

Virtual Worlds: Second Life and the Enterprise

-- an essay by [Susan Kish](#)
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When you raise the topic of **Second Life** (SL) in a conversation, you usually get one of two reactions: 1) Dismissal as "just another game", "people should [get their first life](#) together first", or 2) Rapt attention as questions start pouring out, and opportunities and risks are explored.

How should enterprises look at Second Life and, more generally, at Virtual Worlds? Is the topic still too early or too distracting from "real business"? Or is SL actually close to the tipping point where, like so many technologies before, it will flip into the mainstream with unanticipated results?

Second Life (secondlife.com) is a synthetic world, a 3D online simulation where you "walk" (slow) or "teleport" (instantaneous) around in the shape of an avatar - a computer representation of actual people, in lifelike form - and can interact (through messaging, voice or video) with others, buy property and build buildings, shop, listen to music and much more. **It's not a game: it's a social space.** To get there, you go to secondlife.com and download a piece of software. It's free as long as you only want to "walk" around; you have to pay to buy local currency (the Linden, which is convertible into real dollars) or to buy virtual land (so you can build, invite your friends over, set up a shop, or resell).

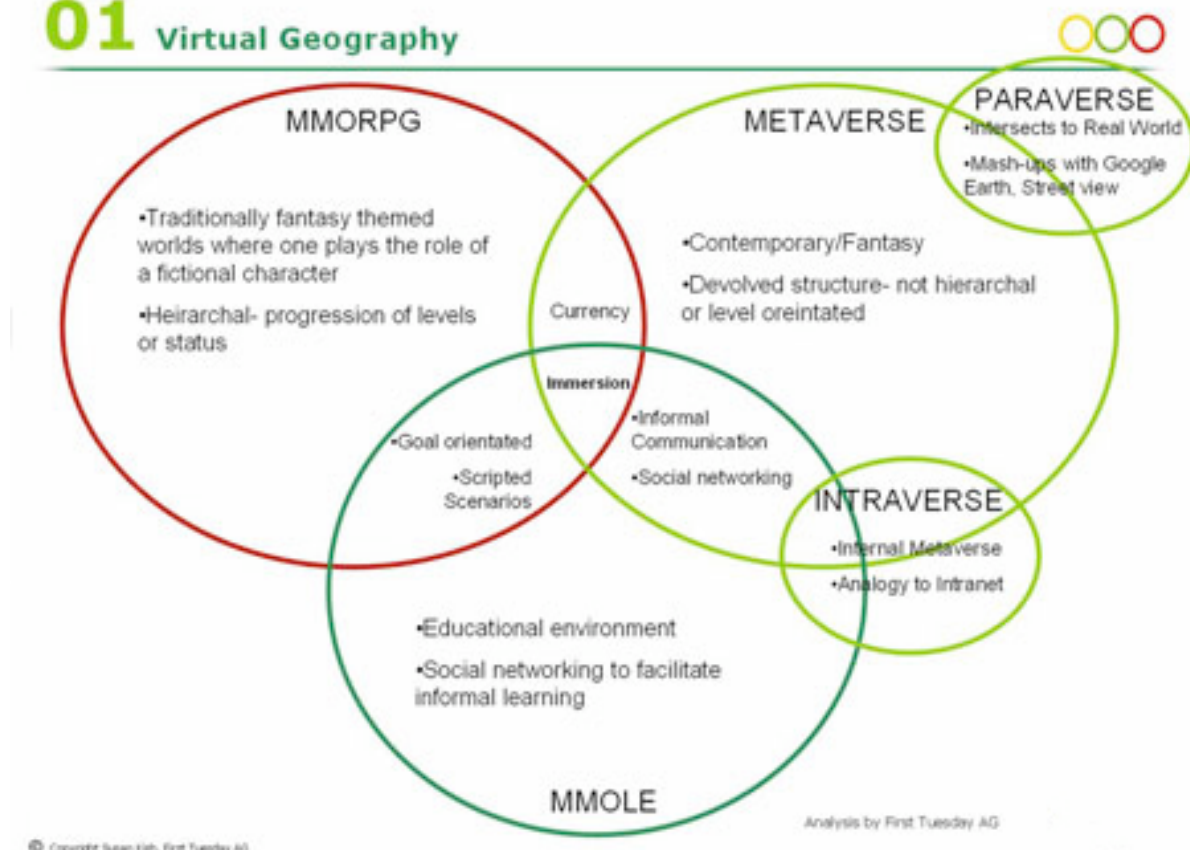
This essay looks into these and other questions relevant to businesses in relation to the emergence of Virtual Worlds. We consider here particularly Second Life as the most important and fastest-growing, but there are several other similar entities.

1) CONTEXT

Second Life can not be looked at in isolation, or you will miss where it's going. **Our emerging future will include three separate kinds of "worlds" – the Real World, the Digital World (2D Web, Internet), and the Virtual World (3D Web).**

Under the umbrella of Virtual Worlds are emerging universes, ranging from **MMORPGs** (massive multiplayer online games, such as [World of Warcraft](#)), and **Metaverses** (Virtual Worlds that are primarily social vs. game oriented, such as Second Life), to **MMOLEs** (focused on learning and training environments), to **Intraverses** (putting up a virtual world inside the corporate firewall), to **Paraverses** (often also called Mirror Worlds, such as [Google Earth](#)).

