypass distributors to directly deliver the product to customers.

In the distribution channel issue, the intermediary has played an important role between the game publisher/provider and the player. The traditional game package was distributed by intermediaries such as retailers and computer stores. As the demand for the Internet increased, game companies increasingly set websites up to make their products available for customer downloading; or these companies would distribute their product via specific websites, such as game-information websites and online-shopping websites. These websites can be viewed as cybermediaries that operate in electronic markets to facilitate the exchange process (Sarkar, Butler & Steinfield, 1998).
The functions of the intermediary and the cybermediary are similar: they play the role of the distributor. However, a channel conflict exists when a company sells products to the same market through more than one distribution system (Kleindl, 2003, p126). In some cases, manufacturers have refused to supply online sales business due to fear of channel conflicts, and these companies are undertaking a number of strategies to handle the conflicts (Gilbert & Bacheldor, 2000). Nevertheless, another approach to handling channel conflicts is to set up websites, and then having the products delivered through traditional distributors. For MMOG industries, because of the insufficient bandwidth for the downloading of large-size games, the strategy to handle channel conflicts is to provide game packages on the retail channel, and also make the digital content online for online purchasing and downloading. This strategy allows the MMOG industry to reach a wider audience than would be available through the retail outlet alone.

5.3 Game-Play Issues

5.3.1 A bad launch online-game case study

The “bad launch online-game” case is from the THEMIS Report (2002). Funcom is a Switzerland game developer and publisher. The major product, Anarchy Online, is a science-fiction MMOG. When well over 100,000 box units sold for the opening, it was clear that the community had great expectations in game performance as well. Unfortunately, several problems caused losses for Funcom after the game operated for a period of time.

In this case, three problem areas resulted in the bad launch of Anarchy Online: technical problems, game development issues and relationship problems between players and the developer.
In the technical area, the major problems were poor performance and technical stability and game-play issues. The reason for the poor performance was that the game servers and account maintenance systems were unable to handle the amount of traffic. The poor stability and unsolved game-play issues also caused untold number of problems for the explorers of the Anarchy Online world. Frequent patches released to fix errors in the game sometimes did not solve the problems; they even caused more severe problems. In addition, there was a lack of a good number of tools for in-game Funcom personnel to both deals with problem players, and to run functional events. As a result, a number of players complained about the poor performance, and the Funcom lost customers.

The game development issues were handled poorly with many undocumented changes being placed into the patches, and those patches were made so frequently that they had little test time. Moreover, the game developers were not aware of the players’ expectations. The game had been built up over the course of its five-year development, but some content did not meet the players’ expectations.

The relationship problem between players and the developer resulted in a lack of player communication. Very little in the way of developer-to-player communication was occurring. Furthermore, there was posting limitations in the discussion forums. The game’s official discussion forums were set to allow moderated posting only. As a result, few players could provide opinions or bugs for the game, but most players did not. The lack of communication channels caused the relationship problems between players and the developer to increase.
Due to the above problems, Funcom got a bad reputation, and lost the player-morale. Increasingly, players went to play other MMOGs, and the subscribers to the *Anarchy Online* greatly reduced between 2002 and 2003. Hence, the key issues in this case are the game-play issues, including game performance and the communication channel.

### 5.3.2 Game Performance

The case study of Funcom shows the importance of game performance. The game performance is also a critical issue in the retail sale-based model and subscription-based model, because MMOGs are strongly required to play the game on the game servers of the Internet. In order to maintain the quality of the game performance, MMOG industries have to spend substantial money and resources in server maintenance. Usually, game publishers hold and maintain the server. When the amount of online users increase, the publishers spend more money on server maintenance. Some famous MMOGs, such as *Final Fantasy XI* and *EverQuest*, had more than 400,000 subscriptions in the beginning of 2004 (Woodcock, 2004). Therefore, the high level of server performance and stability is strongly required to handle large amounts of players for online gaming.

The good performance may not attract more customers, but the poor performance will greatly reduce players’ desires for gaming. It creates a bad reputation for the game company and results in the loss of customers.

### 5.3.3 The Security Issue: Online Cheating

Security issues have become important, because they are related to the game-performance issue. The traditional target of computer game security is copy protection. The emergence of online games fundamentally changes the security
requirements for computer games. Increasingly, online cheating has destroyed the balance of the game world and influenced the player’s desire to play the game. As some players say, online cheats ruin good games and result in users giving up (Yan & Choi, 2002, p126).

It is difficult to use the criterion to determine which behaviour is cheating. Different companies have different criteria to allow players’ behaviour in online gaming. Online cheating can be by abusing procedure or policy, by denying service from peer players, due to lack of secrecy and authentication, and by modifying game software or data (Mørch, 2003, pp. 5-6). Most cheating utilizes the bugs of the game product or services in order to obtain unique items or powerful characters; even some players use cheating to earn virtual/real money. Moreover, cheating is a large threat to potential income for game developers. Online cheating will destroy the balance in gaming, and make the game less attractive to players.

5.4 Financial Issues

Financial status is important for any company, because it could present the feasibilities of business models. For the MMOG industry, the operating profit and net profit could be utilized as criteria to evaluate the profitability of the business model. In this thesis, I do not analyse financial figures, but focus on revenue streams that create values and profits for the industry.

Due to the introduction of e-business technologies, demand for electronic payment and electronic billing has increased. The Internet also creates opportunities for MMOG industries to set up platforms for online billing and online payment. A key point in
developing online billing or payment systems is the transaction security. Therefore, cooperating with security solution providers to establish a safe transaction platforms, becomes important. Although game companies can secure a transaction platform by themselves, the cost of security development will be costly. In addition, diverse payments for online gaming are going to be popular in Asian countries. Players can pay online-gaming fees with their credit card, and they can also pay it with phone cards, gaming prepaid cards, or Internet prepaid cards. This implicates that game companies can have more revenue streams to gather revenue, and players have more choices to conveniently pay their bills.

### 5.4.1 Alternative Revenue Streams

Another important financial issue is the exploration of an alternative revenue stream. Most MMOG industries have the same sources of revenue streams, and this causes fierce competition between them to obtain revenue. Therefore, some companies, such as game-information sites, have begun looking for alternative revenue streams (Gaudiosi, 2003, p7). For example, the biggest game-information site, *Gamespot*, has a rich game-information database, high website traffic and various online communities. Due to the high traffic, the *Gamespot* decided to create *GameSpotTrax* that will be a paid-service product for providing advanced services for players. This action may encourage most free game-information sites to follow the *Gamespot* strategy to initiate pay services.

A recent financial issue for the MMOG industry is the transaction of virtual goods. Making real money by auctioning off characters, weapons and other objects has become popular in recent online gaming (Clark, 2003). According to the statistics from a *Yam.org* survey in Taiwan, 84% of players have experience in virtual goods trades. However, the
transaction mechanism is not mature. Although some transactions already occur, companies do not get any money from these transactions. Moreover, fraud and cheating are still problems among most virtual good transactions.
6. Survey and Analysis

It is important to research the key issues in the current business models. These defined issues will help this study to examine the influence and importance in the development of the business models. In this thesis, I will utilize the survey to explore the defined issues in current models, and analyse the results of this survey to investigate the key points for developing solutions.

6.1 Survey Outline

6.1.1 Introduction

The Internet and broadband services have become more popular than ever before. This popularization has changed the traditional PC-based gaming style toward the use of online and multiplayer-style games. The Massively Multiplayer Online Game (MMOG) has become an emerging and attractive entertainment for both game players and game industries. The genre of MMOG covers the role-playing, action, strategy, racing, shooting, intelligence and other specific categories. The diverse genres have increasingly attracted players to purchase and play the games, and the game companies can obtain better revenue from the sale of products and the extra fees for gaming. Although the MMOG market has grown during these several years, the market is still not mature and the game industries struggle to find feasible business models.
6.1.2 Purpose

The purpose of this survey is to investigate the current player’s attributes and behaviours in online gaming. The result of this questionnaire will be useful for identifying the key issues between the game industries and the consumers.

6.1.3 Recruitment Respondents

The target is the Internet users of Taiwan, including males and females. There is no age limitation. The methods used to recruit respondents included emails to players and discussions of popular game-information sites. There are two reasons for choosing Taiwan as the sample of this questionnaire. Firstly, Korea and Taiwan are already well established markets, and China and Japan are expected to be the two fastest growing countries for online games (Cole, 2004). The Chinese players have similar behaviours and attributes to the Taiwanese in playing MMOGs, because they have the same culture and language. Secondly, the MMOG market in Taiwan is similar to the models in Korea and China, including a billing and payment method and a player’s favourite game genre. Hence, choosing Taiwanese players as the sample for this questionnaire in discussing the MMOG business model can be seen as a representation of Asian countries.

6.1.4 Method

The data collection media adopts a web-based self-completion survey. According to a 2003 survey of Pioneer Marketing Research, it was found that 73 percent of research projects were currently conducting Internet survey research (Pioneer Marketing Research, 2003). The advantages of online surveys include real-time reporting, dramatically reduced costs, and simplified and enhanced panel management (McDaniel & Gates,
Hence, the research method for this survey is the use of an online questionnaire on the survey design website. **Further, this method is a particular approach for the group being studied, as the members of the group are active net users.**

The language of this questionnaire is in Chinese. The reason is to reduce language barriers and failure of the respondent to understand the question caused by the translation between English and Chinese. The type of question is forced-choice style, in order to reduce the ambiguity of each question (Brace, 2004, pp. 13-15). The questionnaire is put on the online-survey website, and the address is [http://www.my3q.com/home2/41/godbird/58850.phtml](http://www.my3q.com/home2/41/godbird/58850.phtml). Any Internet users who have interests in playing MMOGs can fill in the answers on the website. The result will be automatically collected by the web server of the online-survey provider.

### 6.1.5 Time Period Survey Conducted

The survey started from the 22nd June, and closed on the 20th August, 2004. There were 182 people who filled out this survey, and 176 of the responses were effective.

### 6.1.6 Analytical Method

The results of this survey will be compared and analysed with relevant statistics and reports in order to present the changes of attributes and behaviours in MMOGs. The analytical software used is the statistical analysis and data management system: **SPSS.**
6.1.7 Objectives

Three categories of defined issues are marketing, financial and game-play issues. Regarding the marketing issues, this survey will investigate the player demographics and preferences in online gaming, and the current distribution channel for distributing game products. This information can provide significant information for game companies to make appropriate strategies for the marketing and the product promotion. Regarding the financial issue, the key task is to investigate current revenue streams and alternative revenue streams. In the game-play issues, this survey will investigate the importance of game performance and security. In addition, researching the influence of the online communities will be significant for this survey.

