Journal of Case Studies **Nov. 2018, Vol. 36, No. 2, p. 92-107**
www.sfcrjcs.org **ISSN 2162-3171**

Managing Innovation without Managers: Valve Corp.

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Introduction

Imagine that you founded a technology company and had early success with critically acclaimed products. However, you realized that past performance does not guarantee future success. How would you go about establishing a culture within the company, as well as rules, to help to achieve your goal? Most companies solicit new product ideas from a broad swath of stakeholders including employees, customers, and suppliers; executives then winnow those ideas down to the products that they believe will be successful. Managers are then assigned to the product, given a team, a budget, milestones and a timeline that they are expected to adhere to. However, what if there was a different method to create incredible products? What would that look like and what would be the benefits as well as drawbacks? One possibility is to remove top management oversight to the winnowing process and allow employees to pursue any product idea that they believe has merit. This reverses the top down management structure that most firms use for product development. Essentially the founders of the firm have limited control over the products that the firm they own is designing. This is the product development structure that Gabe Newell, the CEO of Valve, bet the company's future on… and it worked. Valve believed that hiring the most talented and self-motivated people in the world, and providing them with autonomy, would lead to incredible products that their competitors would find too risky, disruptive, or not profitable enough to pursue. Valve proved the competition wrong for over two decades.

Valve's success was primarily from developing software and hardware products for the computer game and entertainment industry. Valve generated higher profits per employee than Apple or Google, as one point one of the largest bandwidth consumers in the world (at times using more internet bandwidth than Amazon. com), and its average revenue growth was 30-50% per year (Fitzgerald & Wakabayashi, 2014; G. Newell, 2013b; Roberts, 2013). The firm began as a small computer game developer in 1996 but evolved into a juggernaut in the computer game industry, and recently expanded from software development to hardware development. One of Valve's premier products, Steam, became the world leading online marketplace for people to purchase computer games through a digital download distribution model.

Despite its financial performance success from the products and services it developed, Valve was an important firm to analyze because not a single one of Valve's more than one hundred employees had a manager (Valve, 2012). For years, the firm has utilized a flat hierarchy in which employees selected the projects they wished to work on, could change projects at any time, or could start their own projects. While other firms such as Google had allowed some of

their employees to devote 10-20% of their time to projects they found interesting, Valve's employees had control over how they spent 100% of their time (Roberts, 2013; Valve, 2012). This case investigates Valve's unique organizational structure and how it contributed to the firm's past ability to develop new technologies and products.

History of Valve

Valve was founded in 1996 by former Microsoft employees Gabe Newell and Mike Harrington (G. Newell, 2013b). The firm's initial product was a sales record-breaking single player game called Half-Life. Eventually, Valve allowed customers to create modifications (mods) to their game, which revitalized their fan-base as well as the sales of the now-dated game. One popular modification was a multiplayer game named Counter-Strike. The Counter-Strike mod was released in 1999 and gained a substantial player base. Due to the popularity of the mod, the mod's developers were hired by Valve to develop an entire game with the same name. Valve continued to be successful with franchises such as Left 4 Dead and Portal. The firm also retained the intellectual property to all of its products which is rare in the industry (Valve, 2012).

In addition to having developed the capability to create highly desirable games, Valve produced two other successful ventures: Source and Steam. Source was a game engine, a technology that helped Valve develop their games. Valve licensed Source to other game development firms. Steam, one of Valve's most well-known products, was a digital distribution platform for the legal online purchase of computer games. Steam was vastly popular; at the end of 2016, the platform offered more than 12,000 software products (mostly games) and had more than 125 million users in the beginning of 2015 (Valve, 2015, 2016). In 2011, it was estimated that Steam had a 50-70% market share of the $4 billion digital computer games industry (Chiang, 2011), and Newell claimed that Steam saw a revenue increase of 70% each year; whereas the sales at traditional brick and mortar stores were in decline (G. Newell, 2013a). Between the Steam platform transferring game files to consumers and Valve's multiple online games, one study suggested that Valve used more bandwidth on the internet than Amazon. com (Fitzgerald & Wakabayashi, 2014).

More recently, Valve partnered with HTC to develop virtual reality headsets (Poon, 2015). These headsets allowed the user to explore three dimensional environments, such as game worlds, by turning their head and the game environment rotating as if the user was turning their head in the game. These virtual reality headsets were an important strategic initiative for Valve; so much so that Newell spent a large part of 2016 working with the virtual reality team (Newell, 2016).

