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Communities build up Steam

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– Virtual communities, electronic distribution
and the future of the game industry

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Introduction



This paper analyses the case of computer game developer Valve's online game distribution network *Steam*, which besides distribution provides virtual community, multiplayer and upgrade features directly to end-users. This network is employed by the game developer to electronically distribute all of their titles including one of the most highly-anticipated computer games of all times *Half-Life 2*, thus omitting the game publisher's traditional (and physical) distribution channels. Valve's pioneering distribution technology has erupted into a court battle where the publisher Sierra Entertainment (part of Vivendi Universal Games) accuses Valve of breaching contracts and circumventing the publishers retail plans. Even though this particular claim is part of a different and broader ongoing litigation process between Valve and Sierra/VUG dating back to 2002 (Feldman 2004), it is evident that the case of Steam and its lawsuits represent a battle of control over a burgeoning technology that has the potential to substantially transform the entire video game business – and threat the position of retail stores and middlemen such as game publishers. This paper will highlight this transformative technology's effect on the business models and structures of the game industry, particularly focusing on how virtual community features are being used as an strategic business factor and exploring how it can set the standard for digital content delivery platforms of the future.

As the analysis will show Valve is using virtual community services within the Steam platform as a strategic business tool in its struggle for greater revenues and independence from publishers, by combining electronic distribution of games, instant messaging, automatically installing patches and upgrades, automatic server lists, and “virtual” Valve and third party game store, into one unified software platform which is available for free. By providing virtual communities services, which are an intrinsic part of Valve's games, together with an electronic distribution platform Valve hopes that more end-users will choose to buy directly from Valve and consequently generate more revenues.

Hitherto most research in the intersection of virtual communities, computer games and business studies has been focused on the esoteric “virtual” economies of virtual communities in *MMORPGs* (*Massive Multiplayer Online Role-Playing Game*) (Burke 2002; Castronova 2001; Dibbell 2003), other research in the field concentrate on the creation, organisation and management of successful, i.e. populous, virtual communities (Bartle 2004; Kim 1999; Powazek 2002; Werry & Mowbray 2001), while some research within marketing studies elucidate relations between virtual communities and marketing information (Maclaran & Catterall 2002), customer bonding (Szmigin & Reppel 2004) or branding (Muniz & O'Guinn 2001). The two former categories of research emphasise the *internal* logic and dynamics of virtual communities and don't question the existence of the community *per se*. Virtual communities in the first case exist as a backdrop for the study of a new type of “virtual economy”, which in this case is defined as a purely monetary economy. In the second type of literature virtual communities are the desired and unquestioned objective and the research presents recipes of how to presumably successfully achieve and maintain this goal. What is lacking in this kind of research is an *external* business perspective on virtual communities – what is the purpose, from a business perspective, of a virtual community? Some answers, al-



perspective, of a virtual community? Some answers, although confined in their scope, are given by virtual community oriented marketing research: Maclaran and Catteral see virtual communities as an untapped source of marketing information, Szmigin and Reppel perceive virtual community as a way for consumers to bond and finally Muniz and O'Guinn discuss to some extent how computer-mediated communication is used to strengthen consumer brands and their communities.

This paper posits an external perspective and expands the previously somewhat overlooked intersection of business studies, virtual communities and computer games, by analysing the role of virtual communities within the theoretical framework of business strategy and industrial dynamics of the game industry, in the particular case of game developer Valve and its pioneering electronic distribution platform Steam.

The analysis will begin by describing the industrial dynamics of the game industry and positioning the game developer Valve within this structure. An empirical study of the Steam platform, its features and architecture will elucidate the potential of this technology, finally followed by an analysis and a discussion which will elaborate the consequences of the Steam system and its effect on the industrial dynamics of the video game industry.



■ Dynamics of the game industry

In less than three decades the game industry has grown from an esoteric academic hobby to a multibillion-dollar industry. Today the industry has a market size of around \$20 billions, expected to reach \$30 billions by 2007 (RocSearch 2004). Its tremendous growth has eclipsed even the biggest Hollywood cinema openings in terms of revenues (Becker 2004), and slowly the industry is transforming itself from a high-tech toy industry to a cultural industry (Caves 2000; Hesmondhalgh 2002), increasingly focusing on content and experience instead of only technology. Similarly to other cultural industries such as media, the game industry has developed an industry structure with a three-tier industry structure with publishing/financing, production, and distribution/sales as separate sectors.