6.1.8 Design

This questionnaire is divided into several parts: the section of General Question, Gaming Behaviour and Player Attribute, and awareness about Future are related to the marketing issues; the section on Purchase and Payment Behaviour is designed for the financial issues, and the section of Awareness in Game Performance and Online Community is designed for game-play issues. In order to keep players from getting tired with the questionnaire, numbers of questions have been kept low. Hence, the precision of this questionnaire can probably be increased.
Figure 8 The concept of the survey design
## 6.2 Analyses of the Survey

<table>
<thead>
<tr>
<th>Category</th>
<th>Key issue</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing</td>
<td>Customer demographics</td>
<td>Age distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experience in online gaming</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time period that the gamer has been playing MMOGs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A person’s desire toward playing MMOGs in future</td>
</tr>
<tr>
<td></td>
<td>Player’s preference</td>
<td>The favourite game genre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The reason people choose MMOG</td>
</tr>
<tr>
<td></td>
<td>Distribution channel</td>
<td>The place of game purchase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The desire to download MMOG from the Internet in the future</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The place where the gamer plays the MMOG</td>
</tr>
<tr>
<td>Financial</td>
<td>Revenue stream</td>
<td>Billing and payment method</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The rationality of online-gaming charge</td>
</tr>
<tr>
<td>Game-play</td>
<td>Game performance</td>
<td>The influence of poor performance and online cheating</td>
</tr>
<tr>
<td></td>
<td>Online community</td>
<td>The way for solving problems in gaming and the frequency of visiting online communities</td>
</tr>
</tbody>
</table>

Table 7. Outline of survey analyses
6.2.1 Analyses of Marketing Issues

6.2.1.1 Customer Demographics

1. Age distribution

The age distribution of the respondents of this questionnaire is around 20-39 (67.6%). However, the average age of Internet users in the U.S. and Japan is younger than China and Taiwan. In the former countries, teenagers and young adults are the major customers of MMOG industries; the amount of online-gaming players has increased in recent years.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Age distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo Game Show</td>
<td>Japan</td>
<td>2003</td>
<td>34% 40.6% 18%</td>
</tr>
<tr>
<td>(TGS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2002</td>
<td>34% 26% (18-35 yrs)</td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2003</td>
<td>29.7% 28.7%(18-35 yrs)</td>
</tr>
<tr>
<td>ESA</td>
<td>U.S.</td>
<td>2004</td>
<td>34% 46% (18-50 yrs)</td>
</tr>
<tr>
<td>iResearch</td>
<td>China</td>
<td>2003</td>
<td>85% 12.1%</td>
</tr>
<tr>
<td>17173.com</td>
<td>China</td>
<td>2004</td>
<td>17.1% 75.8% 5.3%</td>
</tr>
<tr>
<td>Yam.org</td>
<td>Taiwan</td>
<td>2003</td>
<td>12% 46% 28%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>27.6% 47.4% 19%</td>
</tr>
</tbody>
</table>

*Source: TGS, IDSA, ESA, iResearch, and Yam.org*

Table 8. Comparisons of the age distribution
2. Gender

Males are the major users of online gaming in Asian countries. The statistics of the U.S. survey showed the amount of male players is almost equal to the amount of female. Obviously, many U.S. females play online games, especially the simpler games.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forrester Research</td>
<td>U.S.</td>
<td>2001</td>
<td>49%</td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2002</td>
<td>62%</td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2003</td>
<td>58.1%</td>
</tr>
<tr>
<td>ESA</td>
<td>U.S.</td>
<td>2004</td>
<td>59%</td>
</tr>
<tr>
<td>TGS</td>
<td>Japan</td>
<td>2003</td>
<td>76%</td>
</tr>
<tr>
<td>17173.com</td>
<td>China</td>
<td>2004</td>
<td>83.4%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>80.2%</td>
</tr>
</tbody>
</table>

*Source: BCD Forum, IDSA, ESA, TGS, and iResearch*

Table 9. Comparisons of gender distribution

3. Experience in playing MMOGs

65.9% of the respondents of this questionnaire have experience in playing MMOGs. The number of people playing MMOGs in Asian countries is higher than the number of players in the U.S. Obviously, online gaming is popular in Asian countries. Moreover, the amount of players in online gaming has gradually increased during these five years (2000+) in most countries.
<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Experience of playing online-game</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>1999</td>
<td>18%</td>
</tr>
<tr>
<td>Forrester Research</td>
<td>U.S.</td>
<td>2001</td>
<td>25%</td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2002</td>
<td>31%</td>
</tr>
<tr>
<td>IDSA</td>
<td>U.S.</td>
<td>2003</td>
<td>37%</td>
</tr>
<tr>
<td>ESA</td>
<td>U.S.</td>
<td>2004</td>
<td>43%</td>
</tr>
<tr>
<td>TGS</td>
<td>Japan</td>
<td>2003</td>
<td>41.7%</td>
</tr>
<tr>
<td>CESA</td>
<td>Korea</td>
<td>2003</td>
<td>66.3%</td>
</tr>
<tr>
<td>Yam.org</td>
<td>Taiwan</td>
<td>2003</td>
<td>65%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>65.9%</td>
</tr>
</tbody>
</table>

Source: BCD Forum, IDSA, ESA, CESA, TGS, and Yam.org

Table 10. Comparisons of experience in playing MMOGs

4. How long the gamer has been playing MMOGs

50.86% of Taiwan players have played MMOGs for more than 2 years. Comparing this result with the Yam.org survey in 2003, the number of players having more than 2 years’ experience in playing MMOGs has increased from 21% to 50.86%. This kind of player will be a major potential customer for online gaming.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Years of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Less than 1 yr</td>
</tr>
<tr>
<td>Yam.org</td>
<td>Taiwan</td>
<td>2003</td>
<td>50%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>25.86%</td>
</tr>
</tbody>
</table>

Source: Yam.org

Table 11. Comparisons of how long the gamer has been playing MMOGs
5. A person’s desire toward playing MMOGs in the future

In Taiwan, 68.75% of the Internet users have a high desire to play other MMOGs in the future. According to the TGS 2003 Visitors Survey Report, it indicated that 55.3% of respondents have a desire toward playing MMOGs. This shows that the Asian MMOG industry has a good potential for future developments, because many Internet users have desire to play MMOGs in the future.

6.2.1.2 Player’s Preferences

1. The favourite game genre

Table 12 shows the survey results of the player’s favourite games in Taiwan.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Game name</th>
<th>Nationality</th>
<th>Need extra charge</th>
<th>Game type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ragnarok Online</td>
<td>Korea</td>
<td>Y</td>
<td>MMORPG (Adventure)</td>
</tr>
<tr>
<td>2</td>
<td>Lineage</td>
<td>Korea</td>
<td>Y</td>
<td>MMORPG (Adventure)</td>
</tr>
<tr>
<td>3</td>
<td>Counter Strike</td>
<td>U.S.</td>
<td>N</td>
<td>MMOG (Shoot)</td>
</tr>
<tr>
<td>4</td>
<td>Lineage II</td>
<td>Korea</td>
<td>Y</td>
<td>MMORPG (Adventure)</td>
</tr>
<tr>
<td>5</td>
<td>Diablo II</td>
<td>U.S.</td>
<td>N</td>
<td>MMORPG (Adventure)</td>
</tr>
<tr>
<td>5</td>
<td>Seal Online</td>
<td>Korea</td>
<td>Y</td>
<td>MMORPG (Adventure)</td>
</tr>
</tbody>
</table>

Table 12. The survey result of the player’s favourite games

The popular MMOGs in Taiwan are made by Korean game companies. This shows that the Korean game industry plays a leading role in the MMOG market in Taiwan. The favourite game type for Taiwan players is MMORPG. Most MMORPGs require an extra fee when players would like to play the game with the exception of Diablo II. Similarly, this type of MMORPG is also popular in other Asian countries according to the statistics from TGS and iResearch. Moreover, most MMORPGs are made by Korean online-game
companies. Therefore, this clearly implicates that developing MMORPG is more profitable than any other kind of game genre for the game companies.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ragnarok Online (Korea)</td>
<td>Final Fantasy XI (Japan)</td>
<td>Mu (Korea)</td>
<td>Lineage I (Korea)</td>
</tr>
<tr>
<td>2</td>
<td>Lineage (Korea)</td>
<td>Ragnarok Online (Korea)</td>
<td>The Legend of Mir 3 (Korea)</td>
<td>Lineage II (Korea)</td>
</tr>
<tr>
<td>3</td>
<td>Counter Strike (U.S.)</td>
<td>Phantasy Star Online (Japan)</td>
<td>The Legend of Mir (Korea)</td>
<td>Final Fantasy XI (Japan)</td>
</tr>
<tr>
<td>4</td>
<td>Lineage II (Korea)</td>
<td>Lineage (Korea)</td>
<td>A3 (Korea)</td>
<td>EverQuest (Japan)</td>
</tr>
<tr>
<td>5</td>
<td>Diablo II (U.S.)/Seal Online (Korea)</td>
<td>Minna-no Golf Online (Japan)</td>
<td>JX (China)</td>
<td>Ragnarok Online (Korea)</td>
</tr>
</tbody>
</table>

*Source: TGS, iResearch, and Woodcock*

Table 13. Comparisons of the favourite game genre

Comparing this questionnaire result with the survey made by Pacific Epoch Estimates, it clearly shows that most players’ favourite games are from Asian game companies. In addition, the statistics of 17173.com indicated that developing local MMOGs have gradually increased in China and Taiwan from 2003 to 2004.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Game Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>China/Taiwan</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>29.6%</td>
</tr>
<tr>
<td>Pacific Epoch &amp; CCID</td>
<td>China</td>
<td>2003</td>
<td>41%</td>
</tr>
<tr>
<td>17173.com</td>
<td>China</td>
<td>2003</td>
<td>32%</td>
</tr>
<tr>
<td>17173.com</td>
<td>China</td>
<td>2004</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

*Source: Pacific Epoch & iResearch*

Table 14 Comparisons of the game origin
2. The reason people choose MMOG

Comparing the results of this survey with statistics of 17173.com in 2003, the desire in choosing MMOGs for entertainment have different results. Most Chinese players obtain game information from game/company websites and magazine introductions; whereas, Taiwanese players obtain related information from friend’s introductions. This difference implicates that traditional promotions in China are more effective than promotions in Taiwan. On the other hand, the phenomena in Taiwan may be caused by the rapid growth of online communities and instant message applications. Discussions in online communities and applications of instant messaging software have become popular, and have formed an emerging social activity among people interaction. Therefore, game publishers should carefully consider these factors in different nations as they plan promotion campaigns.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Friend/Community Introduction</th>
<th>Game/Company Website Introduction</th>
<th>Magazine Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>17173.com</td>
<td>China</td>
<td>2003</td>
<td>16.9%</td>
<td>38.7%</td>
<td>31.1%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>65.52%</td>
<td>13.8%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

Source: iResearch (2003)

Table 15. Comparisons between the reasons that people choose the MMOG

6.2.1.3 Distribution Channel

1. The place of game purchase

The current distribution channel for MMOGs still relies on the physical channel, because most players get the MMOG from the retailers. 78.5% of players purchase the MMOG from traditional retailers such as computer stores. Only 21.5% of players go to game...
websites to make an online order for purchasing the MMOG. This is because there are still security problems in Taiwan with credit card transactions. Players worry about the safety of the transaction on the Internet. As a result, online ordering is not popular in Taiwan. However, more players choose the online purchases and download the MMOG to their computers. This may imply it is a potential for players to purchase and download games in the future.

2. The desire to download MMOG from the Internet in the future
According to the results of this survey, 68.2% of players have a strong will to purchase and download MMOGs from the Internet, if the bandwidth is enough to complete the download in a short time. This may imply that if the bandwidth increases in the future, the distribution channel may be able to be transferred to the virtual channel with the Internet.