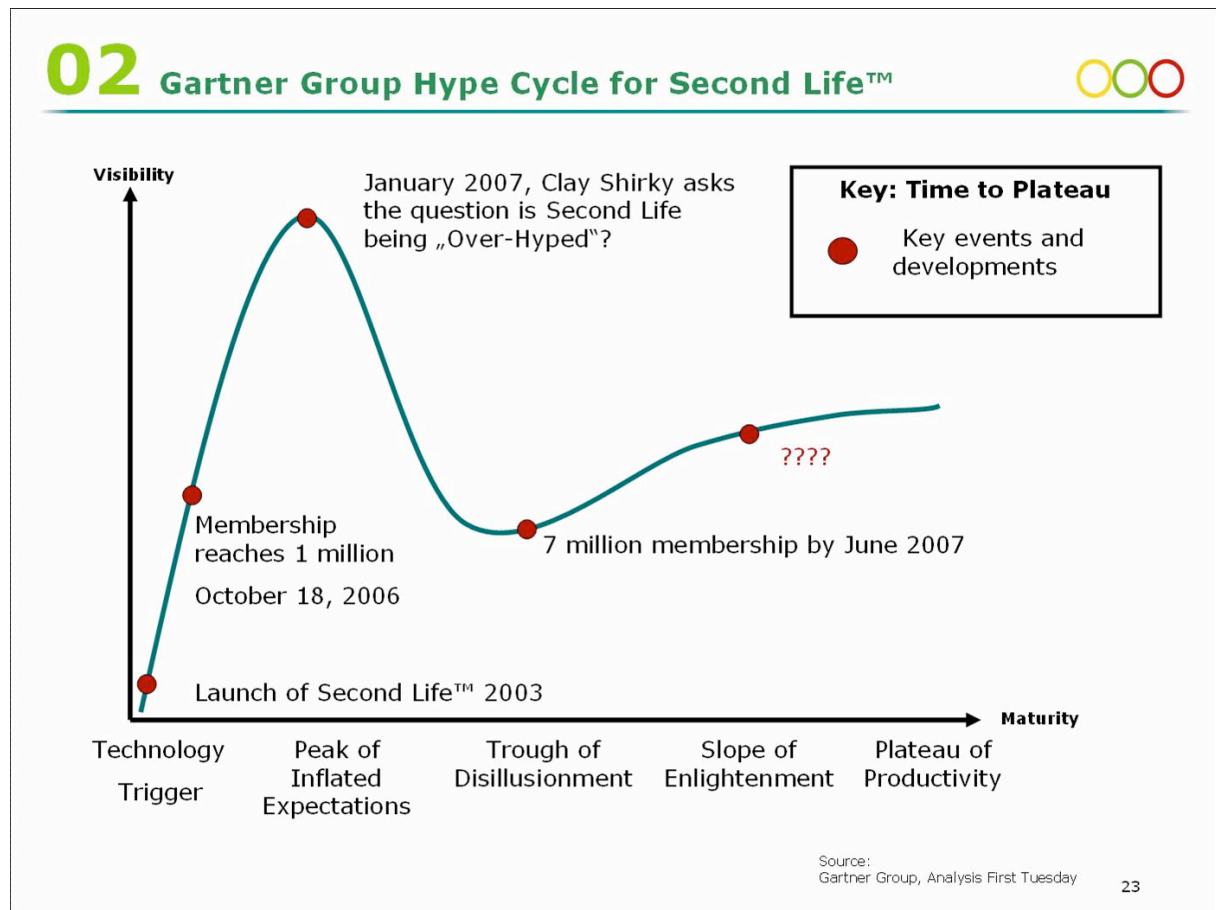
01 Virtual Geography



If we evaluate these technologies **in terms of their evolution**, we see that Virtual Worlds are a topic today because of a combination of advancements in software (graphics, web 2.0 communication), hardware (PC's computational and graphic capacity), and infrastructure (broadband networks) to list a few. South Korea is already seeing the power of that combination, with 95% of homes on 40 MB broadband -- which explains why digital and virtual worlds are ubiquitous there.

If you view these technologies **in terms of technology adoption frameworks**, such as the [Gartner Hype Cycle](#) (see image 02 below), standard patterns emerge. LucasArts launched the first of

these worlds, [Habitat](#), in 1985, and closed it down within 3 years. However, the two decades between the launch of Habitat and that of Second Life in 2003, are a classic gap between the introduction of a technology, and when it matures to a level where mainstream adoption is close.



Since Second Life’s launch, we can identify another Hype Cycle. Enormous media coverage in the autumn of 2006 and early 2007 meant a huge take up of the site – from 1 million members in October 2006 to over 7 million today. Meanwhile, the hype was brought into serious question as analysts such as [Clay Shirky questioned](#)

the genuinely active number of members in Second Life (currently largely under 100'000 at any given time) vs. the curious experimenters who went and registered as members once, and have yet to return.

2) PEOPLE AND VIRTUAL WORLDS

Virtual Worlds are **fundamentally immersive, visually compelling and highly social experiences**. Trusted relationships,

both personal and professional, emerge quickly in these environments and can carry over into the real world.

Skish_virtualidentities These worlds provide a degree of control to individuals – control over their age, their gender, their appearance and their setting – that enables escape and fantasy. Pure curiosity, and the desire to explore and to create, causes many to visit – and often stay.

To understand why it is so immersive, we must first understand the concept of the [avatar](#), the figure (*image below*) which users select or design to represent them in these environments (think: user ID come to life).

Avatars make these Virtual Worlds much more similar to the real world than the digital 2D environment of the Internet. With a body in this environment, avatars interact by the same non-verbal cues of real life – moving closer to someone for a conversation, turning away when the



conversation is closed, nodding (and sometimes jumping) in agreement, etc. Avatars also make issues of behavior / netiquette more acute. On the other hand, the pseudonymity of being present through the avatar makes some people more confident: for example, more comfortable asking questions in a course or meeting.

Skishextremeusers Edward Castronova's book [Synthetic Worlds](#) (2005), viewed as a classic by many in the industry, places social issues of Virtual Worlds within a historical framework of immigration. Castronova argues that when these worlds provide a more compelling world than the real one, history shows that there will be migration. Today, extreme users of Second Life ([video](#)) can be viewed as early indicators of this trend.