As most cultural industries video games are an extremely volatile and risky business from an economical point of view. According to the CEO¹ of a leading Swedish game developer about 75% of all games don't generate profit or even make it to the market. Of the remaining 25% of the market only a limited few become global hits and sell more than 1 million copies. These exceptionally profitable games generate enough revenues to compensate for the losses caused by the non-profitable 75% of the market *and* squeeze in a generous profit for the publishers after development, marketing, production, distribution and licensing costs have been paid. The interesting question thus becomes how these profitable hit-games are chosen and produced. Ironically this remains the unknown "billion dollar question" that constitutes the most fundamental characteristic of the game industry. Indeed the game industry is a hit-driven industry where the stronger get even stronger, and "winning high-concepts" are left unchanged consequently creating a creative conservatism with endless sequels to best-selling (usually) sport games. These characteristics of hit-driven unpredictably volatile markets combined with creative conservatism are shared with many other creative industries such as books, music and film as described by Dag Björkegren (1992).

The intrinsically high risk of this sector has consequences for the industrial structure and dynamics of the game industry. The primary function thus becomes not solely creating good games, but mainly financing and managing the risk of game development. As with most other creative/cultural industries there is an oversupply of content producers or *symbol creators* as Hesmondhalgh (2002) would call them – there will always be a large number of developers willing to develop games, but the number of people willing to finance game development will always be limited, consequently creating a "buyer's market". Hence the primary process of the game industry is to finance and publish games and consequently the leadership of the industry lies firmly entrenched with the publishers. In this structure game developers paradoxically perform a secondary function, and become subordinated contractors to the powerhouse publishers of the world. The highly important and lucrative intellectual property rights (IPs) of the industry are increasingly dominated by the game publishers despite the fact that in many cases the game developers are developing them. Notwithstanding this power structure some developers do manage to become (economically) successful and increase their independence from publishers, but in many cases success equals being acquired and incorporated into a pub-

¹ Interview with Daniel Benitez, CEO of Starbreeze Studios (2002)



lisher, as is being e.g. the case of successful Swedish game developer Digital Illusions who appropriately before the release of a presumably successful sequel is being bought by Electronic Arts – the world’s biggest game publisher.

Contextualizing Valve’s position in the game industry

Valve, founded in 1996 in the USA², is one of the world’s most renowned and successful computer game developers. Valve’s first game *Half-Life*, launched in 1998, was an instant global hit and lauded as one of the best *FPS (First Person Shooter)* games of all times. Its realistic graphics combined with immersive and intense storytelling resulted in a groundbreaking game that re-invented the whole *FPS* genre. Particularly acclaimed was the multiplayer mode that allows teams of players to square off over networks. The so-called graphics engine (the software that generates the computer screen graphics) of *Half-Life* evolved into a software platform on which anyone could program new *FPS* games. A global community of net-savvy third-party programmers sprung up creating new extensions, tracks and whole new games, so called MODs (modifications), based on the *Half-Life* graphics engine. As was the case of *Counter Strike* originally a MOD whose tremendous underground success resulted in a separate game officially endorsed by Valve and published by Sierra Entertainment and is now being described as the “*the #1 online action game in the world*”³. Since then Valve has released several MODs and successful new games based on the *Half-Life* graphics engine.

In the extremely volatile and competitive game industry controlled by few globally dominating game publishers Valve has achieved something that a vast majority of other game developers do not have – independence. The huge success of *Half-Life* and its spin-offs has not only generated substantial revenues and decreased financial dependence on publishers, but also created a global community and market of devoted fans and MODders. Consequently when the highly anticipated sequel to *Half-Life* was being developed Valve was in the financially privileged position to be able to self-finance its high development costs (Autrijve 2004) – a possibility which few other game developers in the world can afford.

² www.valvesoftware.com/about.htm

³ www.counter-strike.net/index.html



The Steam network

This section examines empirically the features and possibilities of the Steam network.

When launching the Steam application, which is a free download, the program connects to the Steam network, a window summarising the advantages, as Valve sees them, of the Steam network is shown (see below).



