Chapter 2
How Linden Lab Built a Virtual World for Business and Education

Jean Miller

2.1 How Linden Lab Built a Virtual World for Business and Education

Many people wonder whether the initial development of Second Life included its impact on business and education. Did the visionaries know from the start that this new communications medium would influence how human beings could interact with each other worldwide? Science fiction literature has been cited time and again as the best description of a seamless virtual world with futuristic pizza delivery service (Stephenson 1992). Science fiction literature does not discuss corporate training programs or education within a virtual world. With the release of Second Life in 2003, an eccentric group of gamers, entrepreneurs, and academics broke ground and surprised its developers by pushing usage model boundaries. Linden Lab, the creators of Second Life, made a series of decisions around user[1]-created content and intellectual property law that turned the development of a virtual environment into the development of a virtual platform. The ability to exchange US dollars for the Linden dollar, the limited license object used to exchange virtual goods, would open up a new method of conducting online business. The relatively inexpensive ability to have a 3D space that did not require specialty software or extensive training provided a teaching and development medium for daring educators. These examples

[1] For the purposes of this chapter, I intentionally use the term "user" instead of the Linden Lab preferred term of "resident" because I feel the term "user" is easier to parse for the reader that is new to virtual worlds but has an understanding of online communities.

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illustrate the marriage between Second Life platform development, and businesses' interests and educators worldwide.

In this chapter we will discuss the early development decisions, whether intentional or reactionary, that supported education, internal development of businesses inside Second Life, and external businesses entry into Second Life. We will take a closer look at the notable examples in business and education that influenced development decisions and how organizational structure influenced business and education. We will discuss the evolution from the idyllic metaphor "building a country" to the more literal, "building a core platform." Between my own experience at Linden Lab,[2] integrating organizational literature, as well as interviews with several stakeholders that were part of the decision-making process during the last 12 years of development, we will have a greater understanding as to what led to the focus on business and education on the Second Life platform and what led to the change in focus.

Listing all the steps that Linden Lab took in relation to business and education so that they may be replicated or ignored in a new company would not be as useful as understanding why management took certain steps in development and why these steps were seen as important. I conducted nine recorded, semi-structured interviews (lasting 30–60 min) with former and current Linden Lab employees. I asked every interviewee one primary question: what are some of your memorable business and education decisions? I supplement this case study's timeline with the help of two authors, Thomas Malaby and Wagner James Au, and their invaluable commentary.

Linden Lab's decisions around business and education were weaved into its organizational culture. In order to understand the course of decisions that have been made from Second Life's inception, I believe its organizational culture played a role. Organizational culture is directly influenced by technology, markets and is defined by its founding leaders. There are three components of organizational culture: the relationship between the employee and the organization, the vertical or hierarchical system of authority, and the organization's vision from the perspective of the employees (Trompenaars 1998). Linden Lab was not only building a very different product with Second Life, but was also trying to build a very different type of company.

2.2 To Build a World

In 1999, Philip Rosedale decided to turn an idea into a reality, an idea deemed by many impossible from a technical perspective, lacking an audience if it was not a game, and that no one would ever use it. Mitch Kapor, one of Linden Lab's initial investors noted:

> So in the history of Second Life, I've been through multiple waves of skepticism about it. 'It will never work.' Philip had this radical idea that hadn't been done before about having an

[2] Full disclosure: I retain a financial interest in Linden Lab to date due to my employment. For this reason, I rely primarily on my interviews to give perspective and endeavor to present my observations analytically and fairly.

> infinitely scalable virtual world by centralizing the backend. [I]t had just not been done that way. Technical people said, well this isn't going to work. But that hurdle was overcome, and an existence proof was built in six months. Then there's the business argument, that people have tried these virtual worlds and they've failed. And it was true that at that point the roadside of the information highway was littered with the corpses of failed start ups in this space, [...] the preconditions of success were not there. The next thing we heard was that there's no market for online games. [...] this is not for regular people. 'I'd never use this.' It reminds me of other things I've heard people say. In 1995 I was showing people Amazon, and they would say I will never put my credit card information on the Internet. Well, we got over that one. (Wallace 2006)

As the story goes, what we know to be Second Life was not created from the beginning. In fact Rosedale had originally set up to build virtual reality hardware—but he needed a virtual world for the hardware. Building the virtual world was the secondary goal. By summer 2001, Linden Lab released the Alpha version of Second Life, which was originally called Linden World (Terangreal 2010). It was around this time that Philip Rosedale and Cory Ondrejka presented Linden World to a group of investors. During their presentation, a couple Linden staffers were in Linden World, as Wagner James Au describes in his book, *The Making of Second Life: Notes from the New World*, "... one Linden staffer was building a giant, evil snowman, while another was busy creating a mass of little snowmen, gathered around their titan Frosty to worship him. *This* everyone realized, was what made their online world unique" (Au 2008).

This investor meeting was a very important transition in Second Life's development. Thomas Malaby, a professor in Anthropology at the University of Wisconsin-Milwaukee and the author of the book, *Making Virtual Worlds: Linden Lab and Second Life*, points out, it was in this moment where Linden Lab went from building a complex self-organizing system where one could venture through in a natural landscape to building a platform for individual creation (Malaby 2009).

Closed Beta of Second Life began in November 2002 and went public in April 2003 (Terangreal 2010). In Beta, Second Life first started the beginnings of an in-world (in Second Life) economy, or more specifically, a flat tax around the development of objects "in-world" (inside Second Life). Linden Lab had also decided on a subscription based revenue model.

Subscription models were typical to in-game economies of the time. Everquest and Ultima Online had shown that online gaming with market economies could be very profitable when based around a subscription service. However these games were extensive and pre-built. Second Life depended on its users to create the content and there was no pre-existing game element in the world. In fact, for many employees, it was the platform for building games *on*. In 2005, Malaby observed first hand as an ethnographer that the developers at Linden Lab were working with Bedazzled, an inside Second Life developer, to make Unreal Second Life Chinatown, a first-person shooter game in Second Life. They felt the product would take off and that Linden employees felt that "[Second Life could] be a platform of both development and distribution of online multiplayer games" (Malaby 2011). What actually did take off around the same time, was a game called Tringo, developed by

a user named Kermitt Quirk. Malaby could almost hear the creaking of the ship as Linden Lab switched gears in order to capitalize on Tringo (Malaby 2011).