Hence, the broadband penetration will play an important role in the future distribution concern, because the sufficient bandwidth may change the traditional distribution channel to the virtual distribution channel.

3. The place where the gamer plays the MMOG
The result of this survey shows that most players play MMOGs at home. This means that personal computers and broadband access have become popular in China, Japan and Taiwan. However, the penetration of the network café in Japan and Taiwan is low, because these countries have a high broadband penetration in the household usage. In addition, the broadband penetration has increased recently in China. Increasingly, players enjoy online gaming at either home or network cafes.
<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Playing At Home</th>
<th>Playing At Network Café</th>
</tr>
</thead>
<tbody>
<tr>
<td>iResearch</td>
<td>China</td>
<td>2003</td>
<td>50.7%</td>
<td>17.3%</td>
</tr>
<tr>
<td>iResearch</td>
<td>China</td>
<td>2004</td>
<td>55.2%</td>
<td>28.98%</td>
</tr>
<tr>
<td>TGS</td>
<td>Japan</td>
<td>2003</td>
<td>77.2%</td>
<td>7.1%</td>
</tr>
<tr>
<td>Yam.org</td>
<td>Taiwan</td>
<td>2003</td>
<td>84%</td>
<td>8%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>90.5%</td>
<td>6.9%</td>
</tr>
</tbody>
</table>

Source: TGS, iResearch, and Yam.org

Table 16. Comparisons between the gamers’ MMOG-play place

### 6.2.2 Analyses for Financial Issues

#### 6.2.2.1 Billing and Payment Method

Most MMOGs need to pay an extra fee to obtain access for online gaming (70.7%), and the major billing method is prepaid monthly for unlimited usage (67%). Comparing this result with the survey of iResearch in 2003 and 2004, the demand for the monthly prepaid scenario has gradually increased, and the scenario of usage rate based on time units has decreased. Therefore, the monthly prepaid scenario could be a major billing method for game publishers in the future.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Prepaid Monthly Or Unlimited Usage</th>
<th>Usage Rate Based On Time Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>iResearch</td>
<td>China</td>
<td>2003</td>
<td>44.4%</td>
<td>38.8%</td>
</tr>
<tr>
<td>iResearch</td>
<td>China</td>
<td>2004</td>
<td>56.35%</td>
<td>23.36%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>67%</td>
<td>26.8%</td>
</tr>
</tbody>
</table>

Source: iResearch

Table 17. Comparisons of billing methods
The major payment method is to purchase a prepaid card with cash (71.95%). Using a credit card for purchasing in Taiwan is not popular, because customers worry about the transaction safety. An emerging payment method for players is to pay the extra fee with other services such as monthly billing with the mobile phone operator. This survey result presented 19.5% of players choosing this scenario as the payment method. In Korea, 25.4% of players pay a monthly fee for online gaming with the mobile phone bill (iResearch, 2003c, p4). Therefore, this trend could have potential developments in the future.

6.2.2.2 The Rationality for the Online-Gaming Charge

Although most players have high desires to play or try another MMOG, 46% of players think the extra fee for playing MMOG is not reasonable. In contrast to U.S. players, just 26% of American players disagreed with the rationality for a fee charge. The Asian game companies should reconsider the fee and make an appropriate price for customers.

<table>
<thead>
<tr>
<th>Source</th>
<th>Nationality</th>
<th>Year</th>
<th>Thinking the extra fee is unreasonable</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCLA</td>
<td>U.S.</td>
<td>2001</td>
<td>31%</td>
</tr>
<tr>
<td>UCLA</td>
<td>U.S.</td>
<td>2002</td>
<td>26%</td>
</tr>
<tr>
<td>My research</td>
<td>Taiwan</td>
<td>2004</td>
<td>53.4%</td>
</tr>
</tbody>
</table>

*Source: Portal Software*

Table 18. Comparisons between the players’ regards about the rationality for the online-gaming charge
6.2.3 Analyses for Game-Play Issues

6.2.3.1 Game Performance and Security: the Effect of Poor Performance and Online Cheating

The survey result shows that 90.2% of players object to the poor game-performance, and 82.9% of players agree that online cheating will influence their desire to play MMOGs. This characteristic of players is similar to China’s. According to the 4th Online Game Report of iResearch, the major reasons resulting in players giving up were online cheating and security problems (2004d, p28). Obviously, bad game performance and online cheating greatly influence the player’s desire for online gaming.

6.2.3.2 Online Community

The major way to solve gaming problems is to ask for help from friends or online communities. Only 19.5% of players would directly ask for help from the help desk. This implies that the online communities play an important role as a communication channel for players and game companies. If the game companies develop good communities, it is likely that this will help the companies solve the players’ problems and thus improve their service quality and reputation. Moreover, effective communities can provide the opportunities for players to easily make friends with each other and have fun together in the MMOG world. The new network of player relationships will help game companies to distribute products more efficiently, because of the introduction of these players to their friends. In addition, 75.6% of players frequently visit online communities. This shows that all game companies should be aware of the importance of online communities.
6.3 Conclusions of the Survey Results

6.3.1 Marketing Issues

6.3.1.1 The Customer Demographics & Preferences

Male teenagers are the major part of the population playing MMOGs, and many players have more than two years’ experience in playing MMOGs. These people can be seen as hard-core players that could provide a constant revenue stream to game industries. Based on the results of this survey, the most favourite and profitable game genre for players is the Massively Multiplayer Online Role-Playing Game (MMORPG); this game was made by Korean or Japanese game companies. Therefore, developing MMORPGs as major products could create substantial revenue for MMOG industries. Moreover, it is important to study Korean and Japanese online-game cases to improve the game developments of local industries.

6.3.1.2 Distribution Concerns

The current channel for the distribution of MMOG products relies on physical distribution channels with traditional intermediaries. Broadband services are now popular in Taiwan, and most players can play MMOGs at home. High broadband penetration boosts the market for online gaming and the desire for online downloading is increasing. However, few players purchase and download the game from the Internet because of the insufficient bandwidth. Therefore, online downloading is a future trend, but it should be carefully considered in future years if the bandwidth is still insufficient. Once the bandwidth meets the customer’s downloading demands, it can be predicted that the traditional distribution channel will move to virtual channels, which distribute products via the Internet. This is because the Internet can effectively reduce distribution costs, and distribute products more efficiently.
6.3.1.3 Considerations of Promotion Channels

The results of this survey show that the major sources of obtaining game information are from introductions by friends, or game-information sites. However, players of different countries have different ways of obtaining game information. For example, most Taiwanese players choose the MMOG for entertainment, because of its introduction by friends. Chinese players prefer to obtain relevant information from introductions by game websites. Hence, it is important for game companies to consider executing promotions in appropriate channels in different countries.

Considering promotions in online-communities is practical, because many players visit online communities frequently. Online communities become important because most players can easily make friends in the communities. The gathering of a number of players in communities creates opportunities for game-product promotions. Moreover, most online communities integrate or cooperate with companies’ or game-information websites. The high frequency of visiting online communities can bring more network traffic to increase visiting rates to these websites in order to create potential opportunities for virtual promotions. Hence, developing online communities as a promotion channel and as a means to obtaining game information would suit Chinese and Taiwanese demand.

6.3.2 Game-Play Issues

6.3.2.1 Game Performance & Security

The result of this survey shows that most players care about game performances and online cheating, because poor performance and online cheating will ruin games and result in companies losing customers. Hence, developing solutions to improve game
performance and reduce online cheating is crucial for game companies to retain customers for online gaming.

**6.3.2.2 Online community**

75.6% of respondents of this survey have a high frequency of visiting online communities; making discussions and seeking solutions for gaming problems is popular in these communities. Game companies should pay more attention to the development of online communities, so they can have more understanding about players’ game-play problems, gaming behaviours and players’ demands for game performances. The information from communities can benefit companies to improve their product and enhance their services, and to create a good brand loyalty. Hence, online communities can provide opportunities to promote their products, and bring potential customers for online gaming.

**6.3.3 Financial Issues**

**6.3.3.1 Consumption Behaviours for Online Gaming**

Most MMOG operators charge players for online gaming; this model is especially popular among MMORPGs. The results of this survey indicate that players prefer to pay the fee for online gaming with prepaid cards which are usually purchased from retailers. Moreover, the popular billing method for players is monthly prepaid for unlimited usage. This is because the demand for online gaming has greatly increased. According to the 4th online-game report of iResearch, 58.33% of players spend 1~6 hours per day on online gaming. Therefore, the pay-to-play or time-based scenario cannot meet this demand for long-time online gaming.
6.3.3.2 Consideration in Online-Gaming Charges

53.41% of respondents of this survey think the charge for online gaming is not reasonable. Comparing the U.S. survey with the result of this survey shows that half of Taiwanese players disagreed with the rationality of the fee charge (53.4% vs. 26%). The reasons for this may be the difference in the cultural value of consumption, or the distinction of the national income (NI) between Asian countries and the U.S. Therefore, designing an acceptable charge for online gaming is important, because businesses create value for their customers by providing quality goods and services at acceptable prices (Kleindl, 2003, p11).

6.3.3.3 Transaction Safety and Platforms

The online payment system can assist companies in gathering revenue more efficiently, and customers can obtain greater payment convenience because of diverse payment choices. However, the results of this survey found that the use of credit cards in Taiwan is not popular because of uncertainty related to transaction safety. In addition, some respondents pay their bills for online gaming via the third party companies, such as mobile phone operators. Hence, developing safe transaction platforms are crucial and urgent.
7. Solutions for Key Issues

7.1 Recommendations for Marketing Issues

7.1.1 The Game Style

A key point in the MMORPG development is the game style (or game taste). The Eastern and Western game styles are quite different. Eastern games are favoured by Eastern players, but these games may not be popular in Western countries because of different game tastes. As a result, Eastern games have difficulty in entering Western markets. The IDSA report presented that no Eastern games were listed in the top 20 selling computer games of 2003 by units sold (2004, p5). Moreover, U.S. players prefer to play Puzzle, Board and other simple games; MMORPGs are not popular in comparison with Asian markets (2004, p8). Hence, game developers should carefully consider the game style design to meet player tastes in different countries.

However, the Korean NCSoft game product, City of Heroes, has become one of the most successful online games in the U.S., while competitor Electronic Arts is struggling to create a multiplayer hit (Yang, Ihlwan, Tashiro, 2004). This successful case means that NCsoft has made an effective improvement to overcome barriers of different game tastes, and has successfully entered the Western market in comparison with the success of the Lineage in the Eastern market. The strategy of NCSoft is to merge Cryptic studios, which is a U.S. independent developer of MMORPG, and the studio design western-style game City of Heroes. This game has topped the charts for three months and garnered over 180,000 subscribers (Eddy, 2004).
7.1.2 Cybermediaries in the Distribution Channel

As mentioned before, the broadband and the Internet are key factors in promoting change with the existing distribution system (pp. 51-52). According to the results of this survey, 68.2% of players have a high will to purchase and download MMOGs from the Internet, if the bandwidth is enough for finishing the download in a short time (pp. 69-70). Therefore, once the broadband service becomes more popular and the bandwidth meets the requirement of online downloading, the role of intermediaries will shift to be cybermediaries, which can be seen as online intermediaries. In this transition stage, some online-shopping websites provide functions of the online-order, and physically deliver the product by parcel post. However, this model has geographic limitations, being that products only can be delivered in domestic areas by local distributors. The Internet technologies can overcome these physical limitations. As the bandwidth is sufficient for large-size game downloading, products can be distributed by cybermediaries on Internet channels. The product can be widely distributed, and distribution costs will be reduced. According to the result of this survey, 65% of players have a high desire to purchase and download MMOGs from the Internet. Hence, distributing products with virtual channels will be the new distribution models in the future.