3) ENTERPRISES AND VIRTUAL WORLDS

Many **enterprises have set up a home inside Second Life**, exploring ways in which Virtual Worlds may change how we do business. These worlds are proving to be entrepreneurial environments. An estimated 200 companies have been created which are dedicated to delivering services within Second Life. Combined they currently employ over 3000 people globally, with estimated annual sales of \$60 million (source: Linden Labs). For many enterprises, the first venture into Second Life is often a store built for marketing and branding purposes; however other key areas of enterprise exploration are:

*** Education and Training** – The immersive virtual environment is extremely conducive for teaching, from language to tech training and on-boarding. There are currently hundreds of educational sites within Second Life, and over 2000 participants in their dedicated education community. The area of Serious Games, whether within Second Life or within stand alone metaverses / MOLE (multiple online learning environments), will continue to develop and grow.

*** Communication and Collaboration** – For many, Second Life presents a very attractive alternative to conference calls and video conferences. Enterprises already regularly use SL for meetings, conferences and connecting dispersed teams. For example, we have been using SL for weekly cadence calls with a large global client and the dispersed team, and have seen consistently good results – time is used very effectively, and participants are more relaxed and open. This potential will increase with the recent test launch of integrated audio and voice capabilities on Second Life.

*** Sales** - Many consumer goods, automotive, media and financial services firms (from Nissan to Adidas, from Swiss bank BCV to Reuters, from the BBC to Harvard University) are exploring Second Life as a new channel for sales, customer relationships, teaching and media distribution. From building islands to promote recording artists, to launching a new car simultaneously in the real world and SL, to customizing a shoe in SL to be bought in the real world, these organizations are pioneering the medium. However, to quote a major retailer, "it's too early to know what will work". Technology companies are also exploring the medium for corporate sales and

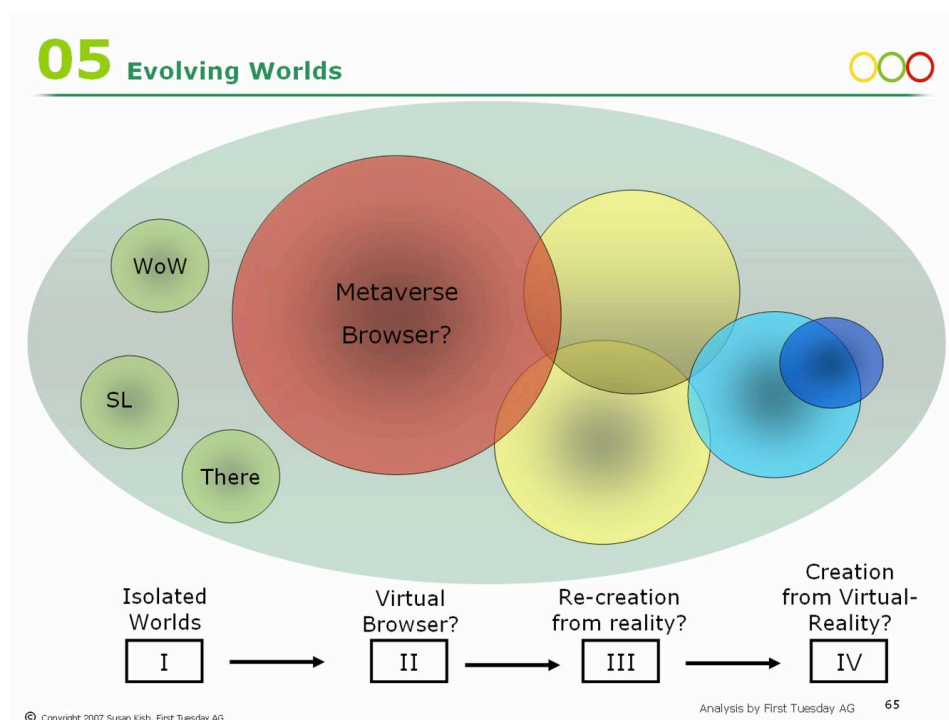
services. IBM is a leader in this area, having recently opened a new Virtual Business Centre which experiments with Virtual Worlds as a sales channel. The ability to work with a client in a visual and immersive environment, will only be an advantage as products and services get more complex.

* **Innovation** – Companies are using SL to test and develop products. Starwood Hotels, for example built a new concept hotel within SL as a test environment before their real world launch of Aloft Hotels, using the SL members' feedback to refine their plans before starting construction and franchising (after which Starwood donated its virtual SL hotel to a non-profit youth organization).

4) WHAT'S NEXT?

Virtual Worlds **will be constrained by technology and acceptance for the foreseeable future.** However, environments such as Second Life are moving and evolving so fast that “checking in” every six months or a year is no longer enough.

* **Virtual Browsers** - Many participants predict the introduction of a “virtual browser” as the next breakthrough, allowing avatars and their assets to move easily between virtual worlds. The underpinning technologies will become more widely available, encouraging enterprises to build their own virtual worlds – adding to the spectrum of virtual innovation.



* **Ubiquity** – Like other technologies that are fundamentally about communication, Virtual Worlds will need to go through a series of standard phases – from “Wow, you have an avatar?”, to “I have an avatar too”, to “You still don’t have an avatar?”. When there is a critical mass in a given community, then the benefits of communicating or collaborating within a world such as Second Life will be much more evident.

* **Confluence** – When your avatar flies through Second Life (or when your mouse maneuvers through Street View, a recent feature introduced on Google Earth) you can’t help thinking – what if? What if the **next generation of technologies could allow the ultimate mash-up of Google Earth and Second Life** – allowing our avatars to stroll down a real time Broadway on their way to the movies? The combination – whether a Google Life or a Second Earth or another similar entity - could be the ultimate enterprise in Virtual Worlds.

SL and other virtual worlds have **demonstrated the potential to become the next generation of interface for connections, content, and collaboration – effectively the post-Web platform of choice – taking the 2D internet and transforming it to a 360-degree 3D experience.** The question now is: can they overcome the challenges and go beyond the tipping point of widespread acceptance of the technology, moving from the leading edge user to ubiquity? And if so, when?