By October 2003, Linden Lab had grown to a team of 30 employees that were highly involved in responding to the community. Though the users that participated in the tax revolt in Second Life felt that they helped cause the economic structural change, Second Life's user growth was flat. With flat user growth, the company realized that their subscription model was not sustainable without having to raise a huge amount of money (R. Harper 2010). Linden Lab subsequently laid off one third of their work force (11 employees) and decided that they needed to rethink Second Life's business model (R. Harper 2010). As with much of technological development, innovative ideas spawn out of other types of existing technology. As Robin Harper, former Vice President of Marketing and Community Development, points out:

> We started out thinking that Second Life was largely going to be populated by gamers. And so the early business model reflected the gaming business model, so the assumption was set, people would pay a monthly subscription. And then we would maybe layer in over that. (R. Harper 2010).

Many of the new employees came to Linden Lab from the video game industry, which provided a natural bias towards the initial business model assumption. Disc-based games, especially massively multiplayer online games at the time, relied primarily on subscription based revenue models. Additionally, the only products in the market that resembled what they were trying to build at all were video games.

First, they wanted to build a game, next they realized they wanted to build a platform to build games on, and then they realized they didn't necessarily need games.

2.3 To Build a Nation

Since they needed a unique business strategy, the leadership at Linden Lab decided to reach out and ask people for advice. Cory Ondrejka, former Chief Technology Officer, noticed early on:

> While building Second Life, there was a tremendous amount of knowledge that we didn't necessarily have in-house, from economics to urban planning, [...] monetary policy and fiscal policy. And so, in a lot of cases, it made sense for us to be reaching out to academics [...]. [I]t makes for a much richer collaboration when you're [not only] reaching out to the academy, schools, and individual professors because you have questions, but that the answers are going to have meaningful impact on a business, and then, conversely, that the project that you're working is something that is potentially useful to the academics involved (Ondrejka 2010).

In late 2003, when Second Life was in Beta, Linden decided to gather a group of "big thinkers" from outside of the company to discuss how to maximize economic growth for the company. Harper remembers:

> The people who came to this meeting were: Ted Castranova, Julian Dibbell, [...] (who moderated,) Lawrence Lessig, Mitch Kapor, Jed Smith, Philip, Cory, and myself from Linden

> Lab, Mark Louis from EA, and Bob Trager who was originally from EA. [W]e spent the whole day talking about what we should do and out of that meeting came this idea that what we were really trying to build here is a new country. Like you may have heard Philip quoted as saying, "I'm building a country." [I]f you look at a developing country, for example, there are four pillars that need to be in place that will drive economic growth. [Those] four pillars are the right to own land, the right to do whatever you want on that land and retain the ownership of it, the ability to monetize whatever you create and the ability to keep the reward. [They're] [. . .] the core of how capitalism and free societies work. [. . .] It's what the Internet is all about. Self-expression, creativity and ownership.

This was a pivotal moment for Linden Lab. They went against what every game company at the time was doing, which was suing consumers that created things and tried to sell them on their respective platform. In fact it is directly in opposition to where Sony was at the time with Everquest and where they continue to be with anything that is developed without expressed permission on their platforms (Torrone 2011). (Though more recently they have supported user-generated levels in their product Little Big Planet.) It was out of this "big thinkers" meeting that the tax system got repealed and a new economic system came into place. It was also the beginning of a long relationship with the academic community. In fact, even though the meeting of "big thinkers" of 2003 was an intentional meeting, Linden reacted to their comments in a very profound way.

Malaby's analysis as to how the new internal model was brought into fruition may have sounded well thought out in hindsight, but in reality it was a lot more reactionary (Malaby 2011).

Mark Ferlatte, former Executive Director of Web Software Engineering, saw the copyright decision and the creation of the Linden Dollar, as logical decisions, that were very intentional, very controversial, and supported business and education directly (Ferlatte 2011).

> Internally there was a lot of discussion around the copyright issue, because it put us under significant unknown risk. Because nobody had done it, so nobody knew what [. . .] was going to happen. The Linden Dollar, for the same reason, also had us under significant unknown risks, because [. . .] governments don't like things that look like competition for printing money. [We had] to be very careful about that. [E]ven though the Linden Dollar was not money [. . .]. Policy makers, seem to be a lot more comfortable with the concept [of] digital economics [as we've seen in our recent economic history]. (Ferlatte 2011)

For others, like Chris Collins, former General Manager Enterprise, a nation was exactly what Linden was building:

> With the Linden dollar, being a single transaction mechanism, [the fact that it] could go across borders really allowed for that. When you're in Second Life, you're in another country or another nation, and therefore, the ability to commerce with anyone is very easy to do. I ran the currency exchange for a year, and the fascinating thing with that is that I would equate that to running an actual real economy in that the one interesting economic difference that we had is that we were a country that had [. . .] an [uncontrollable immigration policy], because the population growth was the equivalent of people getting on a boat and arriving in the tens of thousands every day, which drove a lot of the economic activity and increased the economy. (Collins 2011)

In May 2004, Philip Rosedale said to reporter, Daniel Terdiman, that he was "building a new country" (Terdiman 2004). However, Malaby would argue that the notion of building a nation was not mentioned at Linden Lab during his ethnographic research from December 2004 to January 2006 and would not take hold in the company's philosophy until later. He explains:

> [Linden Lab was not] really coming from a place where they wanted to make a society. This idea that it's a nation, [...] I really [...] didn't hear that metaphor while I was there. I think that's very much a post hoc type thing. They made that shift to user creation, and then when it wasn't working, they made the shift to intellectual property rights. (Malaby 2011).

He suspects that building a nation-state or country became an organizational metaphor when Wells Fargo developed Stagecoach Island in September 2005 (Malaby 2011; Staff 2007). Wells Fargo wanted to be separate from the main grid or the common space that was Second Life. Malaby further explains:

> [T]hey had a very important decision to make. Did they want to let Second Life, [...] in pursuing these [...] corporate interests, did they want to let Second Life cleaved and shard, effectively, into all these leased out Second Life architecture domains, or did they want to keep everything in one world? [...] And it was at that moment where, as Philip at least described to me, he decided everything had to be on the grid. So that was where it did become one entity, and that sealed [everything] a bit more like boundaries of a nation, state or a country.

Part of this decision was due to a severe lack of resources at the time to build and sustain such an area. Additionally, this decision supported the "building a nation" ethos that everyone would reside in one contiguous nation. Linden Lab was already feeling severe technological pain points around supporting a separated Teen area and did not want to replicate them. The teen area (also known as the teen grid) presented legal concerns around the protection of children from adult content and the main area (also known as the main grid). Additionally, Second Life did not have the technical ability to implement those protections without making Second Life a terrible experience in the process.