The features are:

- Play the latest Valve games
- Find your friends
- Find the best servers
- Get automatic updates
- Chat with friends, even when in-game
- Receive Steam-only special offers

Three (“Find your friends”, “Find the best servers” and “Chat with friends, even when in-game”) of these six advantages can be characterised as alluding to (virtual) community features by stressing the possibility to find “friends” and “servers” (where you play with your friends). This evidently shows the effort Valve is devoting to underline the “community” features of the Steam network. Interestingly the electronic distribution feature is vaguely referred to in the feature “Play the latest Valve games”, but is not elaborated.

The Steam network is a proprietary technology whose architecture is only fully known to its creators, Valve. However, many technological features can be discerned by studying its functionality. This section’s analysis will not focus on the software technological aspects of the Steam network, but rather on the end-user functions and services provided by this technology.



According to statements in media (Borland 2004), Steam was originally as much an development of Valve's online multiplayer games as it was a way to reinvent the way their games are distributed. Currently the Steam platform offers the following functions as illustrated by the image below of the main panel window in Steam:

- Play games
- Browse games
- Friends
- Servers
- Settings
- News

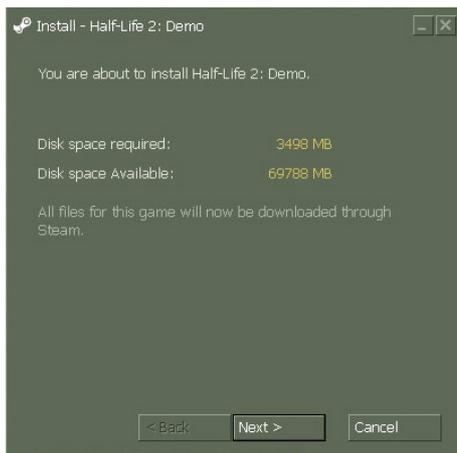


Play games

This feature of the Steam network constitutes the electronic distribution network. It allows accessing the entire catalogue of Valve's games such as Half-Life, Counter-Strike and Team Fortress.



In the picture above the player has not downloaded any games, but by clicking on any of the titles a download of the game can be initiated. The progress of the download can be monitored using the Steam monitor shown below:



Electronic distribution

Due to the large size of most modern games, particularly such technologically advanced games as *Half-Life 2* – weighing in at several gigabytes (see picture above) – electronic distribution becomes a technological challenge. For Valve it is not only a question of providing sufficient network capacity in order to upload large files to downloading customers, or a question of adequate server capacity to coordinate tens of thousands of downloads all over the world – but mainly an issue of efficient distribution. A traditional network infrastructure where clients download from servers is not efficient mainly because Internet’s communication protocols are not adapted for such large file sizes, which consequently reduces the transfer speed. Compensating this shortcoming would require substantial investments in a highly complex technological infrastructure, which would be costly to maintain and manage. This additional infrastructure can be outsourced to specialist companies, such as e.g. Akamai⁴, who provide their own network infrastructure and caching of files in strategic server centres distributed over the world, which increase the speed and reliability of file distribution on the Internet.

Another option is provided by a new generation of software technology, so-called Peer-to-Peer (P2P) networks, that use the bandwidth of servers and clients more efficiently. P2P networks became popular with the advent of the “first generation” file sharing networks such as Napster, which were mainly used to share and distribute music files. A P2P network does not have the traditional notion of clients and servers, but only equal “peer nodes” that simultaneously function as both “clients” and “servers” to the other “peer nodes” on the network. This technology distributes the task of file transfers to everybody connected to the network, hence creating a more efficient use of hardware, bandwidth and storage. The first generation of P2P networks relied however on a centralised server for the communication between different peers. It also only allowed transfers between one peer to another. Second generation P2P networks, such as *FastTrack* and *Gnutella*, become more decentralised and didn’t rely on server infrastructure. Third generation P2P networks improved several features, most importantly efficiency. Primarily by allowing simultaneous downloads from several peers who upload different parts of the same file. Another efficiency improvement can be obtained by forcing peers to share different parts of a file *before* all the remaining parts of the file have been downloaded and united into a single file. This feature is used by e.g. *BitTorrent* and significantly

⁴ www.akamai.com



improves transfer speeds of large files, which is advantageous when downloading files such as films or applications.