(Susan Kish has been working with networks and communities for over 10 years. She can be contacted at mail (at) susankish (dot) com. Any comment and suggestion will be gratefully received. Research assistance by Lauren Du Peza).

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Virtual Worlds: Glossary

- **Alacrity:** Used in software context, from the Latin *alacritus* meaning promptitude; quickness in action or movement
- **Avatar:** Origin from Sanskrit meaning incarnation of a form of god on Earth; now represents the virtual figure a person creates in a 3D world
- **Blog:** A personal website with content displayed in reverse-chronological order
- **Cyber-disinhibition:** Impulse unleashed; lack of guided responses; “flaming”; people do not check their responses as they would do in face-to face situations
- **Cyberspace:** The electronic medium of computer networks, in which online communication takes place
- **Cyber Bullying:** Used to refer to [bullying](#) and [harassment](#) by use of electronic devices through means of [e-mail](#), [instant messaging](#), [text messages](#), [blogs](#), [mobile phones](#), [pagers](#), and websites
- **Cyber Crime:** A term used broadly to describe activity in which [computers](#) or [networks](#) are a tool, a target, or a place of criminal activity. These categories are not exclusive and many activities can be characterized as falling in one or more categories
- **Cyber Terrorism:** The leveraging of a target’s computers and information technology to cause physical, real-world harm and severe disruption; usually requires a political motive. (See also Cyber Crime)
- **EverQuest:** (EQ) A 3D internet, pay-for-play fantasy MMORPG run and distributed by Sony Online Entertainment. Players control a character avatar within a persistent game world. It was released in 1999 everquest.station.sony.com
- **Folksonomy:** A type of classification system for online content created by an individual user who tags information with freely chosen keywords; also the cooperation of a group of people to create such a classification system
- **Flaming:** To send an angry, insulting, critical or disparaging electronic message (email)
- **Google Earth:** A [virtual globe](#) program that was originally called Earth Viewer and was created by [Keyhole, Inc.](#) It maps the earth by the [superimposition](#) of images obtained from [satellite imagery](#), [aerial photography](#) and [GIS 3D](#) globe. earth.google.com
- **Groupware:** Software that integrates work on a single project by several concurrent users at separated workstations

- **Guild:** A guild or clan is a group of players who regularly play together in a particular (or various different) [multiplayer](#) games. Joining a guild places one within a [social network](#) which provides access to resources, knowledge, and help needed to accomplish many game related goals
- **Habbo Hotel:** A 3D internet based virtual community aimed at teenagers, combines the concepts of a chat room and an online game. It is owned and operated by the Finnish Sulake Corporation. The game was released in 2000. www.habbo.com
- **Intraverse:** A 3D virtual world built within a firewall on the 2D concepts of intranets and internets. Consider IBM's intraverse; a three-dimensional virtual world set up just for IBM
- **Liminal:** A period of transition; A period during which one is "betwixt and between", "neither here nor there". Applied in context to represent the space or interaction between real and digital/virtual worlds
- **Machinima:** The art of making real movies in virtual worlds
- **Metaverse:** Fully immersive 3D virtual spaces. These are environments where humans interact (as [avatars](#)) with each other (socially and economically) and with [software agents](#) in a cyber space, that uses the metaphor of the real world, but without its physical limitations
- **Mirror Worlds:** A computer model or virtual simulation of reality geographically linked to the planet Earth or other bodies in a physical universe. (See also Paraverse)
- **MMOLE:** A Massively Multiplayer Online Learning Environment
- **MMORPG:** A Massively Multiplayer Online Role-Playing Game
- **MUD:** Multi User Domain/Dungeon/Dimension; have elements of Role-player games, hack & slash computer games and social chat rooms; text driven commands (Dungeons & Dragons)
- **NPC:** Non-Player Character(s); part of the programme code of the game; not controlled by individual players
- **Netiquette:** Etiquette (or lack thereof) when using the Internet
- **Network Effect:** When the addition of one more person to the network, is more valuable than just that one person
- **ORPG:** Online Role Playing Game
- **Paraverse:** A parallel virtual world geographically linked to the planet Earth or other bodies in a physical universe. (E.g. Google Earth)

- **Participatory Culture:** A reference to the sum of the customs or ways of life that lead consumers to create and circulate new content on a medium
- **PC Baangs:** (Pronounced *bahngs*) Translates to PC Room; originates from Korea where they are popular hang outs for teenagers and gamers; online game playing parlours
- **Persistent Worlds:** A virtual world (often fantasy) that is used as a setting for a role-playing game, often online. The world is always available and world events happen continually
- **Prims:** Short for "primitive"- a virtual solid of any shape, used as a building block in the Second Life world
- **Pseudonymity:** A word derived from [pseudonym](#), meaning 'false name', and describes a state of disguised identity resulting from the use of a pseudonym. In this context, the use of a name for an avatar that is different from the user's name
- **RPG:** Role-Playing Game
- **Second Life:** (SL) A 3D, internet based virtual world, run and managed by Linden Research, Inc from California. Residents interact through avatars in an environment which combines advanced social network services with general aspects of a metaverse. It was released in 2003 www.secondlife.com
- **SLurl:** A SLurl allows a user to click a link on a webpage and have that link pre-populate coordinates of a place in Second Life within your SL client
- **Social Networks:** [Social structure](#) made of nodes (which are generally individuals or organizations) that are tied by one or more specific types of affinities, such as [values](#), [visions](#), [idea](#), [financial](#) exchange, [friends](#), [kinship](#), [dislike](#), [trade](#), [web](#) links, [sexual relations](#), [disease transmission](#) ([epidemiology](#)), or [airline](#) routes
- **Social Software:** Software that supports group interaction
- **Synthetic Worlds:** Crafted places inside computers that are designed to accommodate large numbers of people
- **Tagging:** Allows for the kind of multiple, overlapping associations that the brain itself uses, rather than rigid categories
- **V-Business:** Virtual Business
- **Viral Marketing:** Refer to [marketing](#) techniques that use pre-existing [social networks](#) to produce increases in [brand](#) awareness, through self-replicating [viral](#) processes, analogous to the spread of [pathological](#) and [computer viruses](#)