2.4 To Build a Democracy

In the midst of exploring how to build the Second Life platform, Linden Lab was also exploring how to build a different kind of company. In Thomas Malone's book, The *Future of Work*, which was suggested to all Linden Lab new hires by 2006, Malone postulated that just as society has moved from centralized hierarchy to democratic decentralized systems with the increase in network technology, businesses also fall along the same continuum and were moving from traditional centralized systems to more democratic decentralized structures (Malone 2004). This fell in line with existing theories that organizational success would depend "less on the authority of the few and more on the judgment of many; less on compulsion and

more on motivation; less on external control of people and more on internal discipline" (Hock 1999). There are very few studies on notable organizations that had attempted a truly decentralized democratic organizational system. Mondragon Cooperative Cooperation in Spain and Goretex are but a few examples.

In November 2000, years before Malone's book, Rosedale and Ondrejka provided the management foundation for Linden Lab. "We wanted a short-term, transparent progress towards tasks, flexibility, and participation of the whole team" (Ondrejka 2011). Employees were held publicly accountable for their projects by sending out a weekly list of Achievements and Objectives to the entire company. In February 2005, Linden Lab implemented a project management application called JIRA.[3] Through JIRA, employees were encouraged to vote on each other's projects to help determine priorities within the company. Though democratic process, such as this one, helps resolve conflicts of interest Malone also noted they tend to be very inefficient and this proved to be true as the organization grew (Malone 2004; Ondrejka 2011).

The second goal was to make interrupting and asking questions part of the organizational culture. Instead of isolating employees in offices, every employee sat in pods with several other employees, who more often than not were on another team or project. It allowed fellow employees to ask each other questions, which incited cross-functional learning about various projects within the company (in addition to reading everyone's Achievements and Objectives list). It created a culture of interdepartmental communication.

Glenn Fisher, former Director of Developer Relations, describes how interdepartmental communication provided a big win:

> I found, the more people I talked to, the better, internally at Linden Lab. In the old management, walking around style, I'd find somebody who was working on something arcane and I could say, "Gee, that's something that matters to developers, would you mind talking to developers about it?" And we'd set up a seminar and the [engineer] would discover that the way they wanted to implement it actually made it a totally useless function, but if they did something just a little bit differently then that suddenly made it really useful for people. [...] [There was one engineer who] was working on something for scripting and I happened to sit across from her one day at a rotating desk when I was [in town] and I was grousing about the developers and she said, "I'm working on that." And we went [...] and spent some time in the conference room drawing on the [whiteboard] and she ended up changing just a little bit and what she did ended up being – something that made a big difference to people. (R. Fisher 2010)

The third goal was that the key tasks were all up on a whiteboard and everyone would gather once a week to discuss and update the list (Ondrejka 2011). This bred a sense of responsibility to the tasks and to the rest of the company. Ondrejka further describes:

> [T]his system was completely transparent and gave everyone a voice, it was never "everyone just does what they want." [...] "Do what you want" didn't show up until the Tao of

[3] http://www.atlassian.com/software/jira/.

> Linden was written in 2006. [W]ithin this model, what you get is a many-to-many communication model, where everyone is talking to everyone. Those discussions were shaped by the global direction, and the clarity of direction and small total employee count meant that the communication overhead was manageable. (Ondrejka 2011)

The unique nature of Linden Lab's internal structure was an experiment in and of itself. Part of having a decentralized management structure is to allow for the voices of each employee, whether around a specific decision or the workings of the structure itself (Miller 2007).

Similar to Mondragon's Ten Official Principles, in 2006, Linden Lab codified a list of company principles that they designated as the Tao of Linden (Linden Lab 2006; Cheney 1999). The company principles were: work together choose wisely, execute well, be transparent and open, make weekly progress, no politics, have a sense of humility, have fun, call out inconsistency in principles when you see it, and do it with style (Linden Lab 2006).

The term "reporting" in this instance is "loose," while someone may be a supervisor or lead on a project, they did not give direct orders but rather recommendations. Linden Lab's aspiring flat management structure shared characteristics similar to that of "loose" hierarchies: dense communication, lack of centralized control, and freedom of choice (Malone 2004).

From previous interviews that I conducted with Lindens, one interviewee had this to say:

> Give people the opportunity to make informed choices about what they should be working on and then execute on those choices with as few people as necessary tasked with monitoring those choices. (Miller 2007)

In this sense, Linden attempted to build a direct democracy within the company where every employee/citizen was capable of making a substantial contribution with as little overhead as possible, an entity very much like the virtual world they were trying to build.

Part of building a nation includes building a government and in this vein, in 2004, Linden Lab asked its users if they were interested in self-governance. The users were less than enthusiastic. In 2005, the company introduced a voting system in which a very small fraction of the Second Life population participated (Au 2008). Au describes the events in greater detail and compares the users to Americans:

> [The user's] collective sense of Second Life is reminiscent of Americans' relationship with their country: deeply patriotic to its ideals on an emotional level, eager to rally in its defense when threatened by external forces – but come most election days, still not likely to show up at the polls. (Au 2008).

In this sense, many users wanted Second Life to be something behind the scenes that kept the servers running and interfered as little as possible.

In late 2007, Rosedale referred to Linden Lab as a public utility, which fell perfectly in line with the "building a nation" metaphor. At the time, Linden Lab was frantically trying to keep up with its rapidly growing user base so the self-perception of being a public utility for this greater world was appropriate. Malaby, however, explains that it was indicative of a deeper issue:

> That was a way to try and resolve this paradox of authority that Linden Lab was inevitably caught in, where they wanted the world to organize itself, they wanted to tell people they have all the agency they ever need, but yet they could not get away from their own enormous and incontrovertible control. [...] When central authority is a problem, you start casting about for metaphors, and that one of the public utility is something like that, something that is needed by everybody, provided by a central source, but is not a competing interest. All it does is facilitate creativity on the part of individuals and groups. So yes, that was [...] consistent with that sort of struggle.

Linden Lab struggled with it's own internal pulls for decentralized management and centralized control. Decentralized leadership assumes that everyone can be a leader if they have enough information to make educated decisions. However not everyone has the ability or the authority to make certain decisions and even if they did, they don't always want to (Malone 2004).

