The Internet as Data Source

Online gaming

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1 Market Profile

Over the past decade, the market for computer games has undergone tremendous developments, reaching a point where the global revenue earned is greater than that of cinema films. The Internet is fast becoming an essential medium for not only playing the games themselves but for distributing the software. There is an exponential growth in new types of games that are played entirely online.

As these developments leave their traces all over the Internet, we can consider using the Internet as data source to trace the progress of this very dynamic market.

1.1 Product features

There are a great many different types of computer games. The usual classification is modelled on the film categorisation and is based on genres (shooters, adventures, strategy etc.). There is no consensus on this classification, especially across national boundaries, and it is shifting constantly.

Another category that is more useful for the purposes of our survey is the hardware on which the game is played. This can be divided into games played stand-alone on respectively specific game computers (*consoles* and *handheld consoles*) or generic PCs, and games played online. Within the latter main category are the two major subcategories, the so-called *massive multiplayer games* (MMOs) and casual games. Well-known examples of MMOs are *role-playing games* (MMORPGs) and *social game*s. *Casual games* are small and relatively simple games that are played entirely in the browser. Generally speaking, online gambling applications belong to this category but the group is usually included in the conventional gaming and entertainment industry and not classified under computer games.

Table 1 gives an overview of the categories we refer to in this section. Due to the specific approach of our study (the Internet as data source), the emphasis will be on MMORPGs, social games and casual games (excluding gambling).

Category			Examples
VIDEO GAMES			
	Console	Desktop	Xbox 360 (Microsoft) > Halo 3
			Playstation 3 (Sony) > Assassin's Greed
			Playstation 2 (Sony) > Guitar Hero II
			Wii (Nintendo) > Super Mario Galaxy
		Handheld	DS (Nintendo) > Brain Age
			PSP (Sony) > Tekken: Dark Resurrection
	PC-based		Crysis
			Call of Duty IV
			Pro Evolution Soccer 2008
			Grand Theft Auto: San Andreas
			Half-Life[1]
ONLINE GAMES			
	MMOs		
		MMORPGs	World of Warcraft
			Guild Wars
			RuneScape
			(World of Soccer)
		Social games	Second Life
			The SIMS Online
			(Habbo)
	Casual games		
		Games	Yahoo! Games
			Zylom
			Spelletjes.nl
		Online gambling	32red.com
			CasinoEurope.com
			Pokercity.be

Table 1. Categories of computer games (with recent examples)

Traditionally, computer games (*video games*) are played on consoles or PCs. Because of the importance of the competitive element in these games, many can be played simultaneously by more than one player. The Internet offers an ideal platform for multiplayer games, especially on PCs already set up for Internet use. The market also has its share of strife due to the various proprietary hardware standards. The current (third) generation of game computers already has as standard an Internet connection.[2] Moreover, the Internet is playing a more and more significant role in the distribution of software, not just for issuing demos, updates/upgrades and patches, but also for selling complete

[1] Half-Life is a typical online multi-player PC-based game. Generally classed as an MMO, it differ essentially from regular MMOs for two reasons: Firstly, most of the software still has to be installed online. Secondly, the game is hosted on the software supplier's proprietary server. This is why the number of simultaneous players is limited to around 50 per server. In contrast, a real MMO such as World of Warcraft is hosted by a third party and can be played by thousands at the same time.

[2] Playstation 2 also had the option (Net Play) but the functionality had to be purchased seperately.

games. [3] The Internet has now provided an alternative distribution channel for selling games instead of the traditional retail trade.

Unlike console games and PC games, the majority of online games run entirely on the server. In most cases a client has to be installed locally by the user in order to play the game. Online games have been around since the mid 1970's but only took off at the turn of the 21st century.[4] By far the most important category among these games is that of the *massive multiplayer games* (MMOs) which include the role playing game World of Warcraft, currently played by millions of people all over the globe. Other types of MMOs that have become considerably popular recently are the so-called social games like Second Life and The SIMS. With social games, the focus is on the interaction between players, not the game's story line.

In contrast with MMOs, which have a relatively long learning curve thanks to their vast virtual worlds and complexity, casual games are easy (puzzles, word riddles, simple action games) They are just meant to be played "in between" doing something else, a sort of time-filler. Classic offline examples are the games that were supplied as standard with Microsoft Office.[5] These types of games are often provided in large groups via a portal, either as part of a larger portal (Yahoo! Games) or as a specific site for casual games (Zylom, spelletjes.nl).

1.2 Market structure

1.2.1 Video games

The video games market has strong monopolistic tendencies. The console games market is controlled by the console manufacturers (Sony, Microsoft, Nintendo), who ultimately decide whether or not a game can be played on their machine. Nintendo commands a very strong position thanks to its handheld DS, which at the time of going to press with this report, is still selling well, and the Nintendo Wii, which is doing much better than initially expected by market watchers. Sony is the second largest player thanks to the enormous base installed for their PS2 series. Microsoft is the third and smallest player in the console market. This company's current strong position (above all in the USA) is mainly thanks to the fact that they were the first to bring a third generation console (Xbox 360) on the market.

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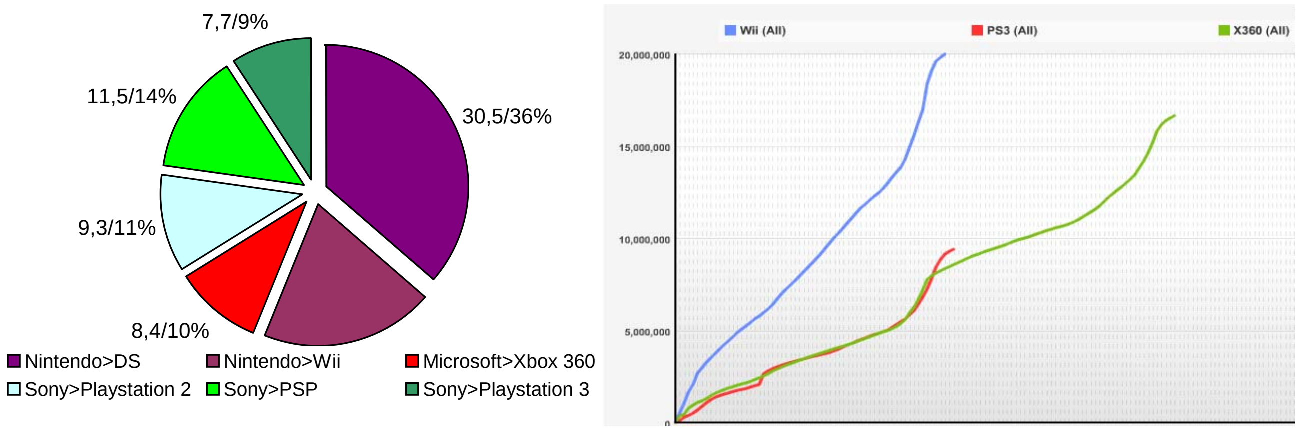
[3] Microsoft has incorporated a digital range of games in their Xbox-console via Live Marketplace (for demos and upgrades of entire Xbox games) and Live Arcade for smaller games (cf. casual games). Nintendo has a similar distribution system for the Wii-console (Wii Shop Channel). Sony is apparently setting up a platform for distributing games digitally (E-Distribution Initiative).

[4] The famous role-playing game Dungeons and Dragons dates from 1974 and was played on closed local networks in American universities. After a decade, the first commercial alternative to the closed networks appeared (CompuServe, AOL etc). To play, you had to pay a monthly subscription. It would be another 10 years and the breakthrough of the Internet before the first real online RPGs appeared such as Ultima Online (1997), Lineage (1998) and EverQuest (1999). The number of users of these online RPGs (and their immediate successors, Lineage II en EverQuest II) has soared since the turn of the century. With millions of players, they can rightly be called *massive multiplayer online role playing games* (MMORPGs).

[5] Solitaire, Space Cadet, MineSweeper.

Figure 1. Console manufacturers' worldwide market share (over the whole of 200) and growth since introduction to the market. Source: VZChartz



Keen competition among hardware manufacturers continually drives up the demands made on software. The cost of developing a console game has quadrupled with every generation. The budget required for the current third generation consoles has already reached tens of millions and compares with the production of an A list Hollywood film. Part of the cost is swallowed up by the (expensive) licence fee, which has to be paid to the console manufacturer. At the same time, marketing costs to gain the attention of the public are taking up an ever-increasing share. Due to the huge financial demands, we see that software developers have to work on a larger scale. It is almost impossible for smaller players to survive – large developers or publishers have bought up most of the independent game developers.

The PC games market has undergone similar developments. It has also seen continuous growth in scale and the dominance of a few large developers and publishers. The manufacturers of consoles (Nintendo, Sony, Microsoft) also bring video games onto the market. Other hardware manufacturers, who could not keep up with the technology rat race (Sega, Atari) now devote themselves almost entirely to the production of software. There are a few large developers/publishers who bring out games for all platforms (consoles and PCs). Some of the big names are EA (Electronic Arts), Activision, Ubisoft, Eidos and Vivendi. The increasing intertwining of the film and video game industry has led to large players in the entertainment industry starting to produce games under their own labels (Disney Interactive, LucasArts, Warner Bros).

Position 2007	Position 2006	Game publisher
1	**2** (+1)	Nintendo
2	**1** (-1)	Electronic Arts
3	**3** (0)	Activision
4	**8** (+4)	Ubisoft
5	**7** (+2)	THQ
6	**5** (-1)	Take-Two Interactive
7	**10** (+3)	Sega of America
8	**4** (-4)	Sony Computer Entertainment
9	**6** (-3)	Microsoft Game Studio
10	**16** (+6)	Sci/Eidos Interactive

Table 2. Top 10 Game Publishers worldwide, 2007 and 2006. Source: Game Developer Magazine

1.2.2 MMORPs

The number of players of MMORPGs has grown exponentially since the late 1980s. Broadly speaking, this number has doubled every year, going from 8 million in 2005, to 16 million in 2006, and 35 million by the end of 2007. However, this phenomenal growth was not taken on board by the mainstream game industry, as for a long time growth had been happening outside the USA, Europe and Japan, namely in South Korea. NCsoft was having great success there with Lineage I and II. The actual breakthrough to the public at large only came about when World of Warcraft was introduced in 2005.