- **Virtual Reality:** A realistic simulation of an environment, including three-dimensional graphics, by a computer system using interactive software and hardware
- **Virtual Worlds:** A [computer](#)-based [simulated environment](#) intended for its users to inhabit and interact via [avatars](#). This habitation usually is represented in the form of two or three-dimensional graphical representations of humanoids (or other graphical or text-based avatars). Some, but not all, virtual worlds allow for multiple users
- **Wang-tta:** Korean act of singling out one person in a group to bully and treat as an outcast; considered motivation to excel at digital games and a driver for community membership amongst teens
- **Web 2.0:** Perceived second generation web-based communities and hosted services (social-networking sites, wikis and folksonomies) which facilitate collaboration and sharing between users
- **Wiki:** A collaborative website whose content can be edited by anyone who has access to it
- **World of Warcraft:** (WoW) A 3D internet, pay-for-play fantasy MMORPG. The game is run and distributed by Blizzard Entertainment. Players control a character avatar within a persistent game world. Currently it is the world's largest MMORPG in terms of monthly subscribers. It was released in 2004 www.worldofwarcraft.com

Virtual Worlds: Bibliography

General Resources:

"Living a Second Life: Virtual Online Worlds". *The Economist*. September 28, 2006. Online 06 June 2007.

http://www.economist.com/business/displaystory.cfm?story_id=7963538

General introduction and critical review of the growth of Second Life™

"Online Gaming's Netscape Moment?". *The Economist*. June 09, 2007: Technology Quarterly pp. 11-12.

Critical review of the current platform structure of virtual worlds, tracking the progression of Web 1.0 services to 2.0 services and their application on the growing virtual phenomenon. Close look at Metaverse Network which is developing an open platform in the hopes of encouraging wider adoption and new uses of the technology

"Second Life: Facts for the Visitor". *Wired Magazine*. Issue 10.04

http://wired.com/wired/archive/14.10/sifacts_pr.html

Online 06 June 2007

Extensive review of the overarching features of Second Life™. Coherent and informative plus good visual pictures

Castronova, Edward. „The Right to Play“. *New York Law School Law Review*, Vol. 49, No. 1, pp. 185-210, 2004 Available at SSRN: <http://ssrn.com/abstract=733486> Online 06 June 2007

Analytical article discussing the shift in fantasy game related worlds to more entertaining day-to-day virtual worlds. Clear, coherent and a good source of information regarding the evolving nature of the internet and societies motivations for participating in this growing phenomena

DiRomualdo, Tony. "Media-Savvy Workers: A New Front in the War for Talent". Reprinted from *Future of Work Agenda*, May 2007. Quest G. Presented June 14, 2007

Presentation presented early June in Switzerland. Discusses the implications surrounding a new "media-savvy" workforce and the issues that arise from having new demands and skills represented in today's employees. Delves into the function of technology as a tool for pedagogy. Contact Tony DiRomualdo for full details: tony@questg.com

Guissani, Bruno. "Second Life: the next platform". *Lunch over IP: Bruno Guissani's Running Notes on People, Places, Technologies and Ideas*. 31, Oct. 2006. Online 06 Jul. 2007

http://www.lunchoverip.com/2006/10/there_is_a_medi.html

An informative overview of the media frenzy surrounding Second Life. Guissani provides a clear introduction to the phenomenon that is emerging worlds. He balances multiple opinions and provides objective insight. A valuable read for introductory background to Second Life

Harkin, James. "Get a (second) life". *Financial Times Weekend*. Saturday 18, November/ Sunday 19, November 2006. pp.16-17

Newspaper review generally introducing the virtual world of Second Life™. The journalist's view point is unique in that he recommends readers to get the most out of their current life before embarking on a Second Life™. Somewhat negative approach to Second Life™

Gibson, William. *Neuromancer*. New York, NY: Ace Books, 1984

Gibson uses computers as metaphors for human memory and personality. His characters seek transcendence of the self, seeking to escape their bodies, pasts and even deaths. Technology is a medium for which attempt to achieve transcendence often with disastrous effects. Recognized as one of the initial books of the "Cyberpunk" movement. Assigned the creation of the term "jacked-in"

McCannon, Aili. "IBM's Management Games". *Business Week*. June 14, 2007. Online 21 June 2007

http://www.businessweek.com/technology/content/jun2007/tc20070613_838152.htm

Concise article detailing IBM's work in developing a management game called, Innov8. The article gives a brief overview of the particulars surrounding the game as well as provides good quotes and insight into the growing corporate trend to employ games to develop leaders and manage projects

Rymaszewski, Michael et al. *Second Life®: The Official Guide*. Indianapolis: Wiley Publishing, Inc., 2007.

Informative guide to Second Life® published by Linden Labs. Provides an overall introduction to all aspects of the virtual world making it a valuable tool for reference for anyone looking to join and explore the virtual world of Second Life™

Stephenson, Neal. *Snow Crash*. New York, NY: Bantam Spectra, 1992. Stephenson's novel follows on in the Cyberpunk tradition of Gibson. Through a collection of unique characters the novel examines themes of religion along as well as concepts of social importance, perception versus virtual reality and the violent physical nature of humanity

Wellman, Barry. "Computer Networks as Social Networks". *Science*, New Series, Vol. 293, No. 5537. (Sep. 14, 2001) pp. 2031-2034. JSTOR Closed access to public. Stable URL: <http://links.jstor.org/sici?sici=0036-8075%2820010914%293%3A293%3A5537%3C2031%3ACNASN%3E2.0.CO%3B2-H> Online 28 May 2007

Journal article that is written from Wellman's point of view arguing the issue that computer networks are inherently forms of social networks and the two should not be studied in isolation. A good critical critique of systems and networks with empirical studies to support his viewpoint

Virtual Worlds:

Balkin, Jack M. and Noveck, Beth Simone. *The State of Play: Law, Games, and Virtual Worlds*. New York, NY: New York University Press, 2006.