Valve's Organizational Structure

> *Hierarchy is great for maintaining predictability and repeatability. It simplifies planning and makes it easier to control a large group of people from the top down, which is why military organizations rely on it so heavily. But when you're an entertainment company that's spent the last decade going out of its way to recruit the most intelligent, innovative, talented people on Earth, telling them to*

> *sit at a desk and do what they're told obliterates 99 percent of their value. We want innovators, and that means maintaining an environment where they'll flourish (Valve, 2012 p.4).*

Valve's philosophy, stated above, manifested itself in an organizational structure in which there was no explicit hierarchy. Valve decentralized all decision making through their use of a flat hierarchy in hopes that it would allow the firm to be adaptable (Peterson, 2014).

When new employees were hired at Valve Inc., they experienced a different onboarding process compared to most companies. For instance there was no manager for them to report to. Furthermore, Valve departed from another standard organization practice: no one at Valve had an official title such as senior software developer. One reason for the lack of titles was because Valve had no desire to 'pigeon-hole' someone as an animator, a programmer, a story writer or any other position. This had several important effects within the organization. First, employees worked on anything that they thought was valuable. While an employee may have been hired initially for their programming skill, the employee was also able to spend their time doing concept art for a new game if they thought it was the best use of their time; their job title was not holding them back from doing it. At Valve, no one was told 'you are a programmer; you should not be spending your time on art. ' Second, the absence of titles allowed employees to critique each other's work on the merits of their work because titles did not get in the way of the critique. For example, if you gave your opinion to an artist of their work, they could not dismiss your criticism of their work simply because you were a 'computer programmer' and 'know nothing of art. ' In the end, the decision to remove titles attempted to reinforce a culture of equals within the organization and one outcome was that employees were more honest with their criticism of each other's work; whereas in a traditional organization subordinates may have been less likely to criticize the work of their managers.

The founders of Valve also decided that all of their employee's desks should have wheels on them. This allowed employees to move their desks to work on whichever project team they believed they could help the most, and leave the team at any time they wished.

> *Deciding what to work on can be the hardest part of your job at Valve. This is because, as you've found out by now, you were not hired to fill a specific job description. You were hired to constantly be looking around for the most valuable work you could be doing. At the end of a project, you may end up well outside what you thought was your core area of expertise* (Valve, 2012 p.9).

It was suggested in Valve's handbook that new employees spend their time talking to people to find out what projects Valve had currently ongoing. If the employee was interested in a project and believed they could add value, then the employee moved their desk to the team and began to help on the project. Valve did not have an approval process to work on a team; you simply moved your desk there and worked. If employees had difficulty locating a project they found interesting, they had authority to start a new project on their own and could recruit people to their project. As stated in the handbook, *"This company is yours to steer—toward opportunities and away from risks. You have the power to green-light projects. You have the power to ship*

products" (Valve, 2012 p.4). Valve's founders were primarily concerned with delivering exceptional products to their customers and wanted that to guide their employees' decisions of which projects to work on. Furthermore, because Valve was structured to have no managers, during product development every employee assumed the role of a marketing person in some form because they were making the important decisions about which products should get developed and which features those products would have.

Valve's decentralized structure provided its employees the power to make significant product feature decisions. For example, an artist may have made changes to one of Valve's online games, such as the color of a weapon. Then the artist could look at user and sales data to see if players were using the new color. Subsequently, the artist was given power to change the weapon's color again, or leave it alone if the change was successful (Peterson, 2014). There were no committees or managers looking over the artist's shoulder.

Product Development

Given that Valve had no centralized control for product development, the development for products laid in the hands of each and every employee. Employees were told: *"There's no red tape stopping you from figuring out for yourself what our customers want, and then giving it to them"* (Valve, 2012 p.5). The firm stressed to employees that:

> *Don't believe that anyone holds authority over the decision you're trying to make. They don't; but they probably have valuable experience to draw from, or information/data that you don't have, or insight that's new. When considering the outcome, don't believe that anyone but you is the "stakeholder". You're it. And Valve's customers are who you're serving. Do what's right for them* (Valve, 2012 p.11).