7.1.3 Promotion

Promotional campaigns are designed to reach special goals. A well-designed promotion can grab the customer’s attention, and it brings profits to the company. For MMOG industries, the major goals are to attract more customers for online gaming, and obtain sustained revenue from players. The results of this survey showed players of different countries have different ways of obtaining game information. This means that game companies need to consider executing promotions in appropriate channels in different
countries (p75). Therefore, the key point is how to make the promotion work effectively and efficiently. The following section will utilize the concept of the AIDA model to improve current promotion campaigns.

7.1.3.1 The AIDA Model

The AIDA model consists of four elements: Attention, Interest, Desire and Action. First the attention of the target audience must be gained, then interest created in the product or service, desire generated, and finally some action taken by the targeted audience (Vakratsas & Ambler, 1999). In these elements, Attention is in the leading position, because it is the most crucial in the AIDA model. In this section, I just focus on discussions of Attention.

The traditional way to attract a customer’s attention is the use of the traditional media, such as the television advertising. According to results of this research survey, 15.5% of players choose MMOGs because of game introductions in magazines. It seems that the traditional way of promotion is not effective and needs to be improved. The new promotion channel includes the use of hypermedia, such as online advertising. However, this survey presents that only 13.8% of players choose the MMOG for entertainment, because of the introduction from game-information and company websites. Therefore, the strategy to improve its promotion is to combine traditional mass media and hypermedia. Incorporating hypermedia into promotional campaigns has been found to enhance the visibility of firms, create new business opportunities, offer cost and time saving, and allow businesses to reach new customers (Kleindl, 2003, p193).
The first step is to make the audience aware of the website with offline media, such as game introductions in magazines, or radio and television. Moreover, companies are able to employ search engines to allow the website to be found in searches, and make online advertising create brand attention.

Online advertising is a controversial issue because of the bubble phenomenon of the Internet ad boom. A study by the IAB indicated that banner ads were effective in creating awareness of products and in communicating information about them, but had a smaller impact on intent to purchase (Kleindl, 2003, p206). The low click rates obviously showed the inefficiency of banner ads. Kleindl claims that interstitials, including pop-up and pop-behind ads, are much more effective in delivering rich media content than banner advertising. However, spam and pop-up ads are not welcome by Internet users, including online-gaming players. Increasingly, free search-engine toolbars are released to push Internet users to use their search engines, and include functions to block pop-up ads. New e-mail applications also have abilities to block spam. As a result, the practicability of online advertising is reduced. An alternative promotion manner is bundling online-game packages with broadband services. The demand for broadband services will greatly increase in coming years, and this trend will create potential opportunities for MMOG industries to integrate promotion campaigns into broadband services. This solution may grab more players’ attention with advertisement within broadband promotions.

Recently, the developments of online communities have become more important, because players pay more attention on the discussions to online communities. The results of this survey have shown that developing online communities as a promotion channel is practicable, because it can cover the strengths of diverse ways of obtaining game
information to meet the demand of players of different countries (p75). The use of online advertising as a way of promotion is going to shift to online communities.

7.2 The Online Community

The desire to communicate in groups is fundamental to human nature. Nowadays, this communication behaviour is reflected in the online environment. In the MMOG world, online communities provide environments for players to communicate and share ideas with each other. An interesting finding is that members of the community generate content for the site, influence its growth and determine its evolution (Marathe, 2002, pp. 1-2). Therefore, the attention of players greatly influences the development of online communities. In regard to solutions for key issues and business developments, online communities have played a significant role in the MMOG market. MMOG industries have started to pay attention to developments in online communities. Sony Computer Entertainment has launched a PlayStation game, This Is Football, and attempted to build an online community of fans for its launch of the Web-based version of the game. Tom Sarris, PR director at LucasArts, and Tina Vennegaard, SVP at Golin/Harris, said they are spending much more time now speaking directly to consumers through Web-based communities. This is because a lot of players take online communities seriously, and it is a way for fans to feel part of the company (PBI Media, LLC, 2003). This clearly shows the importance of online communities in MMOG industries.

7.2.1 Online Communities on Marketing Issues

Online communities have become places full of social interactions. According to the results of this survey, 75.6% of players have frequently visit online communities (p69), and 64% of players choose the MMOG for entertainment because of the introduction by
friends (p73). A lot of players spend time being a part of discussions in communities. They share ideas and seek solutions from discussions. The high traffic has attracted game industries to make online communities as a potential marketing tool. In 1999, Sega.com was introduced to ShopTok, which was a promotional Web site for the launch of Sega's gaming console, Dreamcast. Sega analysed chat sessions, and created links to link relevant recommendations and information. In addition, the Web developers took all the criticism and made changes to the site according to their advice. Within two months, the site generated a previously unattained level of brand loyalty, with gamers creating 50,000 clubs (chat rooms) with links to their own Web sites. ShopTok boosted brand loyalty by attaching discount coupons to the chat sessions that gamers were able to pass on to friends (Torode, 2000, pp. 67-68). Therefore, discussions in communities have a great impact on the company reputation and brand loyalty. A good reputation will consolidate a game and increase its lifetime (Shin & Hosoi, 2003). A good example is the series of *Final Fantasy*, a famous game product of Japan *SQUARE*. This series has a high reputation in game markets and communities, and has consolidated the brand loyalty for at least ten years.

In addition to reputation and brand loyalty, MMOG industries usually issue expansion packs and special editions to retain a presence of the game in the market. Players can obtain the relevant introduction from mass media or a company's websites, but more useful information is from the discussions in online communities. The players can read other players’ opinions about the product and join the discussions; then they can consider the product value and make a decision to purchase it or not. Therefore, the online communities become a potential promotion tool, and MMOG industries can diffuse product information more effectively and efficiently.
7.2.2 Online Communities on Game-Play Issues

The quality of a game’s performance relies on computer technologies. Importantly, the responses from players are vital for developers to monitor the game performance and fix the bug in online gaming. According to the results of this survey, 32% of players will seek solutions for gaming problems from communities, and 33% of players will ask for solutions from friends who may join discussions in online communities.

Hence, the communication channel plays a significant role between the developer and players. The most popular and effective communication channel is the online community. The notion of combining online communities with content is best reflected in the new and fast-growing segment of online gaming, MMOGs. Players can not only identify the bugs of online gaming to the developers via the online community, but also have a discussion about gaming skills or their expectations with gaming. The developer also can join the online community to examine the players’ expectations, and help the player to solve the problems in gaming. The discussions of online communities are significant for developers to design and improve games. For instance, Blizzard has a great reputation in offline games. The *World of Warcraft* is Blizzard's first attempt at a massively multiplayer online game, and this game world has a complex and tremendous design structure. In order to take advantages of the MMOG market and make the imaginary land look like a thriving medieval metropolis, Blizzard needed thousands of testers to test the game: people who would try out the new game before it went on sale. Based on comments from users, programmers can fix character flaws, add new quests and ensure everything is in good working order. This campaign attracted 400,000 applicants, and Blizzard must whittle these applicants down to 10,000 beta testers with a variety of computer systems, processors, graphics cards and online access, as well as players from different regions.
(Chuang, 2004, p1). Moreover, a number of applicants attracted by the Blizzard campaign were able to bring a great potential for advertising, and benefit the company by improving the brand loyalty.

The emerging volunteer model has been noticed by other non-MMOG game industries. Youth Net UK created an online game with the volunteer model and attracted young people to join volunteer campaigns to increase visitors to its website. The game led more than 168,000 unique users to the volunteer site in May, representing an almost tenfold improvement on previous monthly figures of 17,000 (Wood, 2004, p11).

In addition, social relationships are important to players in MMOGs. Players can make friends to have fun, and they also can collaborate or compete with these friends in gaming. This has successfully attracted a great deal of attention from young adults. Therefore, the value of online communities to business firms has increasingly received attention in recent years. Online communities are able to be information intermediaries to enable advertising messages, transaction information, product information, user demand information and users’ attitudes and beliefs to be communicated between players and developers (Liu, Geng, & Whinston, 2004, pp. 2-4).

Once developed as an online community, online-game companies benefit for a long term. The strength of the community will greatly influence a game’s lifetime. Moreover, the preference for status, or status-seeking, is particularly strong in online communities (Liu, Geng, & Whinston, 2004, p4). The status-seeking will extend the time that players stay in the online-game world, and encourage game players to join the discussions and share their experience in online communities. This activity will benefit both players and game
companies. As a result, the game lifetime can be extended and the game designers also can get the ideas or suggestions from the online communities.

### 7.2.3 Online Communities on Financial Issues

A noticeable trend in online communities is the transactions of virtual goods. In MMORPG worlds, players can obtain unique, rare, or expensive equipment from killing monsters, or completing some special events. Usually, the equipment can be traded with the virtual currency defined in the MMOPRG world, but many players make virtual goods transactions via the bulletin board of online communities in order to gain real money. This phenomenon has become hotter, and provides opportunities of new revenue streams for MMOG industries. An Internet-based centralized trading place facilitates the buyer’s and seller’s meeting, listing items for sale, exchanging information, interacting with each other and, ultimately, consummating transactions (Friesen, 2004, pp. 21-26).

For instance, a complex ecosystem has evolved around *The Sims*, with fans creating their own characters, or cool objects and giving these away online. Even some players put these virtual goods on auction sites such as eBay. In addition, online communities that have built up around games have given many children the chance for types of social interaction they do not normally get (Financial Times, 2004, p11).

### 7.2.4 Strategies to Maintain Online Communities

Creating value for customers is important for most industries. Players enjoy the online community because they can obtain value from the community. The value could be created by MMOG companies, but usually the value is generated by members of the community. Therefore, companies can gain experience from online communities, and the communities are also conducive to the company business.
Building a successful community is crucial and can bring benefits for MMOG industries. There are several key points for building online communities: Define the purpose and meet customer needs, Change happens, and Bring people together by events (Kim, 2000).

7.2.4.1 Defines the purpose and meet customer needs
Communities arise for different reasons. Regardless of how the community starts, it is vital to define the purpose of the community, find out the customer needs and meet the demand. For MMOG industries, the purpose of building communities is not only to provide a place for players’ communication and interaction, but also manage the community as an extension of the help desk. According to the result of this survey about gaming problems, only 17% of players will ask for solutions at the help desk of the company. A significant finding is that 34% of players will ask for help from their friends, and 32% of players will seek solutions from online communities. Therefore, MMOG companies should pay more attention to online communities, and provide supports to solve players’ gaming problems.

7.2.4.2 Change Happens
Players’ expectations usually develop before the launch of the game, and their needs result from the game play. These demands are not easy to master, but it is an essential task to meet players’ demands in MMOG industries. There are a number of players’ needs resulting from game-play issues, such as gaming balance, bugs, the security and the game performance. MMOG companies should carefully evaluate these needs and make appropriate responses and patches for fixing problems. Hence, a successful MMOG community needs to evolve to keep pace with the changing needs of its members.
Inappropriate feedback will cause a bad reputation for the company, and reduce the player’s desire to join the community.