Since P2P networks are largely associated with the distribution of files which are considered to be illegal from a copyright point of view (Smith 2003), P2P networks have not yet been widely embraced by the established business and IT world. Renegade attempts by companies such as Sharman Networks, who operate the *Kazaa* network, have only resulted in a litigation-ridden business model solely based on advertising revenues. Some limited success has been achieved by photo sharing services such as *ShareALot*⁵, *PixPo*⁶ and Google-owned *Hello*⁷ that employ P2P-based technology for sharing digital photos on the Internet. The P2P networks are indeed one of the most popular applications on the Internet and are said to account for 35% of all traffic (Pasick 2004), but most applications still reside in a grey area of the law and have thus far not fulfilled their potential to revolutionise the way information is distributed on the Internet.

Valve's solution

Interestingly enough Valve chose to solve their electronic distribution problems by turning to P2P technology. Valve hired the creator of the popular *BitTorrent* technology, Bram Cohen (Schiesel 2004), to develop Steam's distribution technology. The exact details of Steam's architecture are proprietary but it is apparently not a fully decentralised system. Steam relies on centralised servers that provide content to downloading customers. On Steam's website for monitoring the status of its "content servers"⁸, 82 separate content servers can be identified across five continents. 38 of those are managed by Steam and associated network companies run the remaining servers, constituting a fairly complex and distributed server system slightly similar to the systems of Akamai and similar companies. This semi-centralised system is not only for effective distribution purposes only, but most likely also in order to ensure Valve's control over the Steam network. A more decentralised system would be more difficult to manage and control – a totally decentralised system such as e.g. *Gnutella* cannot and will not be controlled by any person or company – evidently not a suitable option for Valve's system.

Valve used Steam's P2P features to distribute movies advertising the game before the launch of the highly anticipated game *Half-Life 2*. While players used Steam to play *Counter Strike* or some other Valve title, the system slowly preloaded movies on the computers of gamers. This feature nearly backfired though when some ingenious gamers managed to tweak the downloaded files and access the movies ahead of time forcing Valve to add another layer of security (Bramwell 2003).

Preloading was also used when finally after many delays *Half-Life 2* was approaching release. Ahead of the launch *Half-Life 2* files were preloaded on Steam members' computers, consequently making it possible to play the game as soon as the game was officially released and a

⁵ www.sharealot.com

⁶ www.pixpo.com

⁷ www.hello.com

⁸ http://www.steampowered.com/status/content_servers.html



registration code was purchased through the Steam system. In this way Valve attempted to combat potential saturation of network bandwidth caused by the massive stream of downloading customers at the launch of Half-Life 2. It was also a way to demonstrate the benefits of the new Steam technology to gamers.

P2P distribution is also used when Steam automatically upgrades games with patches, which has been highlighted as one of the system's main advantages. As with any large software application, e.g. word editors, operating systems and mail programs, they are in a constant need of upgrades. Usually these upgrades *patch* some error in the software discovered after release, but with the advent of the Internet and the rise of viruses patches mainly block security flaws that may be abused by viruses and such. These issues also affect games thus creating a hassle with the constant need of installing upgrade after upgrade. Some patches introduce new features and even new levels making not upgraded gamers in some situations outdated technologically but also community wise. Therefore Steam remedies this situation by distributing and installing patches automatically to all Steam users who have registered copies of Valve's titles.

Although not publicly stated Steam is also an aggressive attempt by Valve to crack down on piracy. Be it a boxed copy of Half-Life 2 or a downloaded copy from Steam – both need verification from Valve via the Steam system. In November 2004 Valve suspended 20 000 Steam accounts for attempted piracy (Fahey 2004), demonstrating the new anti-piracy potential of the Steam system.