The firm promoted risk-taking in development and claimed it did not fire employees because the employee made a mistake. Valve did not believe that punishing people for taking risks was a good long term strategy for the firm, because mistakes provided learning opportunities and the firm believed it could always repair the mistake somehow (Valve, 2012). This 'freedom to fail' movement is not new to the field of product development and its use has been echoed by previous scholars (Amabile, 1998; Wind, 2006). Valve knew that its employees would make mistakes, but what was important to Valve was that employees did not repeat mistakes and that its employees were results focused and not ignoring evidence (Valve, 2012). Given that a large portion of the employees were engineers of one type or another, the firm wanted employees to use data to constantly test their decisions.

> *Whenever we move into unknown territory, our findings defy our own predictions far more often than we would like to admit. We've found it vitally important to, whenever possible, not operate by using assumptions, unproven theories, or folk wisdom. This kind of testing takes place across our business, from game development to hiring, to selling games on Steam. Luckily, Steam is a fantastic platform for business learning. It exists to be an entertainment/service platform*

> *for our customers, and as such it also is a conduit for constant communication between us and them. Accepted truisms about sales, marketing, regionality, seasonality, the Internet, purchasing behavior, game design, economics, and recruiting, etc. , have proven wrong surprisingly often. So we have learned that when we take nearly any action, it's best to do so in a way that we can measure, predict outcomes, and analyze results* (Valve, 20121 p.13).

Of course a single employee cannot develop an entire product, such as a high quality computer game or digital sales platform, by themselves. Therefore, employees tended to work in self-regulating teams of people that believed that the particular product they were working on was important to their customers, as well as interesting to themselves. According to Valve's handbook on teams, *"they exist to get a product or large feature shipped. Like any other group or effort at the company, they form organically. People decide to join the group based on their own belief that the group's work is important enough for them to work on"* (Valve, 2012 p.15).

Given that product development is a complex process, developing products often took considerable time at Valve due to a lack of managers demanding that specific tasks were completed at specific times. However, many times within a project team a leader emerged to help organize the team.

> *Often, someone will emerge as the "lead" for a project. This person's role is not a traditional managerial one. Most often, they're primarily a clearinghouse of information. They're keeping the whole project in their head at once so that people can use them as a resource to check decisions against. The leads serve the team, while acting as centers for the teams* (Valve, 2012 p.16).

What separated these leaders from managers is that they did not have authority over other people on the project. They could not demand, only ask for the good of the project, that employees spend their time on certain aspects of the product. Interestingly, since the majority of Valve's employees were engineers or creative types, such as artists, that enjoyed producing and creating new content and product features, rarely did a person act as a project lead twice in a row (G. Newell, 2013b). Leading a project is often times stressful, and the people that worked at Valve were more intrinsically interested in creating new technologies, product features, or content than managing the process (G. Newell, 2013b). This made it difficult to find employees within the firm to lead projects (Roberts, 2013). Newell jokingly suggested that:

> *Usually we look for some younger sucker to give the job to… Who have some old notions about management and its authority within a hierarchy related to decision making. And then they find out it's working really, really hard to make other people more productive* (G. Newell, 2013b).

One former employee expressed the difference between the role of teams at Valve and other firms with the following analogy. At most firms, product development is similar to a chandelier because there are one or two people making big decisions regarding a product's development at the top. If those decisions are incorrect, then the whole chandelier can fall and the product will

fail. At Valve, without managers, product development was more collaborative and product development was more like Christmas lights. A few errors resulted in a few lights not working, but it did not mean the whole project was flawed. This employee related how product development was different at Valve compared to his experiences at more hierarchical organizations:

> *[At my previous job] we ended up working on this project for a year and a half and some people very high up made some very bad decisions that didn't come to light until we showed the game to [executive] and he basically hated it. And he called us out, and people knew it and everyone on the team knew it was not fun; it was technically a little impressive, but it wasn't fun at all. It took us a year and a half to realize that it wasn't fun. Valve would have said take a month to try to figure with four people if this is going to be fun, and after a month with four people you figure out this isn't fun; what's wrong with it? Can you make it fun? And that is the big differentiation between a company structured like Microsoft and a company like Valve because the whole product development mentality is flipped up-side down. Microsoft would be top down, Valve is bottom up.*

As this former employee explained, what Valve had done really well was decentralizing and democratizing the product development process. What can happen at more traditional firms is that when people lead a successful project they can develop cognitive biases. These biases influence this person in a leadership position to believe that their ideas are excellent and that they know the way to develop a product. According to this former employee, Valve's system was designed to *"give people the tools and knowledge to make good decisions and try to eliminate as much bias in decision making as possible, then you end up with lower risk decisions.* " Through the use of communal decision making, it was hoped that only the best ideas would rise to the top. Another former employee agreed with the chandelier analogy when it was explained to them; however they thought that the analogy may apply better to content development teams for games than to the engineers that developed technology which made the games and other systems possible.