7.2.4.3 Bring People Together by Events

Every long-lasting community is brought together by regular events: family dinners, weekly card games, monthly club meetings and annual celebrations. These regular gatherings help to cultivate communities by bringing people together and helping them stay in touch (Kim, 2000, pp. 233-234). These activities are physical, and could be events for online communities to bring people together. However, Samantha Ryan, president of Monolith Productions, stated that web communities are especially good at adding longevity to a title, but they work best when publishers actively support them with valuable assets (PR News, 2003, p1). These valuable assets are some special events; even these events usually happen in the virtual world. The Sim Online event took place at a New Year’s Eve in the preceding daylight hours. This event attracted a lot of players to join this event on the virtual world. The Sims Online recorded half a million virtual kisses - a process that requires two characters to agree - at 5,000 online parties (Clark, 2003).

Furthermore, events are good for building players’ relationships and improving their friendships. For instance, hundreds of players joined a Quake tournament that took place at Mplayer.com. They competed fiercely against each other to promote personal rank in the winner pages. They also cheered on their clan mates, and bragged about their achievements (Kim, 2000, p237). This activity was welcome to players, and benefited both the community and the game company. Hence, developing events can reinforce the value of the online community, and extend the game lifetime in the market.
7.3 Solutions for Game Performance

The result of this survey shows that most players care about game performances and online cheating, so it is important for game companies to develop solutions to improve game performance and reduce online cheating (p75). There are several methods to maintain game performance. The common way is to monitor the game performance, and release patches to fix the bugs that happen in gaming. In this thesis, I recommend other solutions to improve game performance: network traffic improvements and technical infrastructure improvements.

7.3.1 Network Traffic Improvements

7.3.1.1 Load Management

The load management for servers is critical. An effective load management capacity can ensure the hardware and port connections efficiently serve the players. This can significantly reduce the cost in server maintenance, and create sustained revenue for MMOG companies. Generally, MMOG operators employ professional network managers to control and manage network traffic load. Another strategy to reduce the server overloads is to limit the distribution of retail units. This can comfortably scale servers and support infrastructures to support players. This is a trend that others are likely to follow (IGDA, 2003, p29).

7.3.1.2 IP Networking Improvements

The most important network attribute for the premium online-gaming experience is consistent and controlled low latency across the network. Serious network congestion will greatly reduce game performance and a player’s desire for gaming. To avoid congestion, which results in high latency and packet loss, sufficient bandwidth and
appropriate management for IP networking are required (Hong & Passione, 2002, pp. 5-7). *K2 Network*, a leading MMOG provider for broadband ISPs delivering and managing online game systems in North America, has provided a solution to improve IP networking. *K2 Network* acts as an intermediary to transfer and manage IP communications among game servers and the player’s PCs. The advantage of this partner model is that the *K2 Network* has more abilities to handle IP networking with professional facilities than game developers and broadband operators. Moreover, broadband service providers can get an additional revenue source, and substantially lower network cost and latency. In addition, every partner involved in this chain could share revenue, and has more effective marketing and promotion (Hong, 2002, p16). Figure 9 shows the structure of the *K2 Network* solution.

![Diagram of K2 Network solution](Source: Hong, 2002, p16)

Figure 9. The structure of the K2 Network solution

### 7.3.2 Technical Infrastructure Improvements

There is no doubt that a high level of server capabilities is required to handle gaming information communication. Currently, many game operators have adopted computing
clusters based on a Linux system which can provide the necessary scalability and price performance to support most MMOGs. Nowadays, a new technology, Grid computing, has great potential to provide a cost-effective, scalable, high performance and reliable infrastructure, more so than the traditional computing environment. Butterfly.net, a Grid solution provider, offers the software infrastructure for MMOGs that connect PCs, consoles and mobile devices. The Grid technology has a good capacity to dynamically scale support to an unlimited number of players within the same game, while managing multiple games across the same resource base. MMOG operators need a number of game servers to handle the process of gaming information. If a server goes offline, the grid’s self-healing properties seamlessly route game play to the nearest available server, as in distributed data processing. Based on the Grid architecture, Butterfly.net has architected a distributed, multicast-mesh system over UDP. This can provide load-balanced and distributed computing globally, and maintain a competitive cost structure for game companies. The components of game servers in a Butterfly Grid Mesh system communicate over three types of connections for efficiency, reliability and performance. Once fully deployed with the Butterfly Grid system, the architecture can support over one million simultaneous players without compromising performance (Intel, 2003, pp. 3-4). Moreover, the Grid technology can be applied to game developers and broadband service providers. The usage-based cost structure increases return on investment (ROI) for game developers, and allows pricing flexibility for mass-market adoption, faster time-to-market and quicker volume delivery. For service providers, the Butterfly.net service providers reduce traffic to the Internet backbone, and enhance the service quality and gamer’s experience.
In addition, another company that provides solutions for technical improvements is Zona Inc. The company teams up with its partners and customers to develop and quickly integrate scalable, secure, reliable, multi-platform and low-cost custom solutions. The diverse network solutions provide more resources for developers on game design and enhance player gaming experience. These solutions include MMOG product launch and maintenance, game security, billing, game master support, call centre, server hardware and developer support. Therefore, the game developer can choose these services for its demand, and spend less time and money on server and infrastructure issues.

7.4 Solutions for Online Cheating

There are several security mechanisms applied in online games, such as encryption and authentication. Nonetheless, they do not solve all online cheating problems, because there are no flawless solutions that prevent all cheating. Therefore, a systematic approach is needed to mitigate online cheating. Pure technical mechanisms cannot provide a complete solution; management and policy means are also needed (Yan & Choi, 2002, p130). In this section, several approaches will be discussed.

7.4.1 Built-in cheating detections

Monitoring player behaviours by experienced game developers to police their game environment is expensive. A designed built-in cheating-detection program will provide a cheap alternative, and more efficiently prevent cheating behaviours by monitoring game variables. Yan and Choi argue that “in case game providers cannot guarantee good security for game client software, the built-in detection should be implemented in a game server, which is typically installed in a protected environment where it is difficult for cheaters to tamper the software” (2002, p130).
One method of online cheating is to modify the client software. The technique of cheating detection to prevent the modification demands the installation of software that has the right to scan client machines in an attempt to find known cheats or altered CRC for game files (Mørch, 2003, p12). However, this is controversial because of invading players’ privacy. For example, the cheating-detection software will scan and look for files on the player’s computer, whether the files are related to the game or not. Sony attempted this approach with the popular MMOG, *EverQuest*, but resulted in a lot of negative response from the player community (Borland, 2000).

Another cheating-detection mechanism is to run a full copy of the game simulation on all clients and to send out a request as a status check to find cheaters with conflicting CRC (Pritchard, 2000). The findings will be useful for game designers to program built-in cheating-detection mechanisms in order to prevent the conflicting CRC caused by cheating.

### 7.4.2 The Encryption of Sensitive Game Data

It is easy for cheaters to find the text-format game data from the client or the server. An approach is to encrypt the sensitive game data with the encryption algorithm. The *Advanced Encryption Algorithm* is a popular encryption scheme, but it needs a number of CPU resource consuming. Using *XOR* into a new patch for the game is another solution. XOR is known as the exclusive OR operator. It is a *Boolean* operator that returns a value of *TRUE*, only if just one of its operands is *TRUE*. It can be effective in reducing cheating because it makes a cheater’s life more difficult (Mørch, 2003, p14).
7.4.3 Game Players and Security Awareness

Using techniques can stop cheating, but more importantly, game providers need to educate and create awareness about security, such as potential security threats and solutions for security problem solving. For example, most MMOGs require a unique ID to access the game servers for online gaming. If the ID is stolen, the player will lose the authority to access game servers. Therefore, game companies should establish and maintain an active complaint-response channel, such as help desks and online communities. The player should report his situation via the complaint-response channel, and the game provider can help customers to solve this security problem in the short term. They also will find the possible cheats causing the security problems, and make a solution to stop this kind of cheating.

7.4.4 The Good Password Practice and Management

Using passwords to protect customer accounts or restrict access to servers is common. It is believed that the secure password is difficult to remember, and easy to remember passwords are insecure. But a recent experiment showed that passwords based on mnemonic phrases can be easily remembered and provide good security (Yan et al., 2000).

There are some security mechanisms to secure the player’s accounts. The first one is to limit the password input. If a person cannot input the correct password after three attempts, the server will disconnect the person in order to prevent potential cheaters. Another approach is to integrate a proactive password checker into the game or servers. The password checker might deny an easy-guessed password or one found in a dictionary. In addition, MMOG companies should educate players and guide them when choosing a
password, like Blizzard has done on the web page: *Battle.net Account Password Security*. There are some rules for password security such as: never transmit passwords in plain text, or never respond to any password request unless logging onto a trusted machine.

### 7.4.5 The Bug Patching Approach

Yan and Choi claimed, “No developer can fix all bugs before a software release. The traditional bug patching approach in security still works here” (2002, p131). Indeed, the release of the bug patch not only prevents the use of cheating software, but also fixes the errors in gaming. Generally, the bug patching approach is common for game developers to fix gaming problems on time.

### 7.4.6 Logging and Audit Trail

Logging and audit trails are necessary to find certain cheats, in particular, evidence of new cheats. A good example is a scoring cheat. Some competition MMOGs, like *GunBound*, will present the final result after the competition is finished. A scoring cheat happens to the score of the result being tampered with. The cheats can modify the rank result. They can earn a higher score or more points. This behaviour will result in players’ complaints. The MMOG operators should examine players’ responses to the score cheating to come up with solutions and record the cheating behaviour in a database. Moreover, logging each game as a session record can help guarantee fairness for honest players. This can reduce the number of cheats who ruin the company’s reputation.
7.4.7 Post-Detection Mechanisms

Appropriate post-detection mechanisms are needed when cheating is detected and cheats identified (Yan & Choi, 2002, p131). Game operators can take disciplinary measures against cheats, such as disabling their account or reducing the credit points of the game. In the meantime, the game operators should have the ability to restore or recover the damage caused by cheats, and to prevent the cheating from occurring again.

7.5 Solutions for Financial Issues

The downturn in the advertising sector has forced online businesses to explore new business models and revenue streams (pp. 46-47). The results of this survey has shown that players prefer to pay the fee for online gaming with prepaid cards, and the demand for online gaming has greatly increased. Diverse billing methods provide convenience for players, but 53.41% of respondents still think the charge for online gaming is not reasonable. Moreover, online transactions are going to be popular, but the lack of safe transaction platforms may cause frauds which will result in a bad reputation for game companies (pp. 76-77). Furthermore, investigating alternative revenue streams are crucial, because this can help companies to avoid fierce competition and increase their revenue stability (pp. 56-57). Therefore, it is important for game companies to find solutions for these financial issues. In this section, several practicable solutions are discussed: pricing strategies, virtual goods transactions, payment and billing methods and possible revenue streams from secondary markets.
7.5.1 Pricing Strategies

Due to the convenience of online shopping, customers can get the product information from the Internet almost anywhere, and compare prices provided by different businesses at any time. As a result, businesses have to bid against each other, lowering the price. Two broad pricing strategies are used to set the prices: skimming and penetration. Skimming pricing sets high initial prices to skim off payment from individuals. Penetration pricing sets lower prices in an attempt to capture the market share for a product (Kleindl, 2003, p157).