Comprehensive and informative collection of essays discussing a wide variety of topics concerning the growing phenomena of virtual and synthetic worlds. Themes of legal rights, crime, user created content and identity are among the many issues touched upon

Castronova, Edward. *Synthetic Worlds: The Business and Culture of Online Games*. Chicago: University of Chicago Press, 2006.

A wealth of information regarding the emergence of synthetic worlds. The book provides the reader with the foundation for tracking, understanding and appreciating the development of synthetic worlds. Castronova's style is comfortable to read despite the dense subject matter. Recommended as a key resource

Gelernter, David. *Mirror Worlds, or: The Day Software Puts the Universe in a Shoebox... How It Will Happen and What It Will Mean*. New York: Oxford University Press, 1992

Gelernter's work of 1992 is still applicable today and a recommended read for those interested in understanding the technological changes surrounding the internet. Gelernter argues for a virtual, immersive world where many aspects of public life exist online as an extension and selective mirror of the physical world

Kapp, Karl M. "Defining and Understanding Virtual Worlds"

<http://www.learningcircuits.org/2007/0507kapp.html>

Online 06 June 2007

Valuable review defining the differences and similarities between virtual worlds. Provides clear and concise information on the particular features between MMORPGs, MMOLEs and Metaverses

Ratliff, Evin. "Google Maps is changing the Way we see the World".

Wired Magazine Issue 15.0, June 2007.

http://www.wired.com/print/techbiz/it/magazine/15-07/ff_maps

Online 27 June 2007

Gives clear background on the origin of where Google Maps is coming from. Provides very good overview of current trends and outlook. A good reference for information pertaining to Paraverses

Reuters, Adam. "Gartner Sees 80% Virtual World Penetration by 2011".

Wednesday 25, April 2007. Reuters Second Life Bureau.

<http://secondlife.reuters.com/stories/2007/04/25/gartner-sees-80-virtual-world-penetration-by-2011/> Online 08 June 2007

News review of Gartner's take on the virtual world phenomena. Valuable for his position in being able to analyse and track trends in key industries

Reuters, Adam. "Gartner Says Second Life Hype Near Peak". Thursday

04, January 2007. Reuters Second Life Bureau.

<http://secondlife.reuters.com/stories/2007/01/04/gartner-says-second-life-hype-near-peak/> Online 08 June 2007

Interview review from a Gartner analyst discussing their viewpoint on the level of hype surrounding virtual worlds and the difficulty there is in measuring this trend

Roush, Wade. "Second Earth". *Technology Review*. July/August 2007.

MIT Publishing: MIT. Online 27 June 2007. *Closed access to public.*

<http://www.technologyreview.com>

Valuable article discussing the eventual merging of the World Wide Web into the World Wide Sim. Hypothesizes the emergence of an environment that combines elements of Second Life and Google Earth. A very current look at the trends of virtual world development

Market and Economy:

Hemp, Paul. "Avatar-Based Marketing". *Harvard Business Review*. June

2006: pp.48-57

Valuable journal article discussing the potential marketing emphasis to virtual world avatars. Provides key examples of marketing experiments as well as useful insight to the difficulties, as well as rewards such marketing campaigns may yield for businesses

Jana, Reena and McConnon, Aili. "Second Life Lessons". *Business Week*.

October 30, 2006. Online 06 Aug. 2006. Stable URL:

http://www.businessweek.com/innovate/content/oct2006/id20061030_869611.htm

Article that reviews the real world business presence and trend to expand into Second Life. Reviews companies such as Toyota and General Motors who where

establishing a presence in Second Life when the article was written, to real world companies like Electric Sheep and Rivers Run Read that create scripted content for companies looking to campaign in Second Life. A well written review which is not over hyped (note that it is a year old and some business presence has changed).

Riley, Duncan. "Will the Last Corporation Leaving Second Life Please Turn off the Light". *TECHCrunch*. July 14 2007. Online 16 July 2007. Stable URL: <http://www.techcrunch.com/2007/07/14/will-the-last-corporation-leaving-second-life-please-turn-off-the-light/>

Brief article that responds to the LA Times article on the failure of business in Second Life. Suggests that firms aren't engaging Second Life citizens and there is a lack of people using Second Life. Riley sees the financial costs of maintaining an island in Second Life as too high to be maintained for the lack of visitors. He's of the opinion that the metaverse will continue, but as it doesn't rely on corporations, Second Life will not suffer, potentially being better off.

Semuels, Alana. "Virtual Marketers Have Second Thoughts about Second Life". *Los Angeles Times*. July 14 2007. Online 16 July 2007.

Stable URL: <http://www.latimes.com/business/la-fi-secondlife14jul14,1,3135510.stor?ctrack=1&cset=true>

Newspaper article that suggests firms are having a harder time plugging their products than previously expected. Highlights the 'emptiness' of many company sites and suggests that companies need to be more creative in how they integrate into the fantasy world and carefully consider what products they promote. Provides good perspective against the current Second Life hype.

Tedeschi, Bob. "Retailers hope for a 2nd Life in virtual Sales". *The International Herald Tribune*. Tuesday, 12, June 2007. p.15

Informative newspaper article looking at the success of retailers who have a presence within Second Life™. Key examples include interview with Raz Schionning of American Apparel. It particularly highlights some of the difficulty retailers have in generating revenue within a virtual market

Tuft, Michael. "Virtual World, Real Millions". BBC News: BBC Money Programme. Pub. 06. Jan. 2007. <http://news.bbc.co.uk/go/pr/fr/-/1/hi/business/6708417/stm>. Online 06 May 2007.