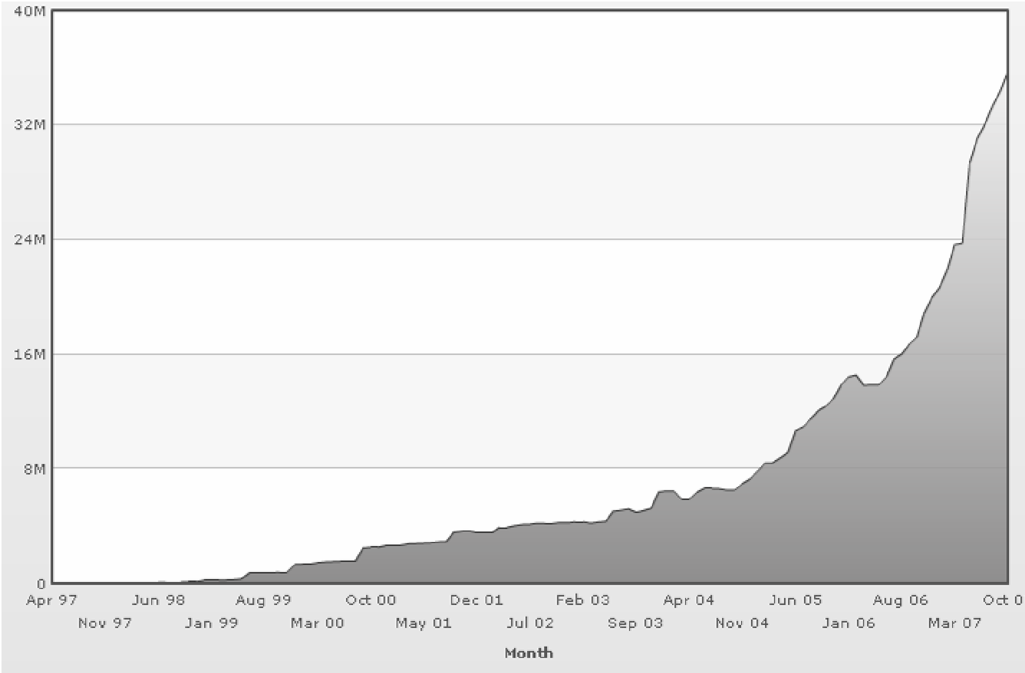


Figure 2. Development of the total worldwide number of active subscriptions to MMORPGs (1997-2007), Source: MMOGData

With only a few exceptions, large developers in the video game market chose to ignore the MMO market for a long time. For this reason a number of new developers on the scene such as NCsoft (Lineage I, II, Guild Wars), Blizzard (World of Warcraft), JAGeX (RuneScape) and Linden Labs (Second Life) became big names. Indeed this market also has monopolistic tendencies. This is not so much because of the necessary growth in scale – although the development of an advanced MMORPG has become an investment of millions – but more due to the network effect of Social Networking Sites (see elsewhere in this report). The greater the number of players in a virtual world, the more interesting that world becomes for new players. In this way Lineage dominated the market from 1998 till the end of 2004. Warcraft did the same from 2005 and Second Life is possibly set to become the next number one.[6] At the same time, the continually strong growth allowed new players to enter the market and in recent years this has greatly reduced the dominance of the big players.

[6] Second Life's market share is possibly over-estimated here. Section 2.2.1 gives more details of this social game.

	#1		#2		#3		rest
1998	Lineage I	45%	Ultima Online	45%	The Realm Online	9%	1%
1999	Lineage I	75%	EverQuest	11%	Ultima Online	11%	3%
2000	Lineage I	76%	EverQuest	12%	Ultima Online	8%	4%
2001	Lineage I	73%	EverQuest	12%	Ultima Online	6%	9%
2002	Lineage I	68%	EverQuest	10%	Dark Age of Camelot	5%	17%
2003	Lineage I + II	64%	FinalFantasy XI	7%	EverQuest	7%	22%
2004	Lineage I + II	57%	FinalFantasy XI	8%	EverQuest	8%	27%
2005	World of Warcraft	40%	Lineage I + II	28%	Guild Wars	9%	23%
2006	World of Warcraft	39%	Guild Wars	16%	Lineage I + II	12%	33%
2007	World of Warcraft	26%	Second Life	19%	Guild Wars	13%	42%

Table 3. Developments in worldwide market shares of the top 3 MMORPGs (1998-2007). Source: MMOGData

For a long time NCsoft's Lineage series has held a leading position in the MMORP market. It is remarkable that Lineage I has remained so popular – at the moment its market share is even higher than its successor Lineage II. Everyone knows that MMORP users are extremely loyal. Once a certain critical mass is reached, games can exist for a long time in their particular niche market. NCsoft's latest game, Guild Wars, which is aimed more at the Western market than its Lineage series, is doing extremely well. Its growth has been steady and now totals 4.5 million users. The other currently successful games are Knight Online (4.3 million) and Dofus (3.5 million). At a lower level, sales of RuneScape are increasing steadily (1.1 million). Although sales of World of Warcraft are no longer rising so quickly, it is still by far the most popular game (9.3 million). Second Life is experiencing an almost perfect exponential growth but the number of active (sic!) users is probably several times lower than stated here (6.6 million).

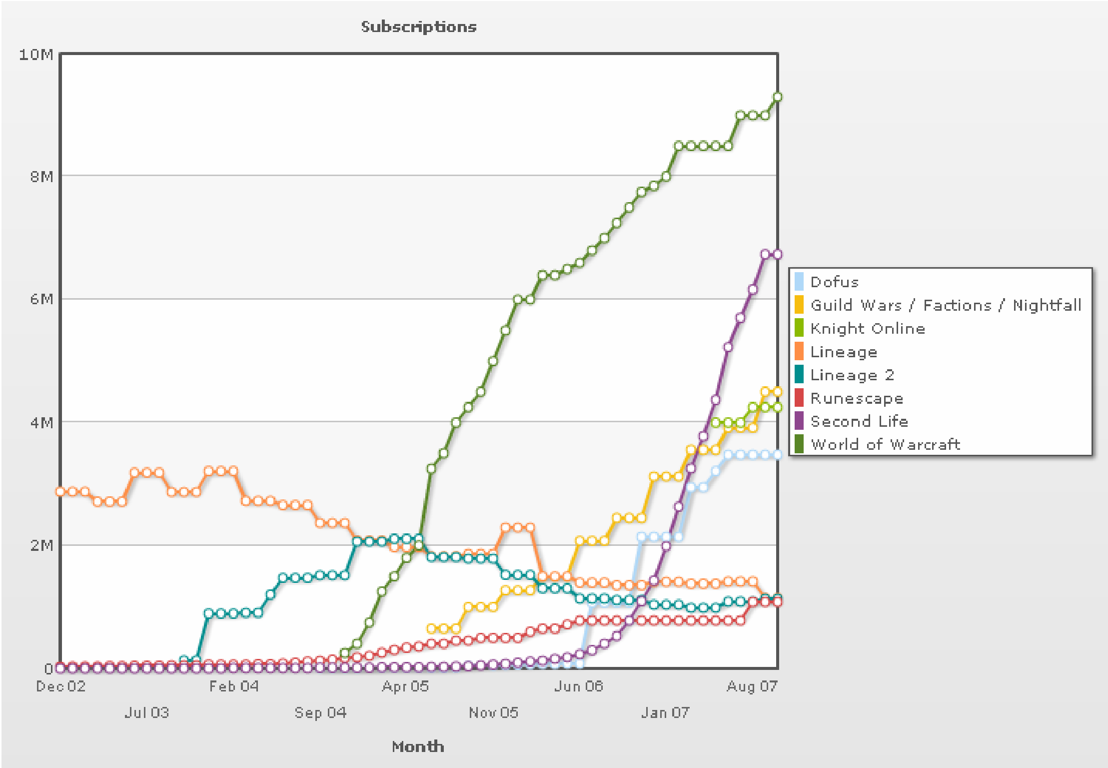


Figure 3. Development of the number of users of the most popular MMOs (December 2002 – October 2007). Source: MMOGData

1.2.3 Social games

In the MMO category, games based on fantasy and/or science fiction have the lion's share (87%). Social Games total market share is (still) very modest (3%) despite all the hype about Second Life (3%).

MMO Category	Market share (%)
RPG / fantasy	71
RPG / Science fiction	16
Social games	3
Combat simulation	2
Sports	1
Others	6

Table 4. MMO Market shares according to genre (October 2007). Source: MMOGData

The gap between Second Life (6.6 million users) and the rest (There- stable at 17,000, The SIMS Online – now shrunk to 8,000) is very wide. Even if we assume that the number of active users is lower by a factor of 3 to 4, the exact figures will still add up to a respectable

2 million users.[7] The SIMS Online is an interesting case because it is one of the few MMOs that was brought on the market in the early days (2002) by a large game developer (EA). However, the amount of active users has stayed well below expectations. The game had 100,000 active users (1% of the total MMO market) at its peak by the end of 2003.

As social games have no clear storyline, focussing on the interaction between users (the avatars), the boundaries with social networking communities (see further on in this study) have also become blurred. Social networking communities with a distinct graphic component (the so called virtual chat rooms) should come under the heading of MMOs. If we compare this group with Second Life, they can certainly hold their own. It is particularly striking how strongly the chat rooms focus on children (Club Penguin, NeoPets, Barbiegirls) and teenagers (IMVU, Habbo, Gaia). This probably accounts for the fact that Second Life has enjoyed so much publicity – it is one the few virtual worlds that is specifically aimed at adults.[8]

Cyber chat room	Unique visitors
Club Penguin[9]	9.0[10]
NeoPets	7.7
IMVU	4.4
Second Life	3.2
Habbo	2.1
Barbiegirls	2.0
Gaia Online	1.8

Table 5. Total number of unique visitors to the largest cyber chat rooms ('casual immersive worlds'), June 2007 (in millions). Source: TechCrunch (2007)

1.2.4 Casual games

The casual games market has a mixed group of suppliers, ranging from generic portals like Yahoo! through to game publishers (EA), niche players (Miniclips.com) and client suppliers (Shockwave, Real). The large generic American portals still dominate the market but Yahoo! owes its leading position to a much greater presence in the US domestic market. In Europe it is a very different story, with a number of Dutch companies (Zylom, Spill Group) leading the field. Specialised casual game portals like Miniclips, Zylom and WildTangent

[7] The problem with MMOs in general and Second Life in particular, is that a user can bring in an unlimited amount of avatars without paying anything. A random survey in June 2007 showed that the total number of users who had logged in during the past 60 days stayed at 1.76 million, against a total of 5.22 million avatars at that same moment. The number of truly active users within this group (who for example log in at least once a week) is much lower.