The challenge was allowing those who could manage to be able to work optimally while providing structures that leveraged strengths and capabilities of those who did not. One employee noted in 2006 that, "we need middle management, but we need to do it in a way that works with Linden culture" (Miller 2007). Linden Lab struggled between allowing good leaders to lead and good followers to follow and yet not fall under the expressed concern that Linden Lab was centralizing it's structure. However, as another employee observed in 2006, "we definitely have a hierarchy at Linden Lab, whether we really acknowledge it or not" (Miller 2007). Some decisions, such as opening registration to the public in 2005 and no longer requiring credit cards, were seen by some employees as a top-down decision. Other decisions, such as open sourcing the Second Life client, went through extensive discussions which became an "example of how [Linden Lab] brought the whole company into the process of [making] a decision that impacts the whole company (Miller 2007).

2.5 To Support Education

After the meeting of the "big thinkers," Linden Lab announced at the academic State of Play conference in 2003, that any Second Life user could retain their intellectual property rights on the objects they created in-world. Ondrejka remembers the turning point:

> That series of announcements was really the first tip for Second Life. [...] We went from a couple thousand users to many thousands very quickly after that conference and generated a lot of great early users, both in the academic and non-academic communities from that. (Ondrejka 2010)

The Linden Dollar decision and ecosystem of in-world developers, that came from that decision had a secondary effect on education as Ferlatte noted:

> Second Life for educators would be significantly less rich if they had to [build] all the content and experiences that they wanted their students to have on their own. [T]he fact that there's a seamless and inexpensive way for an educator to get access to content that supports the lesson that they're trying to teach is [. . .] an important feature.

When Harper came to Linden Lab in 2002 from Maxis, the creators of Sim City, she spearheaded the foray into education based on her previous experience:

> [At Maxis] we noticed that we were getting requests from teachers for black line masters they could use in their classes. So after exploring that a little, we created school editions of Sim City and then of several other games that were also simulations that were used in the schools. [W]e sold them for grades five through college. People wanted to use the simulation as a way to teach all kinds of things. And so I knew that with the right sort of game you could build a market, a very lucrative market in education. [After speaking to Anne Beamish], I knew education was going to love Second Life. (R. Harper 2010)

After Mitch Kapor spoke at a conference at MIT, he introduced Anne Beamish, a professor at the University of Texas to Harper, and when Second Life was still in Alpha, Professor Beamish brought ten students from her architecture and urban planning class into Second Life for the summer. Ondrejka remembers it fondly:

> When the UT Austin architecture and urban planning students staged their "flying is bad for the social fabric of Second Life" protests and were writing long diatribes on the forums and building walking paths and making the argument that if you just had to walk everywhere, Second Life would be a better place. It was this first great moment of taking a bunch of bright, energetic students who have a whole bunch of theoretical opinions about urban planning and give them this amazing chance to actually run with those ideas and take them to a logical conclusion in a different environment than reality.

From this spawned the beginnings of Campus Second Life in 2004 (Linden Lab 2004). Campus Second Life provided free access to islands for educators. Free access drove a number of educators to experiment and push the boundaries of the classroom, which caused a proliferation of early education stories at academic conferences that brought in dozens of universities' involvements.

Linden Lab started to take their relationship with educators seriously. Seriously did not mean, "Hey, we'd love for you to advertise Second Life, but we're not going to work with you. We're not going listen to you. We're not going to do anything with you or for you" (Ondrejka 2010). Linden Lab dedicated a significant amount of resources and manpower to education and in retrospect why would they not support the community that brought them the business-changing ideas that made Second Life what it is today and brought in its first influx of users. Malaby observed:

> They were sending people to all kinds of conferences, random conferences, and small conferences, GLS, State of Play, sending people everywhere! They were sending someone else to all industry conferences. [They were] carpet-bombing the landscape, not just the industry landscape, but the scholarly landscape and the educational landscape and all these things, just to see if anything [would] stick! (Malaby 2011)

Linden Lab made an unprecedented decision when they switched to selling land instead of subscriptions and thereafter instituted a 50 % discount on land for educators and non-profits. John Lester joined Linden Lab and started the Second Life Educators List (SLED) where educators had their own listserv where they were able to share best practices and support each other.

In the following years Linden Lab provided a platform for educators to showcase their projects especially during the Second Life Community Conferences. Linden Lab also highlighted their work in case studies, on blogs, and in the news-letter, which in some cases brought global attention to their academic project in Second Life. They also had dedicated staff specifically focused on the educational community. By 2007, there were over 5,000 educators worldwide in Second Life.

2.6 To Support Business

"There was no viable way to have a business inside of a virtual environment, without building your own environment, which I think was the key bit" (Ferlatte 2011), Ferlatte observed. One aspect of Second Life that was inherent from the beginning was that Linden Lab relied on their users to create content, and they needed to provide incentive for the user to create. As previously stated, the incentives were the rules around intellectual property as well as the creation of the Linden Dollar. Ferlatte felt that one very important decision was mapping the Linden Dollar to the United States Dollar. He states:

> [T]he thing that we did that was important was map it to the U.S. dollar at a market rate instead of at a fixed rate, which meant that we were taking the risk along with the businesses operating inside of the platform. When we succeeded, they would succeed. And if we failed, or if they failed, we would fail. (Ferlatte 2011)

Many of the tools within Second Life that inherently supported in-world or in Second Life-only business development were not obvious when they were implemented. At least, they were not obvious to the ethnographer who was working at Linden Lab at the time but would probably be referenced by any Linden employee in hindsight as completely intentional.

> The fact that streaming music and the importation of poser animations, scripting of animations, both were added in the same patch long ago – those things were randomly in the same patch! No one at Linden Lab saw them as having any relationship to each other, but the fact that they come in together and someone [could] stream, and people [could] post, create[d] the dance clubs that were such a feature and still are a feature of Second Life landscape. So all of that was very unplanned, very accidental, and that's really more of the story in my opinion about the development of Second Life as a business and its application, than anything else. (Malaby 2011)

Some decisions were much more obvious, like the acquisition of the XStreetSL marketplace in January 2009, as Chris Colosi, former Monetization Manager at Linden Lab, describes it:

> At the time [Virtual Trade LLC (before it was acquired)] was doing maybe around $100,000 a month in business and I'm proud to say that over the next couple of years we grew that to where it's doing about $1.5 million USD a month. And that was truly just enabling businesses in world. It is a business to business and a business to consumer marketplace. (Colosi 2011)

Another side of the business ecosystem is the developers. Some exist primarily in Second Life but others include marketing firms doing work in Second Life. Linden Lab developed a strong relationship with the developer community, through personal interaction as well as showcasing their projects. Fisher described working with developers:

> The two sides of the job were trying to recruit and direct the external audience [to developers] and making sure the right things happened inside [Second Life] to further what the audience was trying to do. Ranging from little things like knowing what happens when two prims[4] intersect, because that occasionally would change and then it would break things that people would build or God knows what else would happen. [...] The large part of it was spent in the early days trying to find the right engineer who knew the right thing to try and twist his arm to get him to do it.