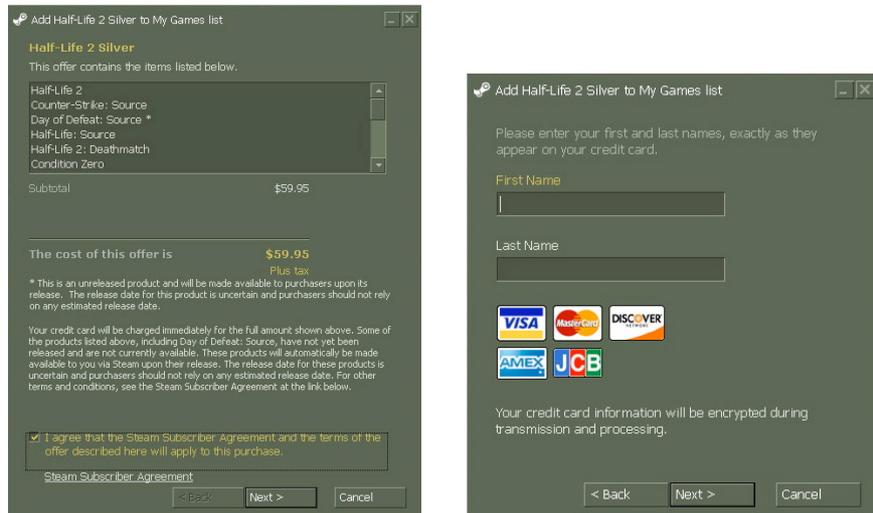
Browse games

This option on the main Steam panel allows browsing through the catalogue of all Valve's game titles. General descriptions are presented (see picture below) but also different Valve offerings where several products are bundled. Interestingly Valve has already started offering third party games, which currently are limited to MODs based on the Half-Life engine (platform) but adding other games would probably be technologically feasible.





By clicking on any of the offerings a purchasing process is initiated where the end-user is required to enter credit card information and similar details. This process is almost identical to purchasing processes in most web-based stores, though in the case of Valve this process is not performed using a web-browser but using the Steam program's window interface.



Friends

“Friends” is the name of Steam’s instant messenger. It works similarly to ICQ, AIM or any other popular chat program. Except “normal” chatting it also provides the possibility to chat when playing and the ability to see which servers (see Servers below) your friends are playing on.

Servers

As mentioned previously all of Valve’s games can be played as single-player games but are primarily played as multiplayer games over LANs (Local Area Networks) and over the Internet. From a technological point of view multiplayer games require some sort of network matchmaking – the multiple players need a virtual meeting place on the network where they can play together or, in the case of all Valve’s game, violently fight each other. This virtual arena is provided by a server – basically any network-connected computer with special server software performing a coordinating role. Usually this setup doesn’t constitute a difficulty since in many cases players know personally the owner/administrator of the server and more importantly the server’s network location. The situation changes drastically with a significant increase in the number of players spread over large geographical areas stretching over entire countries and continents. Consequently this increases the number of virtual arenas and the complexity of coordinating players online. If there are thousands of arenas and hundreds of thousands of players (Steam’s website⁹ claims 2,5 million unique users per month on the Steam network) with Internet access then finding a suitable server (with your friends or with people with the same gaming skills as you) is undoubtedly a challenge.

⁹ http://steampowered.com/status/game_stats.html



Therefore Steam provides the possibility to browse all servers with in-progress games, which is illustrated by the picture below. Some servers are open for all while others require passwords and are only available for a limited group of players. It is also possible to join games as a spectator or browse servers where your friends are playing.



The server software, HLDS (“Half-Life Dedicated Server”), used to create virtual arenas is available for free as a download from the Steam system.

Other features

News from Valve concerning every aspect of their games are available from within Steam but also on Steam’s website. From within the Steam application users are directed to the website that also provides a comprehensive Steam Support Forum where users can post question and read answers about possible solutions to problems with Steam and Valve’s game titles. Another website feature is the Steam User Forum¹⁰ which currently¹¹ boasts almost 200 000 registered users and 2 million posts, indicating a fairly vibrant community.

¹⁰ <http://forums.steampowered.com/forums/>

¹¹ May 2005



Analysis

Steam delivers Valve's games to your desktop and connects you to a massive gaming community

– Steam website (www.steampowered.com)