[8] Another example explicitly aimed at adults is a game with a hint of eroticism - Red Light Center. The most recent number given for users of this community is 700,000 according to AppScout.com April 18, 2007 "The New Amsterdam: An Interview with Utherverse CEO, Brian Shuster"

[9] Club Penguin (set up in 2005) was taken over by Walt Disney for US$ 350 million in August 2007.

[10] The number of paying members (700,000) is much lower than the number of visitors to the site.

have seen a spectacular growth in comparison with the drop in visitor numbers to Yahoo!, EA and Real.

Portal	Type of player	Worldwide (May 2006)		Worldwide (May 2007)		Europe (May 2007)	
Yahoo! Games	generic portal	53.0	(7.5%)	52.8	(6.8%)	8.6	(3.9%)
MSN Games	generic portal	34.9	(4.9%)	40.3	(5.2%)	13.8	(6.2%)
MINICLIP.COM	games portal	25.6	(3.6%)	30.2	(3.9%)	13.4	(6.0%)
EA Online	game publisher	30.5	(4.3%)	21.2	(2.7%)	5.7	(2.6%)
Shockwave.com	client producer	n/a	n/a	15.7	(2.0%)	4.8	(2.2%)
FREEONLINEGAMES.COM	games portal	10.1	(1.4%)	13.7	(1.8%)	6.1	(2.7%)
ADDICTINGGAMES.COM	games portal	n/a	n/a	13.2	(1.7%)	2.9	(1.3%)
RealArcade	client producer	15.9	(2.3%)	12.5	(1.6%)	2.9	(1.3%)
Zylom	games portal	7.3	(1.0%)	12.5	(1.6%)	10.4	(4.7%)
WildTangent Network	games portal	2.3	(0.3%)	11.6	(1.5%)	3.6	(1.6%)

Table 6. Total number of unique visitors to the largest casual game portals, May 2006 and May 2007 (in millions and in % market share). Source: ComScore (2007)

Those who make their profit from casual games are almost entirely dependent on the revenue from advertising.[11] Casual game portals are interesting for advertisers because they reach a much wider public than MMOs.[12] The 40 million worldwide users of MMORPGs pale into insignificance when compared to the 770 million casual games users. As the revenue per user is extremely low, the total global revenue from casual games only amounts to a few billion Euros. This is a factor 10 lower than the turnover (30 billion) in the console games market.[13]

[11] Besides the direct revenue from advertising, 'trial-to-purchase' downloads are great money earners. You can play for a limited amount of time (trial period) and after that you have to pay to continue. A few sites charge subscription fees. In 2005, trial-to-purchase earned US$135 million for the American casual game market, direct revenue from advertising was US$124 million and subscriptions US$55 million (Casual Games Association, 2006). Note that since then, the market both in and beyond the USA has expanded considerably.

[12] More than 70% of RealNetwork players are women over 40 and other surveys showed a similar picture. The biggest Dutch casual game portals Zylom (69%) and Spelletjes.nl (64%) have a high number of female users compared to the portals Spelen.nl (52%) and Funnygames.nl (56%), where the numbers are more even. We see completely the reverse with video games and MMORPGs, which attract a great deal of males under 30.

[13] http://www.z24.nl/bedrijven/it_telecom/article60067.ece

1.3 Market trends and developments

The rapid developments in the online game market have not gone unnoticed by the big players. But it has become clear that in all three of the market sectors, developing online games and then controlling them are entirely different matters. Until now, attempts by the big developers and publishers in the video game industry to bring online games on the market have not had much success (EA's The SIMS online in social games and EA Online in casual games).

At the moment, a great consolidation war is waging in the video game market. The shift from offline to online gaming blurred the borders and this has had a negative effect especially on PC games. They suffer more from software piracy than propriety console games and also from online games competition (MMOs and casual games).[14] This has further strengthened the position of the big players in the console market.

The fluctuations in the market for game developers are so strong that even the top 5 players (e.g. Ubisoft) constantly face the threat of being bought up by the two biggest players (EA and Activision). However the market – just like the film industry – is so unpredictable that a box office hit (like Ubisoft's Assassin's Greed) can turn things around completely. Take for example Activision, who had a bad year in 2006 but were top of the league again in 2007, even bigger than EA.

Consolidation in the video game market has also had a direct impact on the niche markets for online games. Increasingly, markets' toppers are being swallowed up by big players. Blizzard (World of Warcraft) was bought by the French company Vivendi, before being snatched from under the nose of EA by Activision for the respectable sum of US$19 billion.[15] NCsoft (Lineage, Guild Wars) recently closed an exclusive deal with Sony to develop games for the Playstation Network. In the summer of 2007, Club Penguin was sold to Walt Disney for US$350 million. In the spring of 2006, Zylom was incorporated with Real Networks for 17 million Euros. If a second round of merger talks between Yahoo! and Microsoft eventually succeed, this would put the numbers one and two in the casual game market into one hand.[16]

In terms of business models, all three niche markets in online games are currently in flux. The MMORPG market's business model is traditionally based on revenue from monthly contributions. Using this model, World of Warcraft generates a mind-boggling flow of revenue. NCsoft used the same model for its Lineage series but chose one far closer to the standard video game industry model for Guild Wars. Players only have to pay a one-off fee for a client (and any future expansions). Lastly the 'free' MMORPGs (such as Knight Online and RuneScape) have been gaining more ground recently. They generate income from

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[14] In the period 2003-2006, US sales in console games rose by 8% to US$6.2 billion while in the same period PC games sales dropped by 15% to US$1.1 billion (Source: Entertainment Software Association, 2006).

[15] EA struck back by buying up two smaller but reputable MMORPG developers, Bioware and Mythic. They now come under EA's new MMO department, EA Mythic. This department is busy developing a huge MMORPG – Warhammer Online – that is set to knock World of Warcraft off the throne. The release date for Warhammer has been postponed time and time again – the game is now due to hit the market in the second quarter of 2008. In the meantime the parent company has already reorganised the Mythic department rigorously, apparently to cut costs.

[16] On the 1st of February 2008, Microsoft offered US$44 billion for Yahoo! One option to block this hostile bid is to form an alliance with Google (see New York Times, 4 February 2008 and Wall Street Journal, 5 February 2008).

advertising and/or sales of add-ons which provide extra functionalities.[17] This is the so called primary market in which the controller of the game sells virtual objects direct to the player, such as new characteristics for avatars, ground for virtual buildings (Second Life) or furniture for the virtual room (Habbo). The secondary market, where users sell each other objects or user accounts (access to higher levels) via eBay or specialised portals such as IGE, is much older.

By the time the first large MMORPGs (Ultima Online, EverQuest) came on the scene, the 'real money trade' (RMT) had begun. While in the early days there was a turnover of a few million dollars a year, [18] this has already reached US$ 2 billion.[19] The bulk of the RMT takes place in Asia. There the Korean and Chinese markets alone are each achieving a turnover of around US$800 million. The volume of RMT in Europe and North America is relatively low (but still good for a few hundred million dollars a year) because here the secondary market is less developed due to the strict control on players. The primary MMO market has a large share outside Asia (for example Second Life and Habbo), and although significant (US$60-80 million for Second Life[20], US$50-60 million for Habbo), it does not come anywhere near the turnovers achieved in Asia.

[17] This market is still in the developmental stage and it could take some time before the decisions regarding choice of business model are made. Numerous intermediate forms are possible even within each individual MMORPG – you have to pay for some servers (giving faster or more access), while other servers are free. Many publishers use combinations of (almost) free packages and paid extension packages.

[18] Castranova, E. (2001) Virtual worlds: A first-hand account of market and society on the Cyberian frontier. The Gruter Institute Working Papers on Law, Economics, and Evolutionary Biology, 2 (1).

[19] http://virtual-economy.org/blog/how_big_is_the_rmt_market_anyw

[20] http://secondlife.com/whatis/economy_stats.php In the case of Second Life, the money is shared particularly unequally among the players.

2 Range and turnover

In this section we will take a closer look at a number of online games. A study of social networking sites (SNS -see elsewhere in this paper) looked at those games mostly widely used, respectively worldwide and in the Netherlands. Concerning the latter, there is a problem in that MMOs, unlike SNS, are very much internationally oriented. It is almost impossible to determine the Netherlands' specific market share.[21] The biggest-selling MMOs world-wide (World of Warcraft, Second Life) are also big in the Netherlands. Alongside these, we can conclude on the basis of educated guesses, that various other games such as RuneScape and Habbo are relatively popular and/or specifically aimed at the Dutch market such as World of Soccer. Games like these are included in our list. For casual games, the only exact details available for the Netherlands are taken from STIR (the Netherlands Association of Internet Advertising) web statistics. The two largest companies that also score well abroad are included in this category.