The other side of business was business from outside of Second Life coming in to use Second Life, like the Wells Fargo example mentioned earlier. Private sector businesses or government institutions had very different sets of requirements than your based in Second Life only business. Linden Lab started to call external organizations coming into Second Life "Enterprise." One Linden reflected:

> [S]o many big people were walking through the door wanting to do a special relationship, and those special relationships came with [...] cash, and Linden being able to really stand by their principle of what they were trying to achieve [...] frustrated a lot of people, and maybe looking back you may think, "Well, we should've done something with that person and not with that person," but [instead] it meant that anyone had the same opportunity to do something that someone else did, which really created [its] diversity. (Linden 2011)

Some of the complaints from Enterprise were:

> "You guys aren't helping us enough," and [...] well, we don't. We specialize in the technology, but [...] for a lot of organizations and educators the firewall had been an issue, but that [is] compound[ed] by 100, [...] for the [government], because there's no opening ports. So, being able to work with them and work out ways that we could get the technology in their hands was really cool. (Linden 2011)

Linden Lab dedicated a team of 22 employees and resources to supporting the development of Enterprise.

[4] A prim is a single part object in Second Life that you can attach to other prims in order to create different kinds of objects. It is like a building block.

2.7 To Support Direction

The organizational changes from 2008 to date are reflected in the decisions around business and education. In early 2008, leadership at Linden Lab suffered decision paralysis. This could be attributed to many different reasons but the biggest complaint from Linden employees at the time was that there wasn't any direction. Now, up until this point, Malaby observed that Linden Lab was:

> [M]ore responding and reacting to what's happening in the world than leading the way. Instead, the company knowing that and deeply aware of that, were casting about with enormous amounts of connections, enormous amount of energy in all-different directions. (Malaby 2009)

At that time, Linden Lab was under the weight of all the directions they had created and had a very difficult time deciding on what to prioritize. Like many democratic institutions this caused a gridlock in productivity.

In the summer of 2008, Philip Rosedale stepped down as CEO and Mark Kingdon stepped in. Kingdon was CEO for 2 years in which time the organization changed dramatically in method, scope, and in composition. The most public change was the 30 % layoff that occurred in summer of 2010, which did not account for the 20 %–30 % reorganization that occurred the year before.

For many employees who had worked at Linden Lab before and after the regime change at Linden Lab, this marked a definitive changed in the organizational ethos. The Tao of Linden was changed in 2008 to reflect the renewed organization. Most notably, "Your Choice is Your Responsibility" was changed to "Good People make Good Choices... and vice versa" (Nino 2008). In the 2 years that followed, Linden Lab moved into a centralized hierarchical structure. In hindsight, it was an intentional reaction to the gridlock in direction, which instigated a move to a more centralized leadership structure. In this reformed organization, being "intentionally reactionary" was no longer rewarded and neither was "failing fast or failing publicly" (Malaby 2009). The organization found that it needed to focus on getting things done instead of trying to get everything done. Malaby observed:

> It was a very high-cost strategy early on, in terms of [keeping] your ear to the ground like that, and to be looking, and to be expending all that manpower and time to sort of be out there and see what people are doing that's interesting that you could promote. Yeah, that's expensive, so the bureaucratic response is to say, "Well, we can't justify that, we can't justify letting 1000 flowers bloom anymore, so let's do it differently. Let's retreat." (Malaby 2011)

Linden Lab made very specific strategic decisions. One major decision was that instead of releasing updated versions of Second Life on a regular basis, they would follow a more traditional software model and scheduled a major release one year later, called Viewer 2. This was the first time in Linden Lab's history that a version release had taken a year.

Internally, a product team was built and instead of judging the needs by how loud people yelled, the product team said, "these are our list of priorities." Fisher would then go to the developers to get feedback on the list (R. Fisher 2010).

In 2008 the leadership decided to direct some of their focus to developing "SL Enterprise." They were, in a way, revising Rosedale's "Everyone's got to be on the grid" decision for Wells Fargo in 2007, but at this point in time, they had more resources and more technological ability to make it happen. It was a product that could reside behind a firewall, which had been a stumbling block for years as organizations around the world only started to understand cloud computing. However, what made SL Enterprise more valuable than that was that it was a way an organization could have a more official relationship with Linden Lab. This project would provide tools for educators such as the ability to integrate with their internal directories and provide administrative accounts, as well as providing the support and privacy that government institutions and certain private enterprises need (Nino 2009).

Claudia L'Amoreaux, former Director of Education Programs, describes the development of SL Enterprise for educators:

> What was really exciting about that was that there was this incredible effort going on into creating a next generation product from scratch, which was really hard to hack together in Second Life at the time because there were so many other priorities. [H]ere was this kind of development of a new product where we really looked at what's needed and where education was really seen within business, rather than business is over here and education over here. It really was seen together [. . .] and that they shared needs. (L'Amoreaux 2011)

Collins spoke about the development of SL Enterprise for the Department of Defense:

> [T]hey loved it! They could start to do the things that they could only really experiment with on the public grid, because for them it's – it's not so much can we lock down an island [rather that] they are not allowed to do various training activities unless it's on their network. They can see that the training aspects of a virtual environment are a huge part of what you can do. And to be able to have an immersive training application that can be a shared experience and that a soldier can do from their home is huge, 'cause, one, they can spend more time with their family, and two, they're getting an immersive training experience that could save their life or someone else's life. (Collins 2011)

Another goal for Second Life Enterprise was to develop a marketplace to help ease searching for Enterprise content.

> [W]hen you went into XStreetSL the e-commerce platform, there's a category for business, which if you were an educator and thought I need to go and check out business, it was often not the kind of business that they were looking for. So, we were doing a lot of work around how can we give them a place within the whole ecosystem where you can more easily search for the kind of business that you want (Collins 2011).