Further, since there were no titles and any employee could work on any project they believed they could contribute to, Valve did not have departments when it came to product development (or any other area). Therefore, Valve had none of the typical departments that a major firm would have such as quality assurance or marketing. Valve assumed that it was the job of everyone in the company to talk to customers (G. Newell, 2013b), and being customer focused would motivate all employees to care about making error-free products as well as inform all customers of the firm's new products. Further, since Valve owned the largest and most successful digital distribution platform for computer games, it limited the need for a marketing department to create advertisements for mass media. Lastly, in the spirit of equality amongst its employees, the credits for its games and other products simply listed everyone that worked on the product in alphabetical order; no employee was highlighted over any other (Valve, 2012).

Employee Hiring

> *Hiring is the most important thing in the universe. Everything else in our world is subordinate to finding great people and keeping the bar high* (Valve, 2012 p.43).

Valve's philosophy was to hire the most talented people, and talent was defined as productivity (G. Newell, 2013b). Newell recognized that there was variability in people's skills. For example, there was a large amount of variability among computer programmers and their ability to write code. He realized that more talented employees cost the most, but he believed that with the most talented people in the world the firm received the highest incremental value between their cost and their productivity (G. Newell, 2013b). Further, Newell realized that the firm needed not only top tier engineers, but the firm needed creative people who could see what products and services would be needed in the future.

> *I always tell other programmers that any of us could now write the initial Google search engine or Facebook or Doom [a genre defining computer game]. It's not really that hard to write software. What's really hard is to know what software to write. So, Valve was constructed around the idea of enabling those extremely high value events to occur. This means that you need creative people and you need to let them create* (Bernstein, Gino, & Staats, 2014).

It is important to note that Valve had exceptionally high standards when it came to recruitment, and they wanted all of their employees to know how important it was to hire the best people in the industry.

> *When unchecked, people have a tendency to hire others who are lower-powered than themselves… We should hire people more capable than ourselves, not less. In some ways, hiring lower-powered people is a natural response to having so much work to get done. In these conditions, hiring someone who is at least capable seems (in the short term) to be smarter than not hiring anyone at all. But that's actually a huge mistake. We can always bring on temporary/contract help to get us through tough spots, but we should never lower the hiring bar. The other reason people start to hire "downhill" is a political one. At most organizations, it's beneficial to have an army of people doing your bidding. At Valve, though, it's not. You'd damage the company and saddle yourself with a broken organization. Good times!* (Valve, 2012 p.47-48).

Valve sought to hire 'T-shaped' people. They wanted people that had skills in a broad set of areas (reflected in the top of the T) but the person also had to be an expert in an area (the vertical part of the T). Often times the firm would not hire people that were too specialized or too generalized; they needed employees that were experts so they could contribute, but could also wear many hats to get a product shipped (Valve, 2012). In one interview, Gabe Newell highlighted an employee named Ken who was both a talented artist and programmer who reflected a T-shaped employee (Peterson, 2014).

The hiring process at Valve was decentralized and democratized but fairly simple. If employees (since there are no managers) decided that the firm needed another employee with certain skills, they sent an email to their colleagues asking them if they wanted to form a search committee. Any employee that wished to participate could do so. Candidates were interviewed over Skype and then finalists were brought to the company. At the end of the on-site visit, Valve's employees emailed each other discussing the merits of the person and a consensus was achieved on whether a person was hired or not. Most importantly, though, no one person had veto power in the decision (Roberts, 2013).

Employee Evaluation

Without managers, it was left to the employees to evaluate one another. Evaluations were conducted in two ways at Valve: peer reviews and stack rankings (Valve, 2012). During peer reviews, a committee of people interviewed everyone in the firm. The people on this committee changed with each peer review iteration. The committee asked each employee who they had worked with since the last peer review, and then asked how the experience was working with that person. Valve sought to get honest feedback from its employees about one another, since only honest feedback would help an employee grow. Feedback was aggregated and made anonymous before it was given to each employee. The firm also encouraged employees to give each other feedback outside of the peer review system.