2.1 MMOs

2.1.1 World of Warcraft

At this moment, World of Warcraft is certainly the largest MMORPG. According to the developer of the game, Blizzard, the number of users has surpassed 10 million already.[22] Its world market share lies around 25%.[23] World of Warcraft was the best sold PC game in

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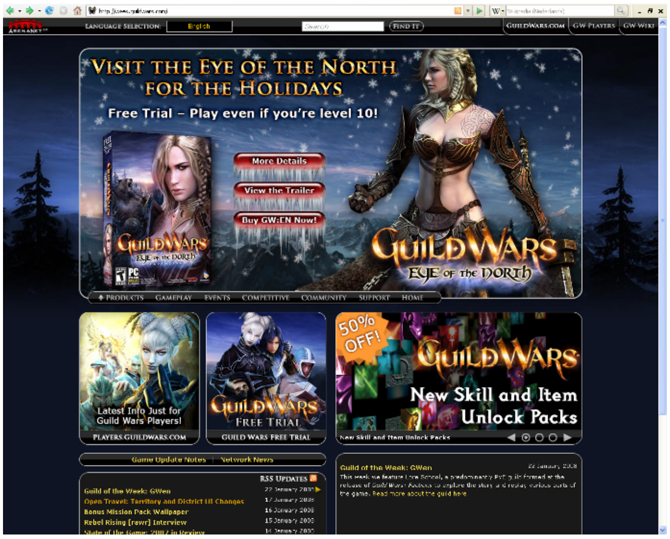
[21] The distribution of games over the servers is generally geographically linked so that from the usage level of the servers we can obtain details of where the players are as well as the population of users in a certain country. However, there are no dedicated Dutch servers (unlike French, German or Spanish) so Dutch players usually log in via one of the many English language servers.

[22] http://www.blizzard.com/press/080122.shtml. This includes the amount of people who have played the game in Internet cafes in the past 30 days.

[23] The market share was much higher and reached its peak of almost 50% in the spring of 2006. This decline was entirely due to the enormous rise in total numbers of MORPG players. In absolute terms,

2005, 2006 and 2007. The game is played all over the world, is already available in 7 languages, and the Russian edition is due out in 2008. World of Warcraft has been a phenomenal success, also from a commercial point of view. Thanks to an average monthly subscription rate of US$10 and a conservatively estimated 9.3 million users, Blizzard earns US$93 million *a month*, which adds up to more than a billion dollars (US$ 1,116 million) a year.[24] And this is not counting the revenue from sales of expansion sets.[25] In comparison: the total annual turnover of *all the combined titles* of Activision and Electronic Arts comes to about US$700 million. The console hit Halo 3 (Xbox 260) brought in US$290 in its top year 2007.[26]

2.1.2 Guild Wars



In 2004 a number of Blizzard's experienced programmers started up on their own and set up ArenaNet. With money from the Korean company NCsoft, who had been part of the same company from the beginning, they then developed the Guild Wars series. [27] Unlike World of Warcraft, you can play Guild Wars without having to pay subscription fees. Their income is simply derived from one-off sales of the game and from expansion packs. Until now, they have brought out four games – a wide range of Eye of the North. According to

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up till now World of Warcraft has shown a steady growth over the entire period. Source: Mmog-data.voip.co

[24] The monthly subscription rate in Europe is about 12 Euros and in the USA about $14. The rates in Asia (particularly China) are probably lower. US$10 is a conservative estimate of the average rate.

[25] According to Blizzard, they sold 2.4 million copies worldwide of their latest expansion pack, The Burning Crusade, in one day and sales totalled 3.5 million in the first month. NPD, the market survey bureau that specialises in the American game market, reports a more modest total of 2.25 million over the whole of 2007. And these are just figures for the American market. The retail price of The Burning Crusade is US$30 so with estimated sales of 4 million in 2007, Blizzard's additional revenue is US$120 million. NB – The Burning Crusade has not yet been released in China and the next expansion (Wrath of the Lich King) is ready to go live.

[26] 7.1 million copies of Halo 3 were sold in 18 months. Retailing at US$60, total revenue is US$427 million or US$289 million annually. Source: Vgchartz.com.

[27] http://en.wikipedia.org/wiki/Guild_Wars

NCsoft, by August 2007 they had already sold 4 million games[28] – not counting the latest edition released in the same month.[29] As this is a specific business model, the developer's revenue is less than that of World of Warcraft or Lineage (the MMORG which NCsoft made so successful). Thanks to a retail price of around US$40 per series, Guild Wars total revenue has now reached US$180 million. Blizzard earns that in two months with World of Warcraft.

2.1.3 Knight Online

Knight Online has more than four million players worldwide, making it the second largest MMORPG in the world.[30] Originally developed in Korea, hot bed of the MMORPGs, Knight Online's players are still mostly in Asia.

Knight Online's business model is even more radical than Guild Wars: the game can be both downloaded and played free of charge. According to the controller K2 Networks, revenue has to come from: "[…] dynamic, player-driven revenue streams based on relevant player choice."[31] This suggests a model based on primary RMT but it is not clear to what extent this actually takes place.[32] Knight Online's 'free' model always has a catch to it – *there is no such a thing as a free lunch*. In order to ensure control of the server, Knight Online is hosted just like most of the other MMOs on dozens of servers spread all over the world. As opposed to K2 Networks' official strategy, access to some servers requires payment. Players are happy to pay because this is the only way to access the most interesting parts of the virtual world and/or join groups of players.[33]

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[28] http://www.guildwars.com/events/press/releases/pressrelease-2007-08-21.php NB: Contrary to WoW accounts, Guild Wars never have accounts and therefore the number of active players is lower than the number of games sold.

[29] Eye of the North. is an expansion which cannot be played stand-alone and can only be accessed by advanced players (from level 10). Sales figures for this expansion are well behind the competition (World of Warcraft/The Burning Crusade) – at least a factor of 10 lower over 2007 according to NPD's annual report.

[30] 4.25 million players in October 2007 (mmogdata.voig.com)

[31] http://www.gamershell.com/companies/kemco/188778.html

[32] http://en.wikipedia.org/wiki/Comparison_of_Massively_multiplayer_online_role-playing_games

[33] http://en.wikipedia.org/wiki/Knight_Online

As it is a free game, a total of (more than) four million players is rather unlikely. All the accounts are included, even those that have not been used for a long time.[34]

2.1.4 RuneScape

RuneScape is one of the few large MMORPGs, which can be played entirely in the browser, so no downloading is required. You can play the basic version free of charge and therefore the threshold to play the game is low.[35] The feature that distinguishes it from other MMORPGs is the fact that it is exclusively aimed at Europe and North America; there are no servers in Asia.

According to its developer (the British company Jagex), they have a total of more than 10 million active accounts.[36] This makes it twice as big as Knight Online. However, of the 10 million gamers, there are only one million users who pay.[37] The game has been on the market for a relatively long time (2001) and has seen a steady growth over the entire period in the number of paying users, but its growth has been much slower than, for example, Guild Wars.[38]

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[34] With the ‘pay for play’ formats such as World of Warcraft or EVE Online, of course only the active (i.e. paying) accounts are taken into consideration whereas with Guild Wars, the numbers of users is based on the numbers of clients sold.

[35] In the Netherlands this game is very popular with school children.

[36] http://runescape2.freemmorpgeffects.info/

[37] Three-quarters of the world of Runescape can only be accessed by paying users. This costs 4.60 Euros but also entitles you to access skills and quests, which are not accessible for non-payers, and you do not get pestered with adverts. NB – the monthly subscription is relatively low compared to other MMORPGs but annual revenue still reaches the respectable total of 55 million Euros – comparable with the amount NCsoft earn every year with their much larger Guild Wars.

[38] See figure 3.

2.1.5 World of Soccer

World of Soccer (WoS) is originally a Dutch game – the concept came from the former director of Davilex, one of the established Dutch game developers. As WoS has not been on the market very long, there was only a very limited amount of data available on this game. WoS currently has more than 100,000 active players [39] and was recently released in France, Belgium and Germany.[40] A special edition was brought out in November 2007 to let users play with 'real' football teams in the first division.[41] Within a short space of time this edition has become more popular than the original WoS version.[42]

The business model for WoS is based on primary RMT, in this case sales of scratch cards, which can strengthen players and teams. Alternatively, you can acquire cards in the game by winning tournaments or competitions.

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[39] World of Soccer's own figures. According to PC Game Special, the number of WoS players had already reached 125,000 by end of November 2007 (http://www.pcgamespecial.nl/?itemid=7028).

[40] http://nl.wikipedia.org/wiki/World of Soccer

[41] http://www.eredivisieonline.nl/

[42] The number of active players online at any moment in the first division edition is a factor of 4 higher than in the WoS edition. You could say that there are 400,000 players in the first division but these figures might not be accurate.

2.2 Social Games

2.2.1 Second Life

The virtual world Second Life – has no storyline so cannot be classed here as an MMORPG – was released by the American company Linden Labs back in 2003, but had a sleepy existence till the middle of 2006. Since then, the number of visitors has rocketed. This was partly thanks to a large amount of press coverage of 'the phenomenal Second Life' right after the first surge. Estimates of the numbers of users - and amounts of money accrued – vary considerably. According to Linden Labs own reports, there are currently more than 12 million players ('Residents').[43] In October 2007, Mmogdata.voig.com reported a figure of 6.7 million.[44] This is the same problem that occurs with other free-to-play formats – once an account is started, it exists forever and this number is therefore not a correct indication of the actual numbers of (active) players. In the case of Second Life, there are very large discrepancies. Linden Labs claim that 1.4 million players were active during the past two months – that is 11% of the total. If we compare how many hours each player spends in Second Life with the phenomenal increase in total number of Residents, we see a similar picture. Second Life's breakthrough coincided with a decline in the average number of hours per player. If we follow this trend, the number of active players in February 2008 came to 1.3 million.

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[43] http://secondlife.com/whatis/economy_stats.php A 'Resident' is defined as: "...a uniquely named avatar with the right to log into Second Life, trade Linden Dollars and visit the Community pages."

[44] www.mmogdata.voig.com According to Linden Labs there were 10.6 million Residents at the time.