BBC News review highlighting the extent of a market that exists within Second Life™. Companies such as Reebok, Nissan and Calvin Klein are mentioned. The article points out that companies can, and are, making money through this virtual platform

Companies & Organizations in Second Life:

Banken in Second Life. 29 March, 2007. Centrestage. Online 14 June 2007.

<http://www.centrestage.de/2007/03/29/banken-in-second-life/>

Brief review of the banks that have opened "branches" within Second Life™. Both ABN AMRO and Swiss bank, BCV are highlighted with information on what their branches offer and their expectations for being part of the virtual platform

Businesses and Organizations in Second Life. February 2007.

Virtual Worlds: Second Life and the Enterprise
by Susan Kish (www.susankish.com)

Wikipedia, the Free Encyclopaedia.

http://en.wikipedia.org/wiki/Businesses_and_Organizations_in_Second_Life Online 11 June 2007.

Comprehensive list with key info on companies that have joined Second Life™
As well as companies that were created specifically for Second Life™. A valuable reference

Second Life Relay for Life. 2007. American Cancer Society. Online 12 June 2007

http://www.cancer.org/docroot/GI/contnt/GI_1_8_Second_Life_Relay.asp

Brief overview published by the American Cancer Society outlining its involvement in Second Life™. Key facts and figures are provided as well as information regarding the upcoming Relay for Life they will again be hosting within Second Life™

Alice. <Blog Post> "Radio 1's One Big Second Life Weekend". Pub. 12 May, 2006.

http://www.wonderlandblog.com/wonderland/2006/05/radio_1s_one_big.html Online 12 June 2007.

Blog post advertising and commenting on the BBC's One Big Weekend that took place in Dundee, 2006 and was streamed live into Second Life™

Au, Wagner James. "The Uncanny X-Men (and News Corp) come to Second Life". Pub. 22, May 2006. *New World Notes Blog*.

http://nwn.blogs.com/nwn/2006/05/the_uncanny_xme.html

Blog post discussing the premiere screening of X-Men: The Last Stand streamed live into Second Life™ from the Cannes, France premiere

Frampton, Boris. <Blog Post> "Greater IBM Virtual Bloc Party in SecondLife Report with Screenshots". *Greater IBM Connection*™ *Blog*. 13 October 2006.

http://greateribm.typepad.com/web_log/2006/10/greater_ibm_vir.1.html Online 06 June 2007

Blog post discussing the IBM Virtual Bloc Party event. Valuable for its overview of how the event was structured. Provides insight into how IBM is expanding and utilising their presence within Second Life™

Hughes, Ian. <Blog Post> "The IBM Innovate Quick internal metaverse project". *Eigtbar.co.uk* 08 May 2007. <http://eightbar.co.uk/>

Blog post discussing IBM's work in Second Life™. Suggests that they are examining the potential balance of content creation over deployable content in a business context

Hughes, Ian. <Blog Post> "Gartner predictions on the metaverse".

Eigtbar.co.uk 27 April 2007. <http://eightbar.co.uk/>

Blog post commenting on Gartner's prediction. See original Reuters review for more specifics

Newman, Andrew Adam. "Reuters Enters Domain of the Geeks".

International Herald Tribune. 16 October 2006: p. 11.
Newspaper article announcing Reuters Group commitment to place an office and "in-world" reporter within Second Life™. Informative, if brief

Reuters, Adam. "Dutch bank ABN sets up Branch in Second Life". Friday 01, December 2006. Reuters Second Life Bureau.
<http://secondlife.reuters.com/stories/2006/12/01/dutch-bank-abn-sets-up-branch-in-second-life/> Online 12 June 2006
Short report from Second Life™ Reuters' reporter announcing ABN AMRO's presence within the virtual platform

Reuters, Adam. "Anshe Chung to Open Cross-Platform Financial Exchange". Monday 21, May 2007. Reuters Second Life Bureau
<http://secondlife.reuters.com/stories/2007/05/21/anshe-chung-to-open-cross-platform-financial-exchange/> Online 11 June 2007
Short report highlighting the plan for Second Life™ real estate tycoon, Anshe Chung to open up a financial exchange called the AnsheX. The report is not conclusive

Reynolds, Roo. <Blog Post> "Virtual Worlds in Education- Eduserv Symposium 2007". *Eigtbar.co.uk* 11 May 2007.
<http://eightbar.co.uk/>
Blog post providing brief commentary on the variety of virtual worlds discussed at the Eduserv Symposium. Key comment on the issue of Cyber-disinhibition. See bibliography Behaviour: Goleman, Daniel

Second Life Tree: The Metaverse Directory. Website:
<http://www.secondlifetree.com>
Extremely valuable directory of Second Life™ URLs (SLurls). Full directory listing with teleportal information. A must use reference when in Second Life

Behaviour and Health:

"Virtual Psychosis Environment helps understanding of Schizophrenic Hallucinations". Bi-weekly Newsflash: *UC Davis School of Medicine Alumni Association*. Online 27 Jun 2007.
<http://www.ucdmc.ucdavis.edu/medalumni/newsflash/>
Brief article discussing the implementation of a virtual environment to replicate the experiences and world of a schizophrenic patient. The briefing points out key features of Dr. Yellowlees' project and the current feedback that has been received from the running simulations

Cook, James and Yellowlees, Peter. "Education about Hallucinations Using an Internet Virtual Reality System: A Qualitative Survey". *Academic Psychiatry*. Vol. 30, No. 6 (November-December, 2006) pp.534-539
Article evaluates the internet virtual reality technology as an education tool about the hallucinations of psychosis. It discusses the pilot project done in Second Life™ where a virtual reality environment was constructed to simulate auditory and visual hallucinations of two patients with schizophrenia. Valuable insight to medical research being done in virtual environments

Chee, Florence. "Understanding Korean experiences of online game hype, identity and the menace of the 'Wang-tta'". *Digital Games Research Association DiGRA*. Proceedings of DiGRA 2005 Conference: changing Views- Worlds in Play. 2005.