The purpose of the second evaluation method, stack ranking, was to determine who was providing the most value to the firm and to give the firm data which it could use to adjust compensation (Valve, 2012). In stack ranking, people in each project team evaluated their other team members on four criteria. The first criteria was the person's skills or technical ability which reflected the person's capability to solve problems, design a game, produce art/music, or add value. Next, employees were evaluated on their productivity. This reflected how much work the employee got done in the time allotted. The third criterion for evaluation was group contribution. This criterion reflected how much the person helped their team or the organization, perhaps by getting involved in the hiring process or mentoring of new employees, or taking informal leadership positions within the firm. The last stack-ranking criterion was product contribution in which the employee was judged on their ability to contribute to the firm's shippable products. According to the employee handbook, examples of product contribution included being a play tester or a bug-finder for a game. It is important to reiterate that these four criteria were used to adjust each employee's compensation, and therefore employees were rewarded monetarily for their ability to contribute in several areas and not a single area. This compensation system differed from systems at traditional firms in which employees were judged on their ability to hit specific targets or goals that may take a limited skill set to achieve. Instead, Valve strove to create a more holistic approach to compensation.

Employee retainment and benefits

After hiring the best talent in the world, Valve was concerned with retaining them. Valve wanted their employees to maintain a healthy work/life balance and tried to make it easier for their employees to balance their families and their job (Peterson, 2014). Valve worked with

employees to find solutions to issues that arose, like dealing with sick family members (Peterson, 2014). Without managers, Valve did not to track sick time and trusted their employees to add value to the firm. Newell suggested that he could not imagine an employee simply leaving for months at a time, and it was more likely the employee was deeply interested in their work and needed to be sent home at 2am in the morning (G. Newell, 2012).

Valve also sought to retain talent by paying very well. Valve's compensation system was heavily bonus based (Roberts, 2013). There was a competitive base pay that was agreed upon at the time of employment. However, through the peer evaluation process employees were awarded bonuses. There was no upper limit on bonuses, and top employees could have earned a bonus that could be as much as *ten times* their base wage (Roberts, 2013). The firm recognized that pay is important and encouraged employees to mention if they felt they were being paid inadequately.

> *If you think your compensation isn't right for the work you do, then you should raise the issue. At Valve, these conversations are surprisingly easy and straightforward* (Valve, 2012 p.29).

Valve also claimed to offer excellent benefits to their employees and their families. At the office, there was fresh fruit for employees, gourmet coffee, massage rooms, a laundry service, a gym with onsite trainers, and game rooms (Peterson, 2014; Valve, 2012). Also, once a year Valve took its employees and their families on vacation. In 2012, Valve took 293 employees and 185 of their children to Hawaii (Valve, 2012). Employees were known to bring their parents on the firm's vacation, and often the parents were left shocked by how well the firm treated its employees (Peterson, 2014).

Career Advancement

Since there were no job titles at Valve, employees did not advance in their career at Valve as they might at a traditional firm. This was because there are no official promotions or titles to make employees distinct from one another. Because Valve empowered their employees to seek out the projects that they found the most interesting, the career of an employee was in the employee's own hands and not in the hands of a manager.

> *Working at Valve provides an opportunity for extremely efficient and, in many cases, very accelerated, career growth. In particular, it provides an opportunity to broaden one's skill set well outside of the narrow constraints that careers can have at most other companies. So the "growth ladder" is tailored to you. It operates exactly as fast as you can manage to grow. You're in charge of your track, and you can elicit help with it anytime from those around you. FYI, we usually don't do any formalized employee "development" (course work, mentor assignment), because for senior people it's mostly not effective. We believe that high-performance people are generally self-improving* (Valve, 2012 p.37-38).

While Valve was primarily a software development company of engineers, they recognized that engineering was not a career path for all of its employees.

> *If your expertise is not in writing code, then every bit of energy you put into understanding the code-writing part of making software is to your (and Valve's) benefit. You don't need to become an engineer, and there's nothing that says an engineer is more valuable than you. But broadening your awareness in a highly technical direction is never a bad thing. It'll either increase the quality or quantity of bits you can put "into boxes," which means affecting customers more, which means you're valuable* (Valve, 2012 p.40).

This desire to broaden their employees' skill set tied into the idea of seeking to hire T-shaped employees mentioned earlier. Valve wanted their employees to have sets of skills that were generalizable to a host of activities Valve may need to engage in to ship a product. Further, the firm encouraged collaboration and cross functional learning for all of its employees.