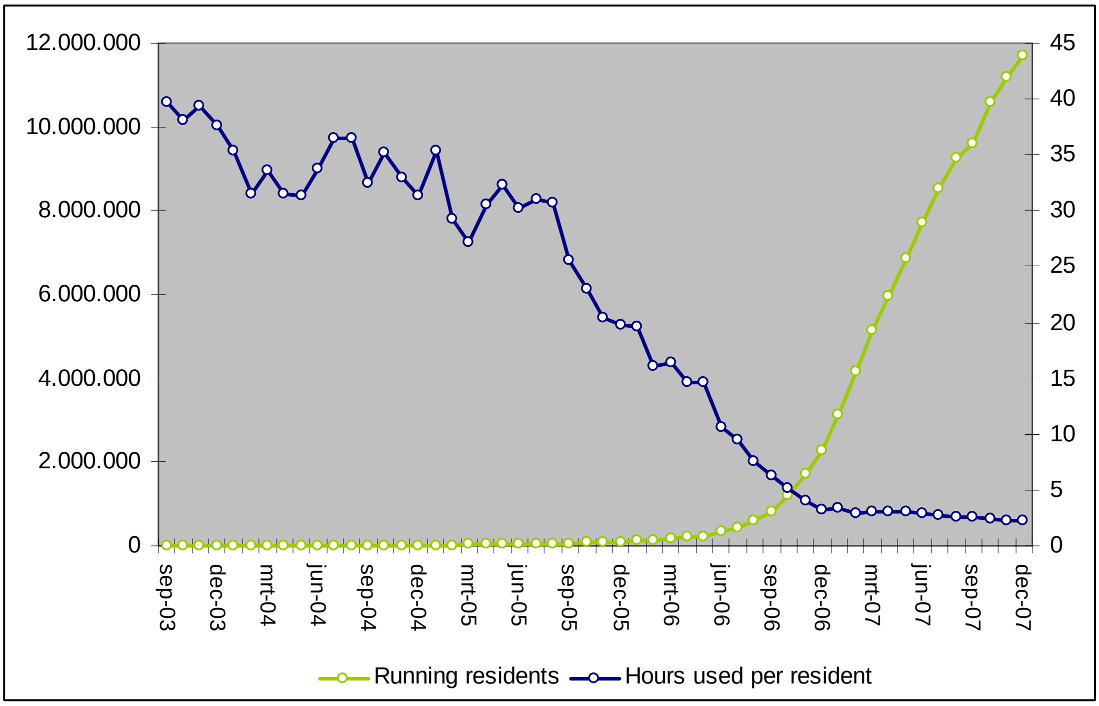

Figure 4. Development of number of residents compared to number of hours residents are on Second Life, from September 2003 to February 2008. Source: Linden Labs

Linden Labs publish a great deal of facts and figures on their website which let you see for example the distribution of users in each country. The Netherlands appears to come out right on top, both in terms of the number of active avatars as well as the number of hours played per avatar.

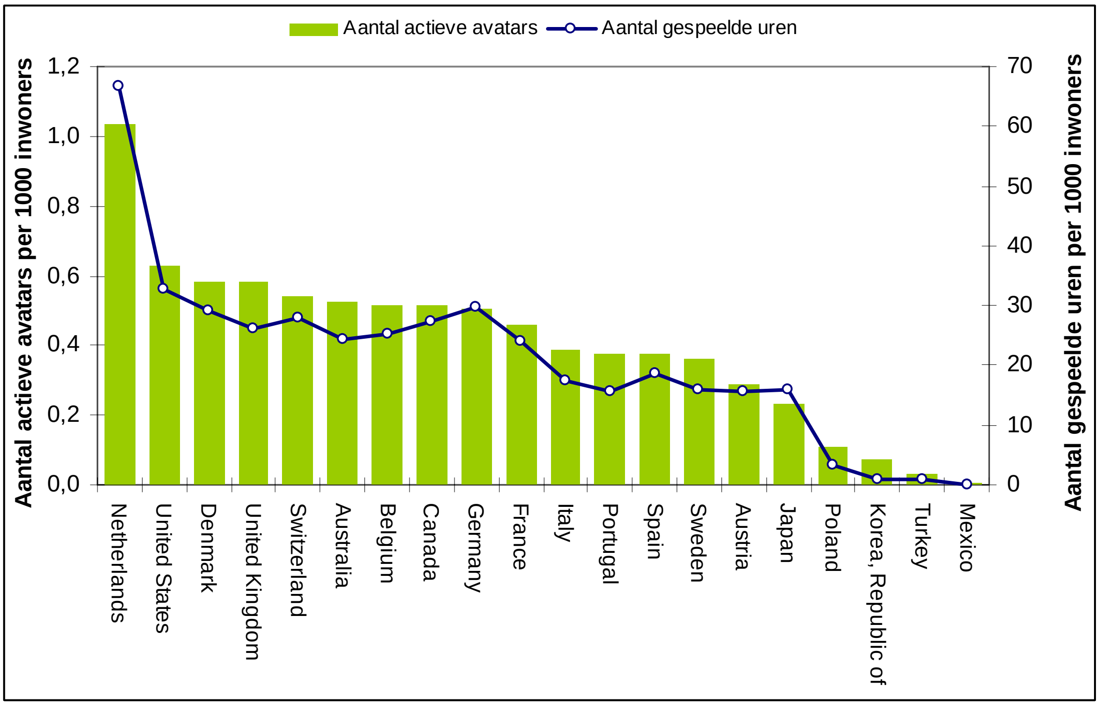

Figure 5. The number of active avatars and hours played on Second Life per 1000 inhabitants in certain countries, February 2008. Source: Linden Labs

As far as business models go, Second Life resembles RuneScape: participation is free but you first need to have a 'Premium Account' (US$10 a month) – and make an additional payment - in order to buy ground. Currently there are 93,000 premium accounts. The revenue from subscriptions is relatively limited but the primary RMT (in this case sales of land) is much more profitable.

Source of revenue	Turnover (US$)
Premium Account subscriptions	10 million
Renting land on the Mainland	12 million
Renting land on the Islands	30 million
Sale of land on the Islands	15 million
Total direct revenue	67 million

Table 7. Linden Labs' direct revenue from Second Life, over the whole of 2007 (in US$)

The secondary RMT has a similar volume – we estimate around US$83 million for 2007. This does not include transactions that take place outside Linden Labs (i.e. not converted into Linden dollars but directly in currency via PayPal, credit cards etc.).[45]

[45] Of this, US$65 million is from sales of virtual objects (characteristics of avatars, objects) and US$18 million from sales of land by the private owners of Islands.

2.2.2 Habbo

Habbo (formerly: Habbo Hotel) is a 2.5D virtual chat room, developed by the Finnish company Sulake but currently played all over the world, especially by teenagers. Habbo is also very popular in the Netherlands, which together with Finland, score the highest numbers of visitors to the site.

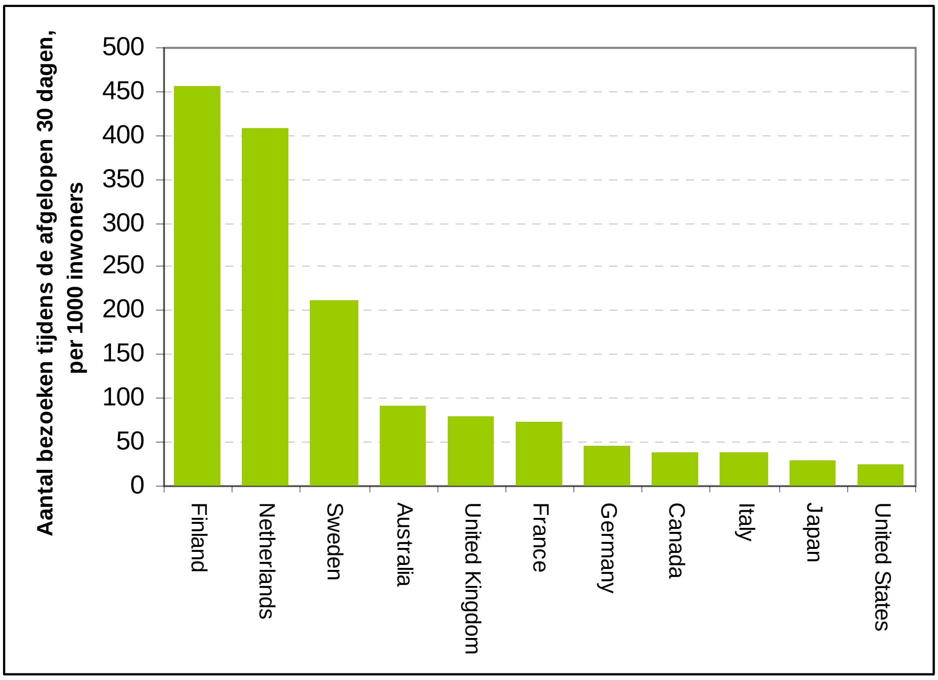

Figure 6. Number of visitors in previous 30 days to the local Habbo server, per 1000 inhabitants in a selection of countries, February 2008. Source: Sulake

According to Sulake, the total number of users worldwide amounts to 8.3 million a month.[46] These users have accumulated 90 million avatars – this is more than factor 7 higher than the number of Residents in Second Life.

Habbo uses a similar business model as the other social games, so free basic accounts and paid accounts with extra functionalities such as priority access to (the really busy) public areas in the virtual world. In addition, for their monthly subscription fee of 3.20 Euros, Habbo Club Members receive an extra virtual piece of furniture for their room every month. Sulake earns most of its turnover from selling furniture and gadgets to players. In 2006 this primary RMT was worth US$50 million.[47] (N.B. - 90% of Habbo players are between 13 and 19 years old.)

2.3 Casual games (Netherlands)

2.3.1 Zylom

Zylom is easily the biggest casual game portal in the Netherlands. The site attracts three times more visitors than for example Funda.nl, whose figures compare with the No.3 Dutch game portal, Spelletjes.nl. However, Zylom's growth has not been as fast as other large portals in the Netherlands. Spelletjes.nl is the only game portal that can keep up with the big competitor, Spill Group.