Valuable journal article tracking the gaming culture of South Korea. Clear and concise, it provides a solid overview of the social issues surrounding and motivating widespread gaming participation

Goleman, Daniel. "Cyber-disinhibition". *Edge: The World Question Centre*. Edge Foundation. 2006.

http://www.edge.org/q2006/q06_5.html Online 08 June 2007

Scientifically informative review on the causes behind Cyber-disinhibition. Points out the change in cerebral function between face-to-face interactions over computer interaction resulting in reactions not typical of normal human behaviour. Recommended read for those interested in the social and psychological issues surrounding computer/Internet usage

Herz, J.C. "The Bandwidth Capital of the World". *Wired Magazine* Issue 10.08, August 2002.

http://www.wired.com/wired/archive/10.08/korea.html?pg=4&topic=&topic_set= Online 12 June 2007

Well written review on Seoul, Korea that explores the dynamics of its extensive gaming culture. Highlights key points such as broadband immersion, PC Baangs and MMORPGs that emphasize the unique internet based culture that has evolved in Korea

Naone, Erica. "AMA Considers a New Addiction: Video Games".

Technology Review. June 25, 2007. MIT Publishing: MIT. Online 27 June 2007. *Closed access to public*.

<http://www.technologyreview.com>

Informative article discussing current research regarding the addictive qualities of video games. Based on the findings of the American Medical Association and American Psychiatric Association.

Turkle, Sherry. "Always-on/Always-on-you: The Tethered Self". Pub. 24 August, 2006. *Handbook of Mobile Communications and Social Change*. James Katz (ed.). Cambridge, MA: MIT Press, forthcoming
Article that addresses society's reliance on technology and media, particularly in teens. Addresses issue of the self, networking and the expanding global community

Yee, Nick et al. "The Persistence of Nonverbal Social Norms in Online Virtual Environments". *CyberPsychology and Behaviour*. Feb. 2007. Vol. 10, No. 1, pp.115-121

Valuable study investigating the transference of non-verbal interaction trends from real-world into virtual worlds. Suggests that avatars interact non-verbally based on the same way we act when face-to-face. Good reference for behaviour studies

Web 2.0:

O'Reilly, Tim. "What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software". Online 09 June 2007

<http://oreillynet.com/lpt/a/6228>

Comprehensive review of what "Web 2.0" entails. A valuable resource tracking the shift from Web 1.0 services to what we are now calling 2.0 services.
Recommended

Saffer, Dan. "The Web 2.0 Experience Continuum". Adaptive Path, LCC.

<Http://www.adaptivepath.com/ideas/essays/archives/000545.php>

Pub. Nov. 14, 2005. Online 06 June 2007

Provides brief but coherent overview of Web 2.0 services and its characteristics

Participatory Culture:

Cascio, Jamais. "The New World: the rise of the New Culture of Participation".

http://openthefuture.com/2006/11/the_new_world_the_rise_of_the.html Online 11 June 2007

Good analysis of the way in which society is growing in regards to participation. Provides clear insight and well structured arguments for the growth of participatory culture. Cites good examples, recommended read for those interested in the topic

Singularity:

Kurzweil, Ray. *The Singularity is Near*. New York, NY: Viking Press of the Penguin Group (USA), 2005.

Kurzweil provides unique insight into the future of accelerating technological change. He suggests the divide between biology and technology is growing smaller and advanced genetics will enable us to redesign the human body. Hypothesises of the Singularity will create a fundamental shift in humanity's understanding of the universe, representing the next step in human evolution

Vinge, Vernor. "The Coming Technological Singularity: How to Survive in the Post-Human Era". *Presented at VISION-21 Symposium, March 30-31, 1993. Whole Earth Review* (Winter, 1993).

Online 27 June 2007

<http://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html>

Interesting article considering the possibility of the technological means to create superhuman intelligence within the next thirty years. Vinge predicts the end of the human era. His research questions whether this can be avoided and hypothesizes whether humans will survive through these technological changes.

Politics and Governance:

"Virtual Rules- Real Life Lawyers & Second Life Avatars". *Four Corners: Australian Broadcasting Corporation*. Pub. 19 March 2007

Online 05 July 2007

<http://www.abc.net.au/4corners/content/2007/s1876068.htm>

Valuable article providing overview to issues of legality and security within virtual worlds. The article provides quotes and interviews with key lawyers and representatives from Second Life™ as well as highlights current cases and examples of cyber crime and debates on taxation. A good resource for beginning research into governance and legality surrounding virtual worlds

Koster, Raph. "Declaring the Rights of Players". *Raph Koster's Website*.
Posted August 27, 2007. Online 07 June 2007

<http://www.raphkoster.com/gamin/playerrights.shtml>

Interesting post on Koster's personal webpage in which he discusses the issues behind the growing discussion of rights for players and avatars. The most important aspect of the post is Koster's Declaration of the Rights of Avatars. While purely a hypothetical piece, the 19 articles are well structured and provide a good foundation for questions of legal rights of avatars in virtual worlds

Schiesel, Seth. "In a Virtual Universe, the Politics Turn Real". *The New York Times*. 07, June 2007. *Closed access to public*.

www.nytimes.com Online 08 June 2007

Unique article highlighting the political undercurrents which run through any organized group of people. Specifically centres on the outcry from Eve Online players regarding the behaviour of its makers CCP

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Contact Susan Kish: mail (at) susankish (dot) com

Contact Lauren Du Peza: lf (dot) dupeza (at) gmail (dot) com