In November 2009, Linden Lab launched "SL Enterprise" which was what external business and education had long been waiting for. L'Amoreaux described it as, "the most beautiful thing around at the time" (L'Amoreaux 2011).

2.8 To Support the People

SL Enterprise had a great team that delivered, but it was a constant battle as Collins remembers:

> [T]he challenge was being careful to say we're not doing something that's super special for these individuals, that what we were doing [was] building tools that reflected the principles of expanding the way that people can create things. So, Second Life Enterprise was basically Second Life that could run behind a firewall, so it was just expanding who and where people can grow content. (Collins 2011)

In August 2010, it quietly came out through the community that Linden Lab was going to officially end SL Enterprise. There has not been any official press release. Based on my interviews, there were mixed explanations internally, "you talk to a few other people and Enterprise was profitable and was going to be profitable. If you talk to other folks they'd give you the exact opposite" (Linden 2011).

Or others felt that it was a missed opportunity:

> For me I always actually wanted to go after Education and Enterprise even if it didn't make sense monetarily, as an introduction of Second Life, in a way that commerce [. . .] couldn't take hold. And I felt like we had a lot of people who saw that and understood that vision for a long time. Then we kind of lost that and all of a sudden Enterprise and Education became strictly a monetary benefit versus loss question. (Linden 2011)

Or that the decision was made without taking into account the process:

> [O]ne of the things I've seen is that the grant process is often a two year process. [A] couple of things, one, it takes you a year just for people to recognize your name and another year before people trust you in that market. And that's basically [the] Enterprise market. So you need to be in the market and at all the conferences for two years before anyone is going to consider licensing from you. It's not because your software might not be great, but basically it's a CYA[5] strategy. If they buy into you and it's your first year and it fails, they're going to be on the chopping block. [. . .] So you know there was also a business estimate and an assessment made at Linden Lab that things weren't profitable and you know it's possible that was the right decision, but it's possible that within six months that would have been a very profitable endeavor. [. . .] The other thing is that by leaving that market after we went into it we probably can't return, certainly not anytime soon. Just like you need to build up your credit over a couple of years they also care about stability. (Colosi 2011)

Most importantly though, it ran counter to the new centralized organizational model whose focus is on "building a core platform" as one interviewee observed:

> [T]hey couldn't continue supporting [the] product because it was splitting the company basically into two companies and there wasn't enough – that the company really couldn't afford that, to split themselves into two completely different models. And it really was a very different model. (Linden 2011)

In October 2010, Linden Lab decided to rescind their 50 % discount to non-profits and educators. Several of my interviewees believed that it was unfortunately

[5] CYA is an acronym for cover-your-ass.

handled poorly: in how it was announced, the reasons behind it, and the lack of any overt tapering off plan. However, the resounding belief was, "[Linden Lab] couldn't really support the education community. So if they charge what they need to charge, well [now] maybe they actually can" (Linden 2011).

And what was often missed in the headlines, "Linden made [some of] them really sweet deals, like really worked with them [...]. If they signed their contract they wouldn't have to pay anything extra for a whole year" (Linden 2011).

This had caused an uproar within the community, in which Linden Lab's response was as follows:

> Ultimately, we made the business decision that as we focus on improving Second Life for all users, we will no longer provide the level of special treatment previously offered to educators and nonprofits, which includes ending the 50 % discount these organizations have received. (Nino 2010)

This harked upon a mantra that existed for many years within Linden Lab and Second Life as well as certain democratic institutions—that everyone would be created equal.

Gwyneth Llewelyn, long-time user and writer, eloquently described how the community won the fight for equal rights in Second Life (Llewelyn 2010). "Those content creators not only survived the 'corporate invasion'—they won the battle" (Llewelyn 2010).

Fisher reflected on the developers and the community:

> [A]s the community tended to fight any efforts to give some people better service or more value than other people, the reality is economics flows downhill and you need to identify your key people and treat them well, because if they stay there then they create a lot of value for everybody else. (R. Fisher 2010)

In spite of the increase, educational land holdings continue to increase. As a new educator joining Second Life today, you would not know that the price was anything else than what it is today. Even with all of the concern, in practice, the increase in price has had no effect so far (Ferlatte 2011; Colosi 2011).

At the end of 2010 into the beginning of 2011, Linden Lab closed Teen Second Life and merged the teens onto the main grid. Sixteen and seventeen year olds will have access to the main grid but have adult content restrictions while 13–15 year-olds are only allowed access if they are affiliated with an organization in world and are restricted to that organization's land (n.n. 2010).

L'Amoreaux and I called this project the Holy Grail since 2006. As L'Amoreaux explained:

> [T]here was [a] tremendous [amount of] work that went into [that]. [F]or the whole time I was at Linden Lab, we were working towards solving the teen issue. Number one: how to make that work. It was such a complicated set of problems and challenges. It had to be done in stages, and [...] opening the adult continent was one very significant stage in that direction. [...] And I don't think people realize outside of the company what those of us inside the company realized, what a tremendously impossible mission that was. You do what you can and it's painful to have to make the choices that companies have to make on what you can realistically throw your weight behind. (L'Amoreaux 2011)

Ferlatte had an entirely different perspective on the teen merger and felt that it was part of a "sequence of trying random things to see if they stuck" echoing Malaby's sentiment (Ferlatte 2011). Depending on the employee, decisions were made either intentionally or reactionary or sometimes even randomly. I disagree that any of the decisions at Linden Lab have ever been random. However, I do believe that the decision to merge the teen grid into the main grid falls under supporting the people.

2.9 To Build, To Support

Building an innovative technological platform for an ecosystem of business developers and educators is not an easy task and that though everyone has 20/20 hindsight, the reality was a lot more hectic, agile, and fluid. We as humans, and particularly a human institution with "interests at stake, will tend to, in hindsight, construct a more coherent narrative of its past than ever really existed (Malaby 2011)."

After sitting down with Lindens, whom experiences span from the moment of launch to the present day, we get a sense of a greater ideological organizational conflict. Linden Lab was trying to build a nation in the form of technology as the company strove to be democratic and decentralized. Just like running a country, Linden faced many of the same challenges. Problems that were in some ways unexpected for a software company were in other ways very well known to those who have built a country.