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[46] http://www.sulake.com/habbo/

[47] http://virtual-economy.org/blog/how_big_is_the_rmt_market_anyw

Portal	December 07		December 2006		*growth*
startpagina	91.4	(8.76%)	77	(10.62%)	*+19%*
hyves	73.5	(7.04%)	n/a	n/a	*n/a*
marktplaats	49.7	(4.76%)	33.9	(4.68%)	*+47%*
nu.nl	47.8	(4.58%)	37.8	(5.22%)	*+26%*
zylom	**19.8**	**(1.90%)**	**18.3**	**(2.52%)**	***+8%***
spele.nl	**9.3**	**(0.89%)**	**n/a**	**n/a**	***n/a***
funda.nl	5.9	(0.57%)	4.4	(0.61%)	*+34%*
spelletjes.nl	**5.8**	**(0.56%)**	**4.5**	**(0.62%)**	***+29%***
funnygames.nl	**3.2**	**(0.31%)**	**n/a**	**n/a**	***n/a***
spelpunt.nl	**2.2**	**(0.21%)**	**n/a**	**n/a**	***n/a***
startgames.nl	**1.7**	**(0.16%)**	**2.1**	**(0.29%)**	***-19%***

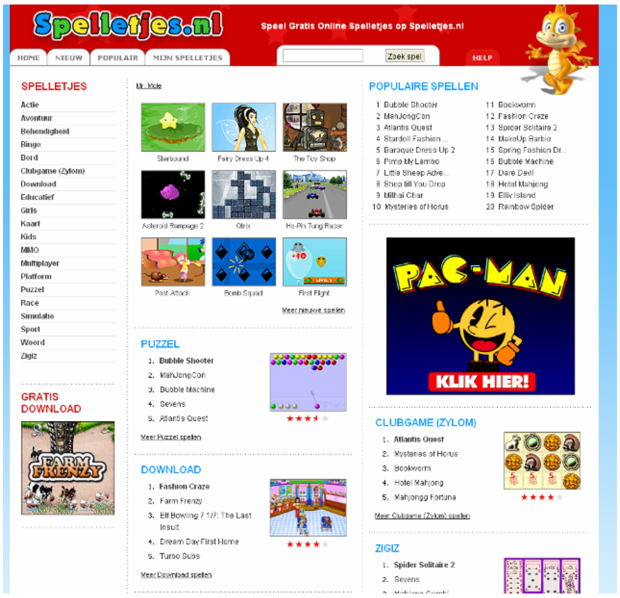
Table 8. Total number of visitors to portals and largest casual game portals in the Netherlands, in December 2006 and December 2007 (in millions and in % market share). Source: STIR (2008)

After a difficult start, Zylom has seen its turnover grow exponentially from 1 million Euros in 2003 and 8 million Euros in 2005, to about 22 million in 2007.[48] In 2006 Zylom was taken over by a larger rival Realnetworks for 17 million euros (see section 1.3).

Revenue comes from advertising as well as subscriptions. The latter gives people (for 10 euros a month) unlimited access to the better games in Zylom's collection (DeLuxe Spellen).

[48] Own calculations based on http://www.z24.nl/bedrijven/it_telecom/article60067.ece

2.3.2 Spelletjes.nl



Spelletjes.nl is the Spill Group's major casual games portal in the Netherlands. This company controls more 20 other sites outside the Netherlands, including large portals like Jeux.fr in France, the very successful Juegos.com in Spain, and – recently – Games.co.uk in the United Kingdom. In the Netherlands, Spill is still behind Zylom, but on the international scene it is already attracting 60 million visitors a month, thus posing a threat to leaders Yahoo! Games and MSN Games. As part of its plan to conquer the American market, Spill has recently signed an exclusive collaboration deal with RealNetworks.

All of Spill's portals can be played absolutely free of charge – advertising is the only source of revenue, which is usually very low. Details of Spills' turnover are not known but their workforce has already increased to 250, 40 of whom are in the Netherlands.

3 Where to find information

3.1 Existing Statistics

There are (still) relatively few official statistics available on the gaming industry – the development of games is only listed in the NAICS (2002) as a separate subcategory but it is not yet included in the ISIC (rev.4) classification. An exception to this is an extensive OECD study in 2005, which lists both the console and the PC under the MMORPG market.[49] Since then the report has not been updated. One of the most significant underlying data sources (PwC's *Global Entertainment and Media Outlook*) has just published a new edition, but it contains prognoses, not descriptive statistics.[50]

Market research companies only supply the latter types of figures. They generally focus on specific geographical markets. In this way NPD covers the American market, GfK the European market (including the Netherlands), and Fumitsa the Japanese market. The British trade association ELSPA and the Dutch NVPI keep track of figures on sales of hardware (consoles) and software in their respective domestic markets.[51] The community portal VGChartz is the only one that supplies (up-to-date and very detailed) figures on all the relevant global markets.[52]

All of these sources concentrate solely on the video game market (console and PC games) based on retail sales figures. Video games that are sold online – a category that is gaining more and more ground – are missed out.

The MMO market – as far as we know – has only one reasonably reliable source, the regularly mentioned MMOGDATA.Voig.com. An insider from the industry runs this portal as a hobby. [53]

Marketing surveys (on demographic features of user populations etc.) are conducted on an ad hoc basis by commercial bureaus and by a number of umbrella organisations. The European Software Federation (ISFE) – the 'copy watchdog' of the gaming industry – has a large number of market surveys on its website.[54] The International Game Developers Association (IGDA) published a white paper both in 2005 and in 2006 concentrating specifically on casual games.

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[49] Working Party on the Information Economy (2005). Digital Broadband Content: The online computer and video game industry. Paris: OECD.

[50] Price Waterhouse Coopers (2007). Global Entertainment and Media Outlook 2008-2011.

[51] NVPI produces annual figures for the total market turnover in console games and video games in the Netherlands up to and including 2006.

[52] http://www.vgchartz.com/

[53] Phil White from the UK.

[54] The most recent market survey carried out for ISFE was by Nielsen Interactive Entertainment (2007), ISFE Consumer Research 2007. This covers a dozen European countries – excluding the Netherlands.

3.2 Concentration points

The markets in video games, MMOs and casual games all have a completely different structure and are therefore not easy to summarise in one and the same overview. We will look at each one individually.

3.2.1 Video games

A specific feature of the console market is that games can only be played on proprietary consoles – in other words consoles are an indispensable part of the ‘fulfilment’. Console games are distributed almost entirely through the retail trade, either via music chains or specialised game shops. There is no significant C2C-market with the exception of handheld games, which are relatively easy to copy and are exchanged between users.

The PC games market is more like the online music market than console games (see elsewhere in this study). Unlike console games, PC games in the B2C market are being downloaded more and more via the Internet, either straight from the software supplier sites or via specialised legal download sites such as Valve.[55] Alongside these, a lively exchange of games takes place (with or without payment) via P2P networks and online storage sites.

Just like in music, the video games market has a typically fast turnover combined with huge differences between various titles. In other words, of the hundreds of titles brought out every year, only a few are sold in great numbers. Playing a decisive role in all this are the reviews in many specialist game magazines, annex portals and the rankings compiled by marketing research companies on a monthly, weekly or even daily basis. The rankings are important because when many potential customers are purchasing games, they go by the number of games that have been sold to-date.

[55] http://www.steampowered.com/v/index.php

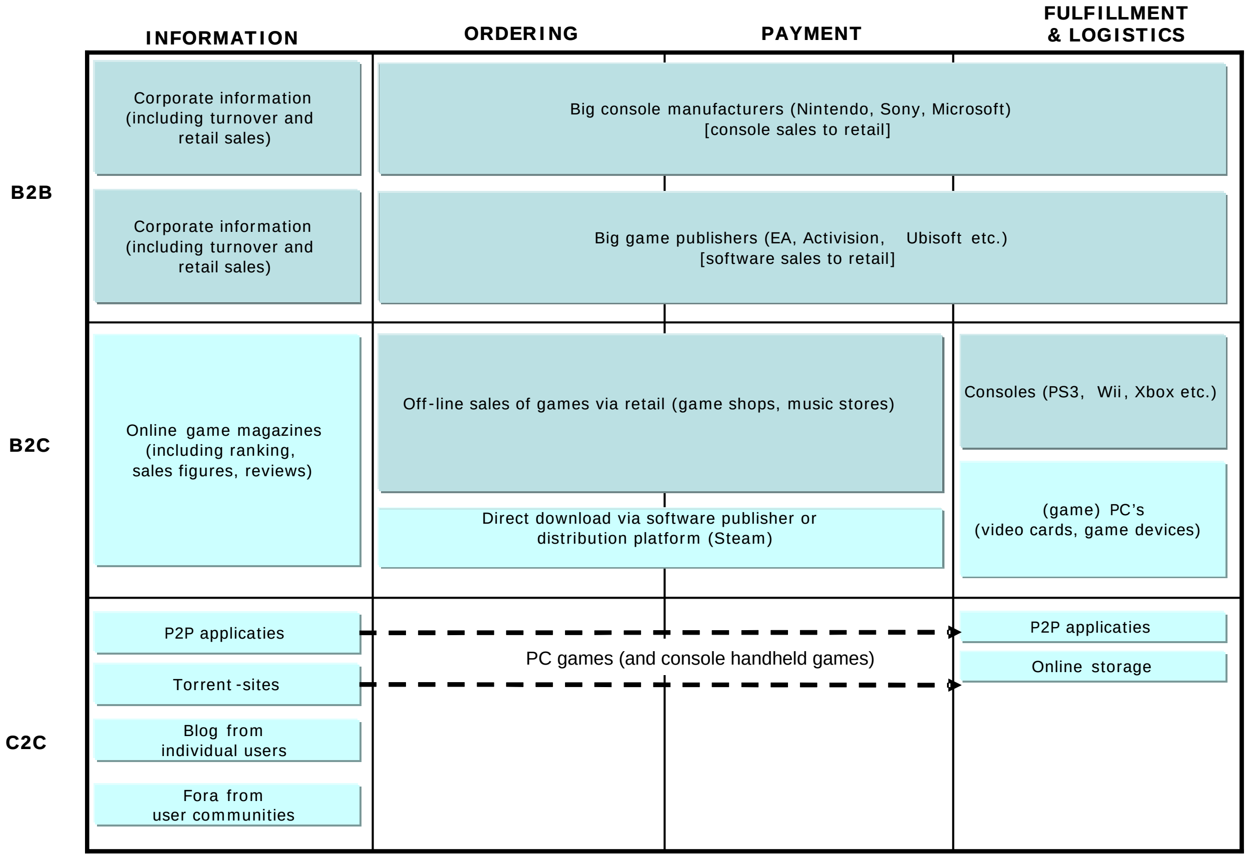

Figure 7:Information concentration points in the video game market

3.2.2 MMOs

The main concentration points for information on MMOs are the supplier sites and of course the MMO portals themselves (user numbers, primary RMT – if this takes place). User numbers can also be calculated by the number of client downloads from the portal, in some cases supplemented with figures from offline sales of clients via retail (World of Warcraft, Guild Wars, Eredivisieonline).