The Steam platform has the potential to overthrow the entire structure, value chain and dynamics of the game industry, making game distributors, retailers and possibly even publishers unnecessary. By omitting the entire value chain and connecting directly to the end-users, by means of electronic distribution, Valve could shift the control of the entire game industry into the hands of developers. Games would be released directly by Valve (or other developers) instantly all over the world through the Steam network and the Internet. The increased availability and convenience of this system would drive more game sales directly to the pockets of developers, increasing their revenues and consequently profits, since there would be no publishers, distributors or retailers charging unnecessary intermediary fees. Increased profits for game developers would lead to more self-financed development that could hopefully reform the industry structure and subsequently cure its creative conservatism. Just as music listeners are increasingly turning to the Internet downloading music from P2P networks or commercial services (such as Apple iTunes Music Store, Napster, Connect or Rhapsody), gamers will turn to the likes of Steam instead of purchasing computer games in boxes. Third party games, which already are being sold through Steam (see Browse games above), would evolve the system into a thriving economic and technological platform similar to game consoles (Dymek 2004). Given this tremendous potential of the Steam technology the motives behind the court battle, being fought by its publisher Sierra Entertainment/Vivendi Universal Games, appear remarkably apparent

There are however severe limitations to this lofty vision of the Steam network. The Steam platform is currently only available on the PC platform since the majority of their games are only available on the PC platform. Some games have been ported and released on other platforms such as Playstation2 and Xbox, but undoubtedly their primary focus is on the PC a platform which is being marginalised as game consoles increase their dominance in the game industry. The PC game market is indeed a profitable business for Valve, but is increasingly becoming a niche market for certain types of game genres, which are considered to be more suitable for the PC platform, such as FPS, MMORPG and strategy games. A successful electronic distribution platform would most likely require an expansion beyond Valve's own niche game genre into other more mainstream areas, which are more dominant on other platforms (consoles) than on the PC.

Steam could easily be adapted for other platforms such as Mac or Linux, and could as well be used for distributing other genres of games. However, what would be the purpose of distributing games, which currently aren't available on those platforms? Converting Steam to game consoles would be impossible since these platforms are tightly controlled by their manufacturers, which are extensively cooperating with all the major game publishers in the business. Furthermore, what would be the business logic of distributing game genres which have different requirements and wouldn't need most of Steam's features such as server lists, patches and



upgrades and instant messaging? The Steam platform is adapted to the characteristics of Valve's games and would need substantial modifications in order to suit other game genres. In addition, Valve's games are predominantly played in multiplayer mode and consequently require broadband Internet access, which undoubtedly fits the Steam platform's network-based architecture. Many games are, however, not based on network architectures.

Another interesting difficulty with the Steam platform is its product-oriented revenue model, despite being *de facto* a service platform. All the services provided by the Steam platform are basically free: the Steam application, distribution (access to content servers), instant messaging, patches and upgrades, server lists are all for free. Its only source of revenues becomes the games purchased through the Steam platform, which are priced exactly the same way as any other box game sold at retailers. As the IT industry is gradually transforming itself into a service industry based on so-called "web services", Valve's strategy is indeed perplexing. The reasons behind this strategy may be hidden in the confidential agreements between Valve and its publisher Sierra Entertainment, which are being disputed in court. According to some documents presented at the trials Sierra Entertainment allowed "Valve certain rights to the online distribution of games" (Feldman 2004), but later disputed this claim. Evidently Valve has some rights to sell their games online given some publicly unknown limitations.

It is obvious that Valve is using virtual communities as a strategic tool in its struggle for independence and greater revenues. As can be seen on the numerous statements on the website (see e.g. quote above) or in the Steam application itself (see the Main panel or the first Steam window) Valve is clearly stressing the community aspect of the Steam system. This isn't merely marketing discourse but is above all reflected in the features of the Steam system. Providing extensive Support Forums and thriving User Forums is unusual for a game developer, but not unique. Creating a unified software platform that provides services such as instant messaging, continuously updated server lists, automatically installing patches and upgrades, and access to a store with all previous and current games, is truly unique and has never been done before. There are many other games in the marketplace with similar technological prerequisites (Internet connection, server lists, upgrades) as Valve's games, but no other game developer (or publisher) has provided one unified solution to these challenges *and* added community features to the mix. Some companies such as Direct2Drive¹² are attempting to sell downloadable games via the Internet, and recently, Xfire¹³, a free software program is trying to provide Steam-like service independently of game developer and publisher.