In many ways, Linden Lab, in "building a country," fought and continues to fight many of the same struggles that plague the reality of actually building a country. Do you help the individuals of your nation, or the consumers of your product, or do you help private organizations in order to promote the economy's health or educational institutions in order to help make your community a better place for your consumers and for future generations? As Linden looked at Google Lively's untimely demise and said that "yes, virtual worlds are much more difficult to build than you think," I suspect that many countries' governments would look at Second Life and say, "yes, building a country is much more difficult than you think."

As citizens of our respective nations, we struggle with the best method for prioritizing our resources. Second Life and Linden Lab mirror many of these same issues, and further study could be conducted to see if the issues correlate from technology to organization to state.

In the course of my interviews, I also wanted to find out whether the decisions around business and education were intentional or reactionary. Malaby and Au agreed in essence, that though hindsight may be clear, whether it be in 2005 or in 2008 respectively, organizational reality proves to be much more chaotic and reactionary due to its organizational ideals and its history, respectively.

Malaby states:

> This practice of architecture embraces an approach to control that trades the promise of total order for a different ethical position, one that attempts, imperfectly, to reject top-down decision-making in favor of embracing the indeterminate outcomes of social complexities. (Malaby 2009)

Au writes:

> It emerged through accident and afterthought, and numerous decisions of blind faith and intellectual daring, many of which went disastrously wrong and most of which still seems, even in retrospect like desperate improvisation. (Au 2008)

Malaby alludes to this concept in our interview and I would rephrase that, Linden Lab operated as an "intentionally reactionary" organization.

As Ondrejka comments:

> When we reinvented the economic system that was clearly in reaction "to". I think that changing the [intellectual property] rules was a decision "for." I think that what nobody outside the company can understand or probably even really believe is how much time was spent inside Linden Lab worrying about how to do things that would be right for the community and right for the residents, which doesn't mean that mistakes aren't made. It doesn't mean that some of the decisions aren't harsh ones, but I think it is the nature of that kind of relationship where you have one company that's a for-profit business building a bunch of features and technologies. (Ondrejka 2010)

I would also further the argument that being "intentionally reactionary" is a symptom of having a decentralized, democratic organizational structure and that when the organization shifted to a more centralized hierarchical model that the side effect was that it could no longer be "intentionally reactionary" in order to be more focused. Additionally, when the organization's ideals shifted from "building a nation," where supporting enterprise, and education was a priority, and moved to "building upon the core platform," it was also indicative of its subsequent refocus to building its user base. The organizational ideological restructuring has dictated Linden Lab's path of decisions.

Was "intentionally reactionary" effective in getting things done? Was it more creative though a lot less focused? Did the later hierarchical software development model get as much done as it had planned? Did it get more done than its decentralized democratic predecessor? And if so, did they get the right things done? Does an organization have to trade innovation for capital efficiency, stability, growth, and focus on the bottom line?

In June 2010, Mark Kingdon stepped down as CEO and Rosedale stepped in as interim CEO. In December 2010, Rod Humble stepped in as CEO. Rod Humble comes from EA, the world-renowned gaming company. What direction will the new CEO Rod Humble take (Linden Lab 2010)? Will Linden return to some of its original inspiration in games and become a game development platform? Will Linden find a new development path between games and software? Are they going to tackle the innovative and the unknown or are they going to focus on known markets and sources of revenue?

Whatever organizational model Linden Lab continues with, the development decisions made in the last 12 years for business and education had its appropriate place

and time within Second Life's organizational history. Any institution, whether it is a private technological start up or a government entity, with goals to innovate find themselves in search of a new organizational paradigm. As Malone aptly observed, "Figuring out how to combine decentralization and centralization is still more of an art than a science" (Malone 2004). Linden Lab experienced this first hand. Linden Lab uniquely attempted to build a nation with their technology, Second Life. Though we are left with many more questions, Linden Lab continues to proves to be a valuable research case for organizational development, software development, as well as being the notable creators of Second Life.

2.10 Afterword

The one thing that was consistent through all of my interviews was how at one point each employee at Linden Lab was inspired by Second Life, and I leave you with some of their stories:

> For me one of the things that really sealed it for seeing the potential for education was [during an event at Linden Lab]. [...] Someone who was involved with astronomy at Linden Lab actually set up a presentation. [W]e walked in and we went through the explosion of a star essentially, what occurs in the different phases. And the minute he started, he went from describing it, to putting it in a three dimensional sphere that you could circle your camera around and have it expand and seeing the size difference in 3-D and it just clicked for me how there was just such a different level of understanding that you could gather. But even myself who had read about those things, I [hadn't] quite grasped certain things before, [but in Second Life] it was just instantaneous. So that was pretty neat. (Colosi 2011)

> [The] biggest thing that kind of made me go aha, this is a possibility, was going to visit the Sistine Chapel that Vassar College built, to [...] facilitate their arts education. And that was brilliant. That was, for me, one of the most brilliant uses of unique technology to create a unique experience [...], [that] enhances something that you already know. I think the reason why it was so memorable was I remember looking at art history textbooks and you always got to Sistine Chapel and you open the book and it had it all there, but you always were trying to figure out what's where and how's it work, and because they talked about how it's all this unified experience, but they couldn't represent it on 2D page. So unless you went there, you couldn't have that experience. And this was the closest thing that I ever saw to being able to be there and understand it in context and – so I could imagine teaching that class in Second Life. (E. Harper 2011)

> [A]nother great thing that I saw out of the DOD is that they have a conference called GameTech [...] every year. [They hold a contest, called] the Virtual World Federal Challenge. Anyone can enter it. They pick a topic. I think this year is artificial intelligence. I think last year was training and simulation. It's in Second Life, and because it's in Second Life, anyone can get involved. Because of the way the development tools work, it's quite easy to build or collaboratively build with people maybe not in the same physical location. And when I was there two years ago, while I was still at Linden, the finalists were all in a room, showing off what they created, and one of the finalists was a 15-year-old kid that had been on the Teen grid that was one of these classic stories where had built out this amazing training simulation for firefighters where he made the building, he could set it up so the building would catch fire, that you had a hose, and you had to move in with people. And it's one of those stories where what's incredible about this technology is that it really promotes such

> amazing entrepreneurialism, because you can just go in there and have a go. And I remember talking to the organizer of the event who was telling me the story about this individual, saying that they didn't initially know how old he was, because you see this thing and you think, "Wow, that's amazing." They'd flown him down and his mom came with him. And it was one of those [moments] for her as well, she was thinking, "He's just spending a lot of time on the computer." I don't know if she actually knew what he was doing. Then, she says, "next thing I know, I've got the Army calling me up, saying, "This is really great training application for firefighters. Your son's a finalist," so it's that kind of community that I think that was quite incredible to see [. . .] when I was there. (Collins 2011)