Secondary RMT takes place B2C (by specialist companies like IGE) as well as C2C. In the case of the latter, trading is generally done in one of the many specialised user communities that always exist around an MMO.[56] With social games such as Second Life and Habbo, the trade in virtual objects also takes place directly in the game.

In the B2B market, the infrastructure is particularly significant, that is to say the servers hosting the MMO. All kinds of details about the users group can be derived from the numbers of servers, geographical distribution, usage level and amount of traffic generated.

[56] Most MMORPGs are set up as class or caste societies. Groups of players compete together in the virtual world. The clans or guilds, often linked geographically, usually organise themselves via their own community website.

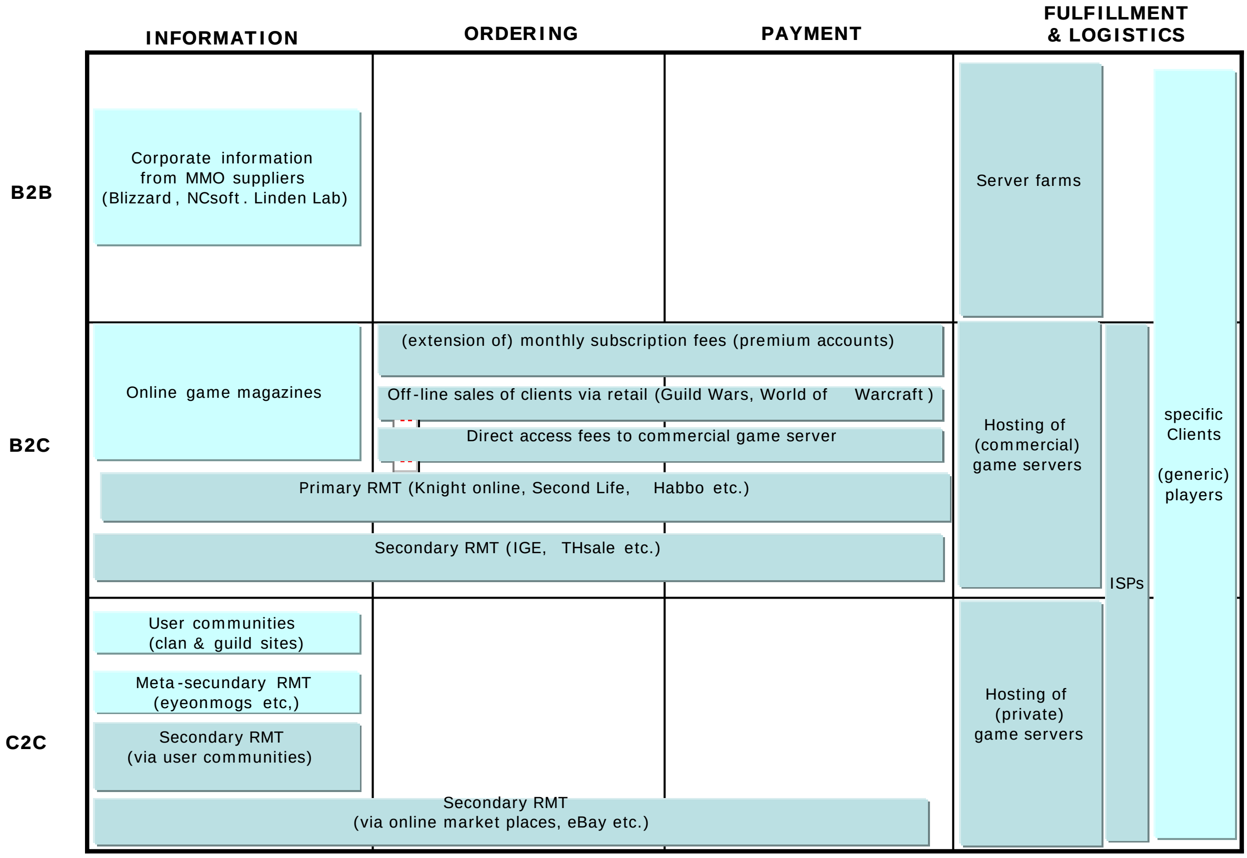

Figure 8: Information concentration points in the MMO market

3.2.3 Casual games

Everything in the B2C casual games market is geared to large numbers of visitors. The logical places to find information are the portals themselves, the supplier sites and especially the market research bureaus (STIR, ComScore), which maintain details of the most popular portals in a certain genre and/or country.

As the market becomes more mature, we see a greater division of labour emerging between the companies who publish and the companies who develop casual games. In other words, alongside the primary B2C market, a secondary B2B market has emerged. Information about the developers can be obtained via the international trade association (Casual Games Association) and turnover figures etc. can be requested directly from the companies.

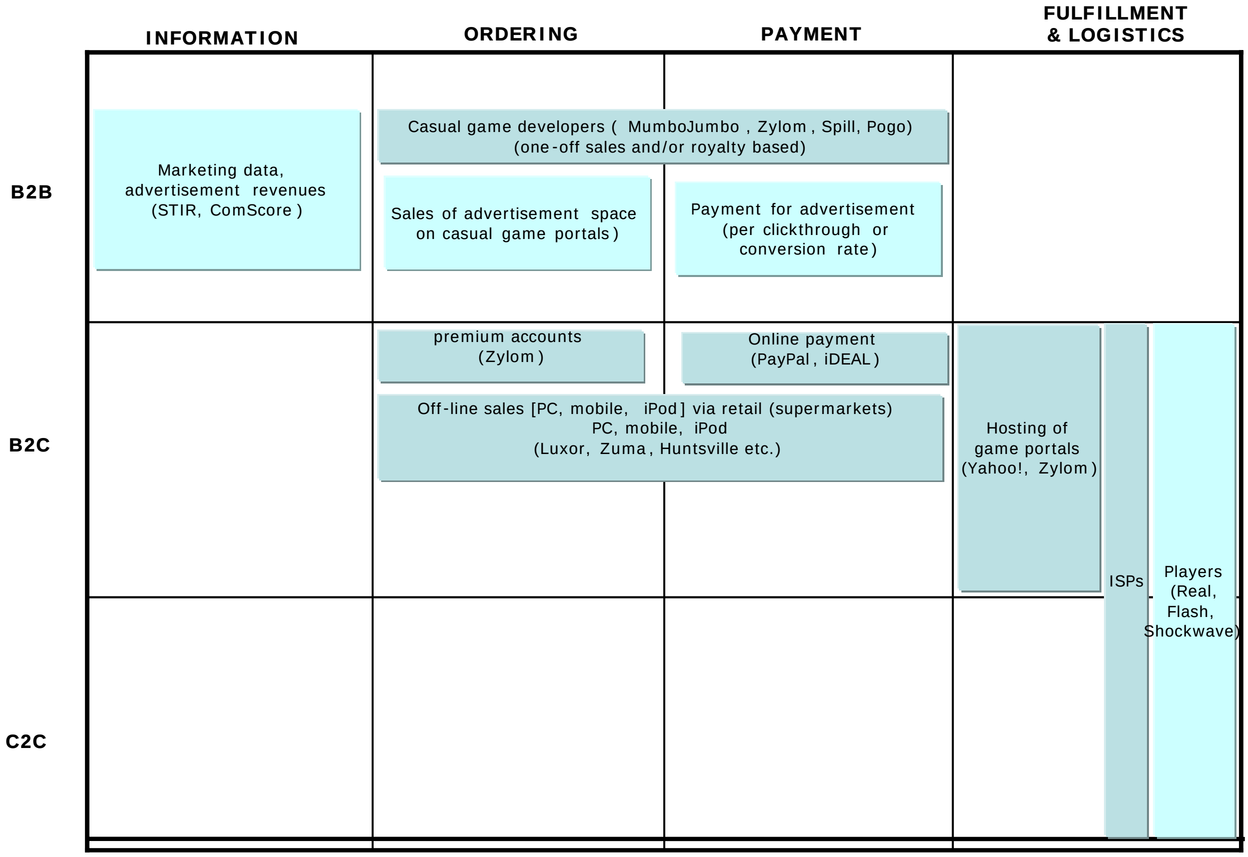

Figure 9:Information concentration points in the casual game market

3.3 New measurement methods ('Internet as data source')

Playing online games always leaves obvious traces everywhere on the Internet. New measurement methods could be used to chart the unknown territory of the shady virtual worlds. Other than in the adjacent markets, there is no particular measurement method that is specifically suitable for collating data – in principle any one of the entire collection of methods could be used. This applies particularly to MMOs because they generally have a *dedicated* channel between the player's PC and the server hosting the game. In theory, the entire client route (user centric) via the Internet (network centric) to the server (site centric) can be distinguished from other types of data traffic or applications.

3.3.1 User centric

In order to play online games, first of all you often have to install some software – in the case of MMOs, this is a specific client; in casual games this is sometimes a generic player (e.g. RealPlayer or Shockwave). Spyware can be developed for a panel of random internet users which automatically detects when and how often a client is used, or even in what way (in the case of the generic player – which type of game is being played). The spyware has to be tailored to suit every type of client or player and this can be devised in such a way that information is only stored on those applications for which the user has given their permission beforehand.