The penetration pricing strategy is popularly adopted in MMOG markets, because the small payment is more attractive and acceptable. For example, the premium service of the simple game website, Pogo.com, charges subscribers $US4.99 a month to obtain premium benefits such as no intermissions or pop-up ads. However, the famous MMORPG, EverQuest, charges subscribers $US12.95 per month for gaming access. Therefore, the challenges are how to get consumers to pay for online gaming, and how much to charge MMOG operator players for online gaming. According to the 4th online game research report by iResearch, 63.6% of survey respondents agreed that a reasonable price for online gaming charge is below $US10 per month (2004d, p16).

In addition, according to the online content report, the characteristics of the leading paid-for online content sites lead one to believe that consumers are willing to pay for online content if it is unique, if the consumer has a passionate personal interest. This enables customers to build and maintain personal relationships within communities of like-interest. Hence, developing online communities can meet these demands, and add
significant community elements to a site that can go a long way in creating the right environment for long-term revenue growth (2002, p8).

### 7.5.2 Virtual Goods Transactions

Obtaining revenue from virtual goods transactions could be the alternative revenue stream for game publishers. The virtual goods transaction could happen in the virtual or real world. The type of most transactions is customer-to-customer (C2C), and there are no standards or rules to restrict transaction. In the virtual world, players can only make a transaction with the use of virtual goods or the currency defined by the MMOG. In the real world, players can spend real money to purchase virtual goods, the virtual currency and even characters or avatars. However, this ‘free-trade’ model without any limitations has caused frauds, cheats and disputes. Hence, it is crucial for MMOG operators to build a transaction mechanism and platform for the trade between virtual goods and real money. Once the mechanism is mature, the transaction of virtual goods can be one efficient revenue stream for MMOG industries, because they can reasonably charge players for transaction service fees.

The key point in the transaction mechanism is to control exchange rates and prices for goods and services. Exchange rates and prices should depend on the supply and demand of virtual goods, and fees charged should depend on the services that MMOG operators provide. But more importantly, the secure platform is strongly required to provide a fair place for transactions. Players can put their virtual goods information on bulletin boards of online communities, but it is not secure. Players also can sell their virtual goods on auction sites such as eBay, but the auction sites cannot guarantee the delivery of the good. Some websites, which are designed for virtual good transactions, were launched around
2003 and 2004, such as iTem.com, 51item.cn, and Taoabo.com. However, brand attention is not obviously in the MMOG market, and players might worry about the transaction safety. Therefore, MMOG operators have a great opportunity to build the transaction platform.

There are several reasons to support this claim. Firstly, the MMOG operator is more familiar with the supply and demand of virtual goods. It can provide creditable exchange rates of the virtual goods for players. Moreover, the online transaction activity enables buyers and sellers to determine a market price together. This strategy has shifted power from a business to the customer. Secondly, MMOG operators have possibilities to create B2C opportunities. The operators can create valuable virtual products to create incentive for transactions and bring in potential revenue.

There is a successful case in South Korea. Some 3.6 million Koreans regularly buy digital accessories for their avatars, little cartoon icons for the real person in the world of instant messaging and gaming. The avatar market has blossomed into a big business in South Korea (Fong, 2004, p4). Increasingly, players desire to transfer characters to different game servers, or accounts while maintaining the character’s items and coins. Most MMORPG operators have not allowed this activity, and have made policies in order to maintain game balance, prevent fraudulent activity, and to eliminate the heavy burden and cost it would put on the Customer Service Department. But the SOE MMORPG, EverQuest, has implemented a value-added service and has enacted a new policy to meet these requests to transfer characters with items. They offer several services, and require a fee that can be billed to a player’s credit card.
A crucial issue is how to make transactions secure. The fair trading of virtual goods can be achieved by introducing a trusted third party (TTP). MMOG operators can integrate TTP into their transaction service. After the negotiation between the seller and the buyer, the seller should pass his items to the TTP, and then the TTP can help the buyer to get items and complete the exchange in a trusted way (Yan & Choi, 2002, p131). The MMOG operator also can monitor the transaction process, and verify the virtual goods in order to prevent cheating.

### 7.5.3 Payment Methods

The distinction between traditional games and MMOG is that players should purchase credit points to access servers for online gaming. The sale of credit points has become a major revenue stream after product sales. According to the results of this survey, the popular billing method for online gaming is monthly prepaid for unlimited usage, and the players prefer to pay the fees with prepaid cards purchased from the retailers (p76). Using credit cards for charging credit points for online gaming is not popular in Asian countries, with the exception of Japan and South Korea. This is because Asian players worry about the safety of online transactions. This is in contrast to the U.S. where the use of the credit card for payments is popular, and the online-payment system is more secure. Therefore, it is urgent to establish a stable online-payment system in Asian countries if the credit card model is going to be followed.

Online-payment systems can integrate with creditable third party platforms to guarantee the safety of payment transactions. For instance, the security solution provider, VeriSign, offers a series of complete cross-network solutions to help companies establish or improve customer trust by securing the web site for business with Secure Sockets Layer
(SSL) technology. SSL, or Transport Layer Security (TLS), is a protocol which is used to encrypt and protect information transmitted over the web with the ubiquitous HTTP protocol. Powerful encryption capabilities can prevent data interception or tampering with sensitive information, and the technology can be built into all operating systems, web applications and server hardware. In order to secure the online transaction safety, VeriSign designed a customized solution, Payflow Pro, to help companies securely accept and process credit card, purchase card and electronic cheque payments via the Internet.

A significant development of the online-payment solution is online real-time transactions. Cncard.com, the first company that provided online real-time transactions in China, provides diverse prepaid cards including phone cards, gaming prepaid cards and Internet prepaid cards. Players can purchase prepaid cards via the Internet, and receive the virtual card through an email or a mobile message. The company provides diverse payment methods including online banking and traditional money remittance. Moreover, the company can distribute products more quickly and effectively via the Internet, and the distribution fee can be greatly reduced. In addition, the company can improve the efficiency of promotion campaigns with its partners, and are able to provide lower prices and discounts to advance its competitive advantages in prepaid-card markets.

### 7.5.4 Billing Methods

Generally, players should purchase a prepaid card or pay an access fee with a credit card to activate or continue their accounts for online gaming. Most MMOGs that have adopted pay-to-play models have worked in this scenario. A recent example from Taiwan MMOG industries, Acer Game Zone, presents an alternative billing method with third party companies. The companies collaborate with mobile phone operators, and provide a new
scenario for online gaming; players can access servers for gaming without any prepaid fee, and the access fee will be billed to the player’s mobile phone monthly bills. This scenario brings convenience for players, and mobile phone operators are able to limit the maximum consumption of the monthly bill based on an agreed safe basis.

This new scenario which worked in Taiwan, potentially shows that the monthly billing model has more advantages than traditional prepaid models. This could create an opportunity for ISPs, especially broadband service providers, to adopt the monthly billing method to charge customers an access fee. The future online game will require high bandwidth for online gaming, and this factor will boost the broadband penetration. Therefore, broadband service providers are able to provide a new scenario to combine the access fee and online gaming fee into the monthly bill. This is convenient for players to pay an online gaming fee, and broadband service providers can obtain income more effectively and efficiently.

7.5.5 Possible Revenue Streams from Secondary Markets

Developing secondary markets creates opportunities for building new revenue streams. Linzbach said there is a possibility to increase revenue by selling merchandise articles like T-shirts and caps, because hardcore gamers may desire these items (2001, p14). Nowadays, this possibility has become feasible in Japan. The Oatku group, which means the ardent consumer of pop culture, has created ‘mania’ economy on the market of merchandise associated with comics and computer games, and created new revenue streams for entertainment industries (Pearson, 2004, p4). Similarly, NCSoft not only launched *City of Heroes* in the U.S., but also issued comic books based on the game story
(Gladstone, 2004, p26). In addition, producing game ornaments and developing movies based on the story of the game could create incentive to increase player consumption (iResearch, 2004d, p38). Therefore, revenue from secondary markets could be practicable.
8. Business Model Developments

Based on the solutions for key issues, Figure 10 presents the redefined structure of the business model.

There are four channels in this structure: Physical distribution, Virtual distribution, Revenue stream and Communication. As broadband developments become mature, the broadband service providers could play significant roles which are able to handle and transmit information between MMOG industries and players. In the virtual distribution channel, the role of cybermediaries can distribute digital content to player’s computers via the Internet. Facilitators help the flow of the transaction through the distribution channel between publishers and consumers. The function of traditional intermediaries in physical distribution channels will be reduced, because online distribution has more advantages in transaction cost reduction.
Technical solution providers construct a secure environment with security mechanisms to guarantee the transaction safety, and reduce online cheating which may cause potential losses to game companies. Moreover, the technical solution providers provide technologies to strengthen server capacities to improve game performance and to enhance facilities in the load management of network traffic. The role of online communities can be redefined as a help desk to solve gaming problems, and to identify player demands in future gaming. Furthermore, the communities have great potential in advertisements and promotion campaigns.

Hence, the role of broadband service providers in this diagram is significant. From case studies of Japanese and Korean online-game developments, it is shown that the role of broadband service providers is going to move toward being agents among MMOG industries and players. The content below is going to redefine the role of broadband service providers in the MMOG value chain, and discuss the new business model which is formed by the redefinition of broadband service providers.

8.1 The Services Aggregator Model

In traditional MMOG value chains, game providers, including game-design teams design the game-product and publishers make deals with these providers to produce the games for players. The communication platform for publishers and players is MMOG websites. Players access the websites and play online games via the Internet provided by broadband service providers. In this direct-to-customer model, broadband service providers only offer access to the Internet. The major payment is through the use of a credit card to purchase the game, or a credit-point recharge. Figure 11 presents the structure of this model.
Nowadays, an emerging trend from South Korea shows that the demand for online gaming is increasing. This advances the position of the broadband service provider to be a MMOG service aggregator. The service aggregator not only provides broadband services, but also partners with MMOG developers to offer diverse gaming scenarios to appeal to gamers. A successful case is the Korean broadband service provider Korea Telecom (KT). KT branded its DSL service as MegaPass to appeal to teenagers, bundling online games with DSL services by partnering with MMOG developers through a game aggregation service that also provided pay-per-play payment solutions. Charges for online gaming are based on usage, or the amount of playing time in minutes, and are simply added to DSL invoice statements (Hong, Koch, and et al., 2003, p7).

There are another two service providers that worked with the service aggregation model: Korean Hanaro Telecom and Japanese YahooBB. Hanaro established Hanafos.com as a broadband portal. The Hanafos.com works with over 300 content providers and aggregation service partners and operates around 850 servers. Billing is consolidated into a single statement with ADSL service on a play-first-pay-later basis. BBGames.jp was established by YahooBB to focus on the burgeoning MMORPG market in Japan. It
provides a one-stop shop for all MMORPGs for Japanese gamers. Subscribers can use a single ID, and are provided with consolidated payment options (Hong, Koch, and et al., 2003, p13).

Moreover, players have diverse choices to pay the fees or purchase credit-points through the online-game payment agents, or Internet shopping websites. The diverse choices for payments have brought convenience for players, and evolved new partnership models in the MMOG value chain. Figure 12 presents the role of broadband service providers in a new value chain.