How does community become a strategic tool, in the case of Steam? Communities constitute a part of the Steam platform, whose objective is to improve the gaming experience. An equally imperative objective is however to create revenues for Valve by selling games directly to end-users, and consequently, in a long-term perspective, improving its position in the industry. Steam is hence Valve's only fully controlled distribution channel. It is unfortunately still in many ways an inferior distribution channel compared to the "traditional" physical distribution channel through retailers, which is controlled by the publisher. The Steam network

¹² www.direct2drive.com

¹³ www.xfire.com



has since its start been notoriously plagued with outages and unreliable service quality. As was shown in the Play games section above, the Half-Life 2: Demo alone was a download weighing in at a gigantic 3,5 Gb. Even with Steam's army of content servers and efficient P2P technology, this download will take several hours with a respectable broadband connection. Furthermore a physical CD still is a safer way of storing a game compared to a hard drive on a computer considering the risks of crashes and viruses.

Valve isn't using communities as deceptive bait, but rather as a way of providing additional value together with Steam's other services, and recompensing the slightly inconvenient distribution. The price difference of 10% in favour of Steam compared to its publisher Sierra Games/Vivendi Universal's online store isn't probably a sufficient incentive.

Discussion

Similarly to other cultural industries symbol creators have always strived for increased independence. Hollywood directors and actors, once the "property" of big studios, have increased their independence and are now free to do movies with different studios and are earning substantially more. Continuing the analogy further, it is important to stress that symbol creators of the film industry *decreased* their dependence from film studios – but they *never* gained total independence. Many famous directors and actors have tried to create studios owned and managed by creators (e.g. United Artists), but have in the end only themselves transformed into the enemy they were initially fighting (studios). This is precisely what is happening as Valve is taking on more tasks traditionally associated with publishers. As part of the ongoing litigation process VU Games recently agreed with Valve to cease retail distribution of all Valve's games (Fahey 2005), transferring the traditional publisher task of organising distribution to Valve.

Hollywood studios and, their game industry equivalents, publishers are not evil mafia bankers profiting and exploiting the poor symbol creators, as they are sometimes presented. Publishers do perform a vital role of financing/covering development risk, marketing and distributing games – they have *together* with game developers created a multibillion-dollar industry. Hence Steam will probably never "revolutionise" the game industry and "overthrow" publishers – it may however lead to a more balanced industry structure where symbol creators and publishers cooperate to create good games. In many regards similar developments have occurred in other cultural industries such as the music industry where several music movements e.g. punk or techno music have imposed a revision of the industry structure towards more independent symbol creators in relation to the publishing sector (Hesmondhalgh 1998). These new structures were only temporary and not industry-wide, but nevertheless demonstrated alternative ways to organise cultural production, which might indicate a route of future development for Valve.



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Pink Machine is the name of a research project currently carried out at the Department of Industrial Economics and Management at the Royal Institute of Technology, Stockholm. It aims to study the often forgotten non-serious driving forces of technical and economical development. We live indeed in the reality of the artificial, one in which technology has created, constructed and reshaped almost everything that surrounds us. If we look around us in the modern world, we see that it consists of things, of artefacts. Even the immaterial is formed and created by technology - driven by the imperative of the economic rationale.

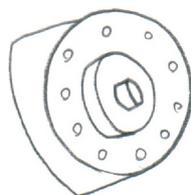
As Lev Vygotsky and Susanne Langer have pointed out, all things around us, all these technological wonders, have their first origin in someone's fantasies, dreams, hallucinations and visions. These things, which through their demand govern local and global economical processes, have little to do with what we usually regard as "basic human needs". It is rather so, it could be argued, that the economy at large is governed by human's unbounded thirst for jewellery, toys and entertainment. For some reason - the inherent urge of science for being taken seriously, maybe - these aspects have been recognised only in a very limited way within technological and economical research.

The seriousness of science is grey, Goethe said, whereas the colour of life glows green. We want to bring forward yet another colour, that of frivolity, and it is pink.

The Pink Machine Papers is our attempt to widen the perspective a bit, to give science a streak of pink. We would like to create a forum for half-finished scientific reports, of philosophical guesses and drafts. We want thus to conduct a dialogue which is based on current research and which gives us the opportunity to present our scientific ideas before we develop them into concluding and rigid - grey - reports and theses.

Finally: the name "Pink Machine" comes from an interview carried out in connection with heavy industrial constructions, where the buyer of a diesel power plant worth several hundred million dollars confessed that he would have preferred his machines to be pink.

Claes Gustafsson



also available at

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