Another way of obtaining access to (part of) the user's PC is by 'hitching a lift' from the P2P application the user may use eventually (see the music case study). This certainly does not apply to all types of P2P applications, but some enable you to view the 'public' domain of other users' hard drives. In this way you can monitor what kind of (PC) games are being exchanged via the P2P network. Similarly the supplier's client or player software can be used to distribute updates or patches over the Internet. Each update gives details on the configuration of the user's PC and this data can be stored centrally. This is how Valve for example, with the help of their distribution platform Steam, compiles details of the technical configuration of their users' PCs (for example the diffusion of the latest graphics card or Windows Vista). Obviously this is useful information for manufactures.[57] The speed and frequency at which a user downloads patches and updates tell us a user's rate of activity. From the divisions among the various generations of clients and players in the total user population, we can see the size of the group of fanatic users compared to dormant ones.

3.3.2 Network centric

Network centric measurement has a number of inherent disadvantages due to the typical structure of the Internet. The biggest problem lies in the external validity of measurement results (this problem is discussed in detail in the music study). Nevertheless, network centric measurement is a very appropriate method for quickly picking up new trends, for instance the arrival of a certain MMO. It is certainly possible to trace an MMO at some point in the network because the profile of the data generated by an MMO is unique. To do this, we do not always have to look at the data stream (*deep packet inspection*), which is fairly complicated and uses a great deal of processor capacity. Some MMOs already have a fixed port number. Detecting this – and so the accompanying MMO – requires only a simple packet filter.[58]

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[57] This is not an entirely innocent activity as demonstrated by the following quote: *"[Steam] collects and reports anonymous metrics of its usage, stability, and performance' all without notifying the user at the time of collection or offering an opt-out. Both a notification and an option to opt out are available for personal information. Steam is also used to report similarly anonymous and non-identifying data by several of its games. While some forms of this data are reported back to the public in aggregate form, for instance hardware specifications and gameplay statistics, other non-identifying data has been known to be collected without any indication, as is described in Valve's privacy policy."* (Source: http://en.wikipedia.org/wiki/Valve_Steam)

[58] See e.g. http://en.wikipedia.org/wiki/Firewall_%28networking%29

MMO	Port number
America's Army	1716/tcp
Valve Steam Client (PC game distribution)	1725/udp
Civilization 4 (online version)	2056/udp
Neverwinter Nights	5121/tcp
ArenaNet (→ Knight Online)	6112/tcp
Linden Lab (→ Second Life)	12035/udp; 13000-13050/udp
Battlefield 1942	14567/udp
EVE online	26000/tcp
Half-Life	27010; 27015
RuneScape	43594-43595/tcp

Table 9. MMOs with an official or unofficial fixed port number

Network centric measurements can also be used to gain more insight into the exact numbers of users of a certain MMO. Generally there is a bit of a gap between the MMO controller's figures and the actual number of active users. With the aid of network centric measurements, we can determine the amount of data traffic to certain MMO servers, which will in turn enable us to estimate the number of users on that server. Once the type of server is known (free to play, pay to play), an estimate can also be made of the MMO controller's potential revenue.

Lastly, Network centric measurements can be used to unravel the bulk of P2P traffic. Thanks to deep packet inspection, it is possible to determine which share (PC) games has of the total P2P traffic. An increasing share points of course to a further weakening in the position of the legal PC games market compared to the much more secure console games. A specially tailored measuring instrument has to be developed for each individual P2P application. Because the two most used P2P applications (BitTorrent and eDonkey) together account for a market share of between 70 and 97%, there are not many practical objections.[59] It even seems possible to measure each separate title's share. In this way we can see which games are most popular in a certain network.

[59] Ipoque (2007). Internet Study 2007.

Ranking	Type	Tile
1	Application	Adobe Acrobat 7.0 Pro (German), including Keygen
2	Game	Midtown Madness 2
3	Application	Office XP German, including serial
4	Game	Geki Sengoku Musou
5	Application	Pimsleur German I II III language lessons
6	Application	Adobe Illustrator CS 3 Premium
7	Game	Civilization IV: Beyond the Sword
8	Application	MAGIX Video Deluxe 2006/2007 Plus
9	Application	Adobe Premiere Pro CS3, full version with crack
10	Application	Adobe Creative Suite 3 Design Premium (German)
11	Application	Microsoft Office 2003 Pro (German)
12	Game	Tiger Woods PGA Tour 08
13	Application	Apple iWork 08 MAC OSX
14	Application	MS Office Enterprise 2007, with key (CD ISO image)
15	Game	Crush
16	Game	Test DriveUnlimited
17	Game	Lord of the Rings (patch)
18	Game	Civilization IV
19	Game	You don't know Jack 3
20	Game	Dungeon Keeper 2

Table 10. The Top 20 most downloaded software in Germany on BitTorrent, 2007. Source: Ipoque.

3.3.3 Site centric

The number of illegally downloaded games can be determined by using crawlers directly on the servers to see where illegal software is being offered directly or indirectly (via referrals). Sites offering illegal software are coming increasingly under fire from the authorities and have therefore become less good sources of information. With sites that only refer to the software (Torrent Trackers), the distinction is finer, as from a judicial point of view, no illegal software is being exchanged. That does not pose a problem for carrying out site centric measurement – after all, it only concerns the meta-data, not the software itself.

Site centric measurement can without a doubt be used on legal sites although most controllers are not too keen on having a crawler tear round their entire website. One candidate that springs to mind is the Steam website. Valve, the company behind Steam, in the first instance used Steam's distribution platform to circulate patches and updates of its own very successful MMO, Half-Life, to worldwide users. Nowadays Steam is also used for the online distribution of games for third parties such as Take-Two, THQ, Eidos and the casual game developer PopCap. The titles that you can download via Steam are far from being a reliable sample of the entire range of PC games on offer. Following Steam's developments gives us an idea of the (growing) significance of the Internet as distribution channel for PC games. As Steam use a fixed port (see table 8), their data traffic is relatively easy to trace via network centric measurement. With Steam's help, Valve also carry out centric measurements on their users' PCs (see previous section on User centric).

It might only be possible to chart the so untouchable secondary RMT with the help of site centric measurements. One practical problem is that in recent years the trade has grown from a few large generic online market places (like eBay) to a great number of professionals, the so called ‘goldfarmers’ such as IGE and Thsale. However, there are also meta-sites available that give an overview of what is on offer and often examine many publishers’ sites.[60] These are good places to find out about the volume of the B2C secondary RMT, or in any case get an impression of how the market is progressing.

It is more difficult to determine the volume of direct trade between users (C2C) because the bulk of this takes place in the twilight zone of countless user community sites. By means of a ‘wide webcrawl’ (as search engines do), it is possible to establish how many types of sites a certain MMO has.[61] This indicates the popularity of the game and the size of the total user population.

Finally, we could of course automatically examine servers that host MMOs. But in practice, that would mean running up against a great deal of opposition because most MMO controllers are very suspicious of the introduction of ‘bots’ in their virtual world. Unlike sites with conventional content, the bots have an immediate and disturbing effect on what is going on in the virtual world. One notorious example of such a bot is the CopyBot, which can make copies of objects or avatars in Second Life without the owner’s permission.[62]

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[60] http://www.eyeonmogs.com/, http://wowgoldseeker.com/ , http://www.gamerprice.com/ etc.

[61] The combination of ‘clan’ + ‘World of Warcraft’ gives more than 620.000 hits.

[62] http://en.wikipedia.org/wiki/CopyBot

4 Case Conclusions in light of IaD

We have looked at three market sectors in this case study: video games, massive multiplayer online games and casual games. As it is difficult to compare these different markets, they should be dealt with separately.

The video games market can be divided into console games and PC games. As the Internet (until now) has only played a very modest role for console games, there are therefore few impact points for the Internet as Data Source (IaD). New measurement methods have added little additional value to the existing methods based on sales of console games via the retail trade.

It is a totally different situation for the PC games market, which resembles digital music more than console games. Just as with music, PC games are being distributed more and more on the Internet – and so the importance of the retail channel is declining. This is done partly as legal downloads direct from software suppliers or via intermediaries like Steam, and partly as illegal downloads via P2P applications or one-click hosting sites. The traditional statistics are solely based on retail sales and miss out an ever-increasing chunk of the market. IaD methods could shed light on both the legal (Steam) as well as the illegal distribution (for example via site centric measurements of torrent trackers or deep packet inspection of P2P-data traffic) of PC games on the Internet.

The casual-games market is still is its early days of development but can be defined with the help of existing statistics. This is because the market – in contrast with MMOs – has geographical links, thus enabling a reasonably accurate estimate of the user population within a certain country. At both national (STIR) and international (ComScore) levels, accurate figures are also available over the range – and therefore the advertising potential – of a particular portal. The only obvious gap is the financial data. The margins in the casual game industry are low and so the huge visitor numbers do not tell us much. It is questionable whether IaD methods are suitable for retrieving this kind of data.

By far the most interesting market, from an IaD perspective, is that of the MMOs. There are hardly any figures available on this market and yet it is here that IaD methods could be widely used. One of the most pressing matters is the total lack of reliable estimates of the numbers of active users of MMORPGs and social games. This applies particularly to free-to-play formats, which have been growing rapidly of late. One reason why there has been so much confusion is the lack of a clear definition of the term ‘active user’. IaD can be used in various ways to give us a better picture of the total volume of users. In this way users can be traced via the client they have installed locally (user centric). Another option is to determine the number of users from the amount of traffic the game servers generate (network centric). It is relatively easy to isolate the data MMOs generated from the rest of the traffic.

There has been a lot of hype surrounding the famous social game Second Life, both in terms of numbers of players as well as financial transactions. Concerning numbers of players, Second Life scores well in the MMORPG category, but compared to 3D virtual chat-rooms – the category where it probably belongs – there are various sites the general public knows next-to-nothing about (Club Penguin, IMVU), but which attract many more visitors. The volume of financial transactions between Linden Labs and users, as well as among users themselves, seems impressive at first glance. But it pales into insignificance compared to the RMT sums circulating in the MMORPG market, and even more so compared to the turnover World of Warcraft generates – more than a billion a year. This is almost as much as the two big game developers EA and Activision earn from all their titles combined. The RMT's phenomenal growth has mostly gone unnoticed by the mainstream because the bulk of the trade in virtual objects takes place in Asia and/or among teenagers. IaD can play an important role, especially in determining the exact volume of the B2C secondary RMT, for example via site centric measurements on meta-sites.

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