![Figure 12. The services aggregator model](image-url)
8.2 The Partnership Model

Fierce competitions have driven companies to lower the price of merchandise or services in order to enhance competition advantages. Cannibalizing and damaging existing distribution channels cause difficulties in business operations. In order to reduce the influence of fierce competitions, the partnership model could be employed to enhance competition abilities without damaging existing businesses.

The service aggregator model is one kind of partnership model. The alliance of service providers and content producers creates mutual benefits for each other. For example, the market range of distributing products alone by game developers would be narrow. As game developers cooperate with game publishers, several advantages are in this partnership: the market range and the brand attention can be significantly expanded; the developer can concentrate on game developments with advanced technologies; the publisher can make efforts in marketing, expand content distributions and enhance premium content delivery capabilities. Both partners can derive significant value from this partnership, and product distribution costs can be reduced. Recently, a memorandum of understanding between Alcatel Shanghai Bell (ASB) and Shanda Networking Co Ltd was signed to jointly develop integrated broadband solutions for telecom service providers. Under the agreement, ASB will combine DSL solutions with Shanda's latest online-gaming suite to deliver a total broadband offering to telecom service operators in China (Info-Prod Research, 2004, p1).

Moreover, this linear partnership model can be improved by diversified developments. One method is to provide incremental content to complement the linear partnership model. For example, the Hanafos.com provides not only MMOGs, but also services of
video-on-demand, music downloads and edutainment. The network traffic can rapidly increase with whatever the customers prefer to enjoy online-music or online games. Another example is BBGames.jp. It has franchises to promote ADSL subscription as well its MMORPG memberships through BBGames branded magazines, Internet cafés, television programs and offline game competitions (Hong, Koch, and et al., 2003, p13). Furthermore, MMOG industries can cooperate with traditional mass-media industries to expand brand attentions, such as film, recording and printing industries. Collaborating with facilitators, which help the flow of transactions between publishers and consumers, can provide diverse payment methods for consumers, and this model can benefit the partners to derive significant value from this value chain based on the partnership. According to the analysis of Juniper, the total revenue of adopting the partnership model will gradually increase (Passione, 2003).

**Total Revenue**

![Graph showing the prediction of the revenue growth in the partnership model](Source: Juniper Modelling Analysis)

Figure 13. Prediction of the revenue growth in the partnership model
8.3 Future Developments

8.3.1 The Free-Distribution-with-Subscription Model

The online distribution is a predicted trend. However, the current bandwidth does not suffice to complete the online downloading in an acceptable period of time. Hence, distributing products via physical distribution channels is still the most effective way. Once the partnership model forms, game products can be promoted or distributed through the new value chain based on partnerships. Therefore, it is possible to design a free-distribution with subscription model by utilizing the advantages from the partnership model. This scenario does not charge any fee in purchasing the product. Players can enjoy this free game within a short period of time for experiencing online gaming; then they should pay a monthly fee for online gaming if they desire it.

There are several reasons to support this assumption. Firstly, a free game can provide players with a full taste of the game’s actual play value, instead of a partial demo version. Players usually read the reviews of game magazines, or discussions of online communities; however, the information may not be objective. Free games can offer players an opportunity to experience the game by themselves. Secondly, consumers are sensitive with the retail price, because there is no guarantee of getting a game that can meet their tastes. If players like to enjoy online gaming, the monthly fee for the subscription is not expensive in comparison with the retail price and almost any other entertainment expenditure. Moreover, players can stop the subscription at any time if they are bored with the game. Therefore, players will have more willingness to pay the monthly fee for online gaming. Thirdly, the partnership model can provide diverse channels for product distribution. For example, game products can be bundled with game magazines, relevant merchandise, broadband services with special offers, or it can be
distributed through the retail channel. In addition, the problem of game piracy can be reduced, because players can freely get products without pirating the content.

Hence, this free-distribution-with-subscription model can attract more potential subscriptions that can generate substantial amounts of revenue over a long period of time.

8.3.2 The Game-on-Demand Model

The demand for personalized services is gradually growing, because the Internet can provide diverse choices to meet customer demands, and the developments of Internet technologies and broadband services are more mature than before. Akimbo, the first video on demand (VOD) service provider, launched a new personalized programming service delivering high-quality programs via broadband connection directly to the subscriber’s TV, and the company was awarded the International CES Innovations 2005 Awards (CEA, 2004) in the category of Internet/Online. This implies that the demand for personalized services will be a future trend. In the long run, Internet downloading will eventually become a dominant distribution mechanism as the bandwidth meets the requirement for large-size game downloading. Therefore, the demand for personalized services in online gaming, the Game-on-demand model, could be potentially developed in the future.

There are two providers which provide the Game-on-demand services: Yahoo! and Canadian GamesMania. Yahoo! provides a pay-to-play scenario for a single game with three day limitation, and package scenarios to play any subscription games with no time limitation at that month. The advantage of this model gives players more choices on gaming, and the option to try out any games and services without paying the whole retail
price. In order to help qualify the client’s system as the customer chooses games to rent, Yahoo! have added a series of automatic system checks throughout the purchase process. Another example is GamesMania which is a broadband Games-on-Demand service launched by Bell Canada. By using proprietary streaming technology developed by Exent Technologies, GamesMania can distribute game contents through the Internet, and prevent the contents from piracies with security mechanisms. The business model is similar to Yahoo!’s one. It provides the monthly subscription and pay-per-use scenarios for customers. A noteworthy finding is that 80 percent of GamesMania and DSL customers choose to be billed on the monthly subscription with their phone bill (Hong, Koch, and et al., 2003, p13). This method not only brings convenience for subscribers, but also creates more revenue for the Bell.
9. Conclusion

Online gaming is increasingly popular as an emerging digital-entertainment among young people, and the game market continues to evolve and change with new developments. Traditional game companies are going to shift their products toward massively multiplayer online-gaming developments, and strive for the development of viable business models to obtain sustained revenue from these models.

The purpose of this research is to investigate effective business models for the PC-based MMOG industry, and to propose viable models with proposed solutions to key issues, which have influenced the operation of business models. The advent of broadband developments has influenced the industry distribution channels and market structure, and changed the structure of existing business models. The models are abstract, and there is no specific theory about the business model of the MMOG industry. In order to analyse current business models, I established the pattern of business models by the concept of digital value-chain architecture. The digital value chain for the MMOG industry consists of four elements: content & applications, aggregation, distribution channel and user device. Game developers are the content and application providers, and create game content as products to aggregators: game publishers. These publishers distribute products to customers with distribution channels, and then players use devices to enjoy the games. This is a picture that depicts the MMOG digital value chain, and business models are operated within this structure.
The distribution channel for the MMOG industry is significant, because the advent of broadband developments creates the possibility of virtual distribution; it means game products can be distributed via the Internet, and creates new opportunities for game publishers or developers to bypass traditional distributors. The function of traditional intermediaries, such as wholesalers and retailers, will be reduced or replaced by cybermediaries, which are E-commerce intermediaries to handle the transaction between publishers and customers. Once the broadband development becomes mature, the distribution of this new system can be more efficient, and the overall transaction cost can be significantly reduced.

The virtual distribution is limited and not mature, due to the insufficient broadband bandwidth. The current distribution still relies on physical channels, and this influences the development of current business models. In this thesis, I especially focused on the business model in publisher and customer relationships. There are two major models: play-for-free and pay-to-play models. The play-for-free model allows players to play online games free, and the major revenue comes from retail-sales or advertising. However, current studies indicate that the development of business models is going to move from the play-for-free model to the pay-to-play model. The retail sale based model has been impacted by serious piracy. The online-advertising based model is controversial, because the online-advertising market has greatly shrunk over the last two years. The pay-to-play model is more welcomed because game companies can charge players for access to online gaming. The subscription model is likely to be the major business model for MMOG industries, especially for Massively Multiplayer Online Role-playing Game (MMORPG) companies.
In order to improve current business models, three key issues including marketing, gameplay and financial issues were identified to investigate the factors that influence business operations. Moreover, utilizing an online survey helped to explore the relation between players' gaming behaviours and these identified issues, and then to develop solutions for the key issues based on the analyses of the survey results.

In marketing issues, it is important to understand customer demographics and their attributes in online gaming. The result of this survey indicates that the players' favourite game genre is MMORPGs. Male teenagers are major customers, but the amount of female players has gradually increased. An interesting finding is that the most favourite MMORPGs are made by Korean or Japanese game companies. This is because the Asian players have more interest in online gaming than other countries' players, and the broadband penetration in Asian countries is higher, but these Eastern games have difficulty in entering Western markets due to the game style. In this thesis, I recommended that game developers should carefully consider the game style design to meet player tastes in different countries. They can refer to the Korea NCSoft as a successful case.

The high broadband penetration boosts the market for online gaming, and the desire for online downloading is increasing. However, the product distribution still relies on physical channels because the online distribution is limited to the insufficient bandwidth. Once the bandwidth suffices the requirement of online downloading, the traditional distribution channel will move to the virtual channel, and the function of cybermediaries will be in greater demand. In regard to promotion channels, the result of this survey shows that the major sources of obtaining game-information are from introductions of
friend or game-information sites. The traditional way to attract a customer’s attention such as television advertising is weak. Therefore, a recommended strategy to improve product promotions is to combine traditional mass media and hypermedia in order to enhance the visibility of firms and products. One promotion manner is to bundle game packages with broadband services, because the demand for broadband is greatly increasing.

In game-play issues, this thesis focused on game performance and online cheating. The poor game performance and serious online cheating will ruin good games, and result in bad reputations for game companies. The recommended solutions to improve game performance are to effectively manage network traffic and consolidate technical infrastructure with technical solutions of third party providers. For example, the K2 Network provided a solution to improve IP networking among game servers and players’ PCs, and the Butterfly Grid provided a more cost-effective, scalable and reliable infrastructure than the traditional computing environment, in order to enhance game performance. In regards to the emerging security problem, online cheating, there are no flawless solutions to prevent all cheating. Therefore, a systematic approach is needed to mitigate online cheating. The approach includes built-in cheating detection, encryption of sensitive game data, the bug patching approach and post-detection mechanisms.

In financial issues, this research investigated consumption behaviours for online gaming, and the consideration in online-gaming charges. The result showed that the subscription model, which charges players for online gaming, could indicate that it will be one of the many predominate revenue streams in the future. The monthly prepaid scenario with unlimited usage for online gaming is in demand, but the result showed many players did
not agree with the rationality for the online-gaming charge. In this thesis, value-added pricing strategies are recommended to set the appropriate price for gaming charges. The result also showed that players have a desire to adopt diverse payment methods. These payment methods not only bring convenience for players to have more payment choices, but also help game companies to gather revenue from various channels. An emerging billing method is to bill gaming usages with third party companies such as mobile phone operators. The demand for online payments is increasing, therefore, this thesis suggests that game companies integrate online payment systems with creditable third party platforms to guarantee the safety of payment transactions. For instance, VeriSign offers a series of complete cross-network solutions to help companies improve customer trust by securing the web for business with Secure Sockets Layer (SSL).