> [One training] story about the importance of perspective on what's being negotiated was about baseball. Where a $3 million shortstop, in the context of most baseball owners was ridiculous, because shortstops weren't seen as very valuable players. And what [this trainer] did was turn it around and say from the perspective of a player when pitchers are earning $15 million, here's what the shortstop does for a team and therefore they're worth more than the half million that they're currently being paid. And so he's telling you this story and you're standing in a baseball box up above a baseball field and down below there are the players on the field and in the real world you see a slide of that and it's a very sort of distant thing that serves to provide a visual reminder but that's it. [In Second Life] you're in the environment and there's almost a physical sense of being present in the baseball field. This was two and a half or three years ago when I saw this training. And I can still tell you what the first three steps are of his training. I can't remember any real world meeting or training I've been to in the last four years even in the last three months but I remember that one! And I think it's not an accident I think it very much speaks to the power of being in a virtual environment where you can create an environment that helps tell the story and engage people. (R. Fisher 2010)

References

Au, W. J. (2008). *The making of second life: Notes from the new world* (p. 274). New York: HarperCollins Publishers.

Cheney, G. (1999). *Values at work: Employee participation meets market pressure at Mondragon*. Ithaca and London: ILR Press and Imprint of Cornell University Press.

Collins, C. (2011). Interview transcripts with Chris Collins. Interview done by J. K. Miller (San Francisco), p. 15.

Colosi, C. (2011). Interview transcripts with Christopher Colosi. Interview done by J. K. Miller (San Francisco).

Ferlatte, M. (2011). Interview transcripts with Mark Ferlatte. Interview done by J. K. Miller (San Francisco), p. 6.

Fisher, G. (2010). Interview transcripts with Glenn Fisher. Interview done by J. K. Miller (San Francisco), p. 14.

Harper, E. (2011). Interview transcripts with Everett Harper. Interview done by J. K. Miller (San Francisco), p. 13.

Harper, R. (2010). Interview transcripts with Robin Harper. Interview done by J. K. Miller (San Francisco), p. 17.

Hock, D. (1999) *Birth of the Chaoridic age*. San Francisco: Berrett-Koehler Publishers.

L'Amoreaux, C. (2011). Interview transcripts with Claudia L'Amoreaux. Interview done by J. K. Miller (San Francisco), p. 7.

Linden, A. F. C. (2011). Interview transcripts from Anonymous Former/Current Linden. Interview done by J. K. Miller (San Francisco).

Linden Lab (2004). *Second Life officially opens digital world to college students for exploration and study of design and social communities*. http://lindenlab.com/pressroom/releases/04_09_20. Retrieved: 3/21/2011.

Linden Lab (2006). *Vision and mission: Tao of Linden Lab. internal Linden Lab Wiki, the official blog of Linden Lab.* http://blog.secondlife.com/2006/07/25/the-tao-of-linden. Retrieved: 3/21/2011.

Linden Lab (2010). *Second Life's new leader: Rod Humble becomes CEO of Linden Lab*. http://lindenlab.com/pressroom/releases/12_23_10. Retrieved: 3/21/2011.

Llewelyn, G. (2010). *Linden Lab turns residential; OpenSim embraces business and education*. http://gwynethllewelyn.net/2010/08/19/linden-lab-turns-residential-opensim-embraces-business-and-education. Retrieved: 3/21/2011.

Malaby, T. (2011). Interview transcripts with Thomas Malaby. Interview done by J. K. Miller (San Francisco).

Malaby, T. M. (2009). *Making virtual worlds: Linden Lab and Second Life*. (p. 165). Ithaca, NY, USA and London, UK: Cornell University Press.

Malone, T. W. (2004). *The future of work: How the new order of business will shape your organization, your management style, and your life*. Boston: Harvard Business School Press.

Miller, J. (2007). *Organization culture at Linden Lab*. San Francisco: University of Southern California.

Nino, T. (2008). *The new Tao of Linden*. http://massively.joystiq.com/2008/12/15/the-new-tao-of-linden. Retrieved: 3/21/2011.

Nino, T. (2009). *Linden Lab launches Second Life enterprise beta, Second Life work marketplace to come*. http://massively.joystiq.com/2009/11/04/linden-lab-launches-second-life-enterprise-beta-second-life-wor. Retrieved: 3/21/2011.

Nino, T. (2010). *Linden Lab explains slashing education/non-profit discounts*. http://dwellonit.taterunino.net/2010/10/05/linden-lab-explains-slashing-educationnon-profit-discounts. Retrieved: 12/15/2010.

n.n. (2010). *Linden Lab revises teen grid plan: 13–17 year olds coming to main grid (sorta)*. http://www.betterverse.org/2010/09/linden-lab-revises-teen-grid-plan-13-17-year-olds-coming-on-main-grid-sorta.html. Retrieved: 3/21/2011.

Ondrejka, C. (2010). Interview transcripts with Cory Ondrejka. Interview done by J. K. Miller (San Francisco), p. 8.

Ondrejka, C. (2011). Some context on Linden management history. Interview done by J. K. Miller (San Francisco).

Staff (2007). *Wells Fargo expands online game for financial education stagecoach island teaches young adults about budgeting, saving, credit and investing*. https://www.wellsfargo.com/press/20070111_StagecoachIsland. Retrieved: 3/21/2011.

Stephenson, N. (1992). *Snow crash*. USA: Bantam Books.

Terangreal (2010). *Second Life Wiki timeline*. http://secondlife.wikia.com/wiki/Timeline. Retrieved: 3/21/2011.

Terdiman, D. (2004). *Fun in following the money*. http://www.wired.com/gaming/gamingreviews/news/2004/05/63363?currentPage=all. Retrieved: 3/21/2011.
Torrone, P. (2011). *Sony's war on makers, hackers, and innovators. Make:technology on your time*. http://blog.makezine.com/archive/2011/02/sonys-war-on-makers-hackers-and-innovators.html. Retrieved: 3/21/2011.
Trompenaars, C. H. F. (1998). *Riding the waves of culture: Understanding cultural diversity in global business*. New York: McGraw-Hill.
Wallace, M. (2006). *Mitch Kapor on the power of Second Life*. http://www.3pointd.com/20060820/mitch-kapor-on-the-power-of-second-life. Retrieved: 3/21/2010.

Biography

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