Developing alternative revenue streams is crucial for game companies, because this could create additional revenue for companies, and reduce the loss caused by fierce competitions among game industries. One potential revenue stream is the transaction of virtual goods. The virtual goods transaction provides an opportunity for players to trade their virtual goods for money, but the lack of safe transaction platforms and mechanisms can cause fraud and cheats. Therefore, this thesis recommends that developing transaction platforms by game companies could not only build a safe environment and mechanism for players’ transactions, but also create an alternative revenue stream by charging players for transaction services. In addition, another possible revenue stream is to develop secondary markets by selling merchandise articles like T-shirts or comics. This will help companies to get additional revenue, and avoid competitions among game industries.
A significant finding in this thesis is that online-game companies should pay more attention to the development of online communities, because the results of this survey show that many players visit online communities frequently and spend much time in joining the discussions. In regard to business developments, developing online communities can be a crucial solution for key issues to benefit the business operations of MMOG companies. In the marketing issue, considering promotions in online communities is practicable. Most online communities integrate or cooperate with companies, or game-information sites. The high frequency of visiting communities can bring more network traffic to increase visiting rates, and creates potential opportunities for virtual promotions. In the game issues, well-developed communities can help players to solve gaming problems, and provide ideas for game developers to improve their products in order to get higher performance. The notion of combining online communities with content can be best reflected in the new and fast-growing segment of online gaming. Therefore, online communities could become an alternative communication channel between companies and players. Moreover, discussions on communities have a great influence on a company’s reputation and brand loyalty. A good company reputation can encourage players to consider product value, and consolidate the brand loyalty to stably obtain revenue. The representative example is Sony Final Fantasy Series. On the contrary, a bad reputation will ruin brand loyalty, and cause losses for the company. Funcom Anarchy Online is an example that caused bad reputation by technical problems, game development issues and relationship problems between players and the developer. Hence, building a successful community is crucial, and several strategies are recommended. By defining the purpose of the community in order to attract player attention, game companies need to evolve to keep pace with the changing needs of the community members, and fix problems to meet player demands.
Furthermore, online communities can bring more people together by special or regular events. These gatherings help to cultivate communities by bringing people together and helping them keep in touch. Based on these proposed solutions, business models can be significantly improved, bringing further developments.

I redefined the business model structure into four tiers. The role of intermediaries in the physical distribution channel is going to become cybermediaries in the virtual channel, as broadband developments still grow with stability; online communities are going to evolve as a new communication channel between companies and players. Technical solution providers offer solutions to strengthen game servers to provide better performance, and to secure transaction safety among companies and players. By studying cases from Japan and Korea, broadband service providers have a great potential to enhance their position as service and content aggregators. In this services aggregator model, the broadband provider not only provides broadband services, but also partners with MMOG developers to offer diverse gaming scenarios to appeal to gamers. Furthermore, the involvement of broadband service providers not only restructures the MMOG value chain, but also involves new partnership models, which can widely expand the business area of MMOG industries.

Based on this new partnership, this thesis recommends that game products be freely distributed via the new partnership channels, and that companies mainly obtain revenue from subscriptions. This free-distribution-with-subscription model could distribute products more effectively and widely, and overcome the piracy problems without developing protection mechanisms to stop illegal distributions. In the long run, the demand for Internet downloading and personalized services will greatly increase once the
bandwidth meets the requirement for large-size game downloading. Hence, the game-on-demand model can be forecasted as a future business model for MMOG industries.
10. Future Research Directions

10.1 Cross-Platform Communications among Different Game Platforms

There are several game platforms in the online-game market. In addition to PC online-game markets, the market of console-based online games has grown rapidly. Sony and Microsoft have now stepped up their efforts to develop more MMOGs for their consoles, and start console online gaming in preparation for the next generation of consoles. However, these different game platforms cannot communicate with each other, because of the lack of the standard of cross-platform communication. Players cannot compete with other players who play the same games with a different platform. As a result, the PC and console market are separated and irrelevant. The barrier of cross-platform communications not only loses the opportunity for players to have fun with different platform players, but also causes a loss for game industries to extend their business opportunities in both PC and console game markets. Similarly, cross-platform communication can be applied to online games in mobile-phones, or portable hand-held game platform such as Sony PSP and Nintendo DS. Hence, game industries can consider the development of cross-platform communications in order to create potential revenue and expand the market reach.

Recently, the possibility of cross-platform communication has been implemented. A famous PS2 online game, Final Fantasy XI, allows gamers to connect to the same world regardless of whether they are playing on a PS2 or a personal computer. Therefore, the PC
game players can have a gaming-experience with PS2 game-players via the contribution of cross-platform technologies (Multimedia Publisher, 2003).

10.2 The Cross-Cultural User Interface and Language Barrier

According to SinoCast China Business Daily News, foreign game providers already have an eye on Chinese market. However, the market is still a challenge for foreign game developers. In addition to competition from local game companies, the language barrier and local taste will be a major challenge. Even though English is an International language, players who are not familiar with English will be less likely to play this game. Therefore, the cross-cultural user interface becomes an important issue for game developers. It is necessary for online-game industries to develop applications to overcome language barriers in order to expand the product in entering different markets. Sony Online Entertainment and NCSoft have teamed up to develop ‘universal translator’ technology that will allow online-game players who speak different languages to compete against each other in real time (McLester, Poftak, and et al, 2002, p6). This feature allows different countries’ players to compete with other countries’ people via the Internet. Another practical solution is adopting graphic interfaces in place of texts. Some simple games have worked using this way. Hence, a well-developed cross-cultural user interface would be helpful for game companies in expanding their markets.
10.3 The Blog

The Blog has been a recently emerging ‘community’. A definition from the Webopedia Computer Dictionary: a Blog is a Web page that serves as a publicly accessible personal journal for an individual. Typically updated daily, Blogs often reflect the personality of the author. According to the marketing communications agency Euro RSCG, it is estimated that three million sites were set up in 2003 (Hanson, 2004, p36). Hanson believed that using Blogs to market their product or services to people could be acceptable in a less offensive way, because Web advertising becomes increasingly intrusive. Hence, developing a Blog site as a new promotion tool is considerable.

10.4 The Role of the Government in MMOG Developments

One major factor for the success of Korean online-game developments is the proactive government measures of promoting private industry by providing tax incentives and investments in the broadband infrastructure over the past eight years. The Korean government created laws and an official national award system to encourage game companies to develop games. Moreover, the government assisted game companies in attending overseas expositions, and invested a huge amount of capital in network infrastructures to improve broadband developments. As a result, Korean online-game developments had a great success and predominant advantage in worldwide game markets. Hence, some Asian countries have started to pay more attention to the development of online games and network infrastructures.
10.5 Conclusion for Future Research Directions

The developments of cross-platform communications and cross-cultural user interface have become more important than before. The globalization phenomenon clearly shows that MMOG industries have to overcome the above issues in order to gain greater competition advantages, if they attempt to enter different markets. Blog developments are so rapid and noticeable, because its characteristics are similar to online communities. Moreover, it is believed that it could be acceptable in a less offensive way, as advertisers put their advertisements on the site for marketing purposes. In addition, the South Korean case indicates that the role of the government in MMOG developments is significant. Due to supports of the government, Korean MMOG industries have attained a predominant position in MMOG markets. Some Asian countries’ governments, such as Chinese and Taiwanese, have started to make appropriate laws to facilitate the development of MMOG industries as well.

The development of MMOG industries is involved with many fields. These fields not only are limited on components of the value chain from game publishers to game players, but also include hardware vendors, telecommunication companies and third party solution-providers involved in this value chain. The research fields can also be extended to the studies of government policies, child education and even virtual economies which are emerging in the evolving virtual world. Hence, the research directions for MMOG industries are wide and significant to different research fields.
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Appendix A: Questionnaire questions

**General Question**

1. What is your age?
   - □ below 20
   - □ 20-29
   - □ 30-39
   - □ 40-49
   - □ Above 50

2. What is your gender?
   - □ Male
   - □ Female

**Gaming Behaviour and Player Attribute**

3. Do you have any experience in playing MMOGs?
   - □ Yes
   - □ No (Please go to Q16)

4. Where do you usually play MMOGs?
   - □ At home
   - □ Network café
   - □ Other places

5. What MMOG are you playing currently?

6. How long have you played this MMOG?
   - □ Less than 1 yr
   - □ 1-2 yrs
   - □ More than 2 yrs
7. What introduce you to this MMOG?
□Information from friends □Introduction from game-information websites
□Introduction from magazines □Information from game-company websites
□Other

8. Where did you purchase it?
□Retailers □Online order □Online purchase and download

9. After purchasing, did you need to pay the additional fee while you were playing?
□Yes □No (Please go to Q12)

10. What is the billing method for this game?
□Usage rate based on time units □Prepaid monthly for unlimited usage
□Pay for play □Other

11. How did you pay for it?
□Prepaid card □Credit card □Billing with other services

12. Does poor game performance make you less likely to play this game?
□Yes □No
13. Do you think online cheating by other players influences your willingness to play this game?
☐ Yes ☐ No

14. If you get any problems in the game, what will you do for help?
☐ Ask help at the help desk ☐ Ask help from friends
☐ Ask help from online communities ☐ Seek a solution from oneself
☐ Other

15. How often do you visit the online community of this game?
☐ Every day ☐ Often ☐ Not often ☐ Seldom

16. Do you have a will to play other MMOGs in future?
☐ Yes ☐ No

17. Do you think the fee charged by the game company is reasonable?
☐ Yes ☐ No

18. If the bandwidth is enough for downloading the game in a short time, will you purchase the game online and download it?
☐ Yes ☐ No
Appendix B Questionnaire results

1. What is your age?

2. What is your gender?
3. Do you have any experience in playing MMOGs?
4. Where do you usually play MMOGs?

5. What MMOG are you playing currently?
6. How long have you played this MMOG?

Question 6
- 1-2 yrs: 23.26%
- Below 1 yr: 50.86%
- Over 2 yrs: 25.88%

7. What introduce you to this MMOG?

Question 7
- Information from friends: 85.52%
- Information from game-company websites: 15.52%
- Introduction from game-information websites: 9.4%
- Introduction from magazines: 4.31%
- Others (Curious): 1.72%
- Others (Game content): 1.72%
- Others (No reason): 1.72%
- Others (TV): 1.72%
8. Where did you purchase it?

9. After purchasing, did you need to pay the additional fee while you were playing?
10. What is the billing method for this game?

- 67.07% (based on time units)
- 26.83% (virtual currency)
- 1.22% (Pay for play)
- 0.00% (Prepaid)
- 0.00% (monthly for unlimited usage)

11. How did you pay for it?

- 71.95% (Billing with other services)
- 19.51% (Credit card)
- 8.54% (Prepaid card)
12. Does poor game performance make you less likely to play this game?

13. Do you think online cheating by other players influences your willingness to play this game?
14. If you get any problems in the game, what will you do for help?

- Ask help to online communities (34.16%)
- Ask help to the friends (19.51%)
- Ask help to the help desk (13.41%)
- Others (Give up!) (7.32%)
- Seek a solution from oneself (32.93%)

15. How often do you visit the online community of this game?

- Everyday (42.85%)
- Not often (17.07%)
- Often (17.07%)
- Seldom (7.32%)
- Never (32.93%)
16. Do you have a will to play other MMOGs in future?

17. Do you think the fee charged by the game company is reasonable?
18. If the bandwidth is enough for downloading the game in a short time, will you purchase the game online and download it?