> *If you were hired as a software engineer, you're now surrounded by a multidisciplinary group of experts in all kinds of fields—creative, legal, financial, even psychological. Many of these people are probably sitting in the same room as you every day, so the opportunities for learning are huge. Take advantage of this fact whenever possible: the more you can learn about the mechanics, vocabulary, and analysis within other disciplines, the more valuable you become* (Valve, 2012 p.38).

Therefore, career advancement at Valve was not simply based on what you knew and how well you could do one thing extremely well; they wanted their employees to be able to fill different roles at different times, though the employees did get to choose the roles they filled.

Customer Relations

Valve had an incredibly loyal customer base that engaged with Valve's products. In turn, Valve was very focused on being upfront and honest with their customers. Given that most of Valve's major products were online games as well as the online game store Steam, Valve realized that they had a technologically savvy customer base. Valve leveraged its passionate customer base in several ways to complement and supplement its products.

Valve allowed the players of its games to generate their own content to complement and supplement their games. For example, in a shooting game such as Team Fortress, players designed hats for their characters to wear. These items had no influence on the gameplay and are purely cosmetic. Providing this opportunity to its users had a drastic influence on the firm. First, ten times more content (such as hats and other items) were generated by Valve's customers for its game than by Valve itself (G. Newell, 2013b). Gabe Newell described his company as being 'cocky' and his organization believed it could compete with any other firm in their industry (G. Newell, 2013a). However, he admitted *that "The one entity we wouldn't want to compete with is our own users. They have already outstripped us, spectacularly. We can't compete with them*

once you give them the tools that allow them to participate in the creation of the experiences that they find are valuable" (G. Newell, 2013a). One person, not working at Valve, generated enough valuable content for Valve's games that were purchased by other users and made over $500,000 in one year (G. Newell, 2013b). Interestingly, some of the users generating content for Valve games were employees at Valve's *competitors* who designed content for Valve's games in their spare time. It is also known that some of these people made more income designing content for Valve's games than they did through their regular employment at Valve's competitors (G. Newell, 2013b; Roberts, 2013). Therefore, Valve essentially crowdsourced a large portion of a time intensive part of game production: asset creation. In doing so, this freed up Valve's employees to work on things the employees found interesting. Further, by allowing anyone to contribute to the asset generation, even employees at rival firms, Valve was able to tap into a global marketplace of talent for a very low cost of hosting an online store front for cosmetic content. In the end, one of Valve's principal concerns was to create the tools and frameworks to maximize the productivity of not only its employees, but also the productivity of its users as well (G. Newell, 2013b).

Drawbacks of Flat Hierarchy

Valve's espoused structure seemed to have created a utopia of innovation in which they only hired highly talented engineers to create products and gave those employees full authority to leverage their talents into the firm's products. However, this organizational structure did have some distinct drawbacks that are important to review. In the words of one former employee, *"You can read the official HR book, that everyone has wheels on their desk. That is the unicorn promise,"* suggesting that Valve may not be a paradise. Through hour long interviews with three former Valve employees, we found several areas in which Valve's structure may be detrimental to product development.

The most important theme from our interviews was that without managers to establish structure, a social hierarchy developed within the firm. Former employees suggested that this social hierarchy created cliques of people within the organization. Further, people who led successful projects in the past had a lot of social capital within the organization and could leverage that clout in many ways. People who worked on less glamourous but critically important aspects of a product's development, such as bug fixing and quality assurance, reported feeling like second class citizens at Valve. It is also important to remember that Valve wanted to only hire the best talent in the world. Jeri Ellsworth, a former engineer at Valve, spoke publically that Valve liked to hire the lead guitarist of a band (Grey, 2013). This suggested that the people hired at Valve were not only talented, but may have had strong personalities. Several former employees suggested that the people that succeeded at Valve tended to have strong 'alpha male' personalities who were talented, and who attempted to gain social capital and leadership positions on teams. Throughout our interviews with former employees at Valve, dealing with people with strong personalities caused stress to employees and often times delayed projects. These delays were due to multiple strong personalities butting heads on product design decisions until there was sufficient data to convince someone that they were wrong. One former employee lamented that in some of those situations they wished there had been managers to make decisions so that the project could have moved forward.

One way that social capital was used within Valve was to convince people to work on their projects. While every employee had the right to determine which project they worked on, employees understood that they are evaluated annually by their peers. This caused some employees to fear upsetting socially connected employees or employees with informal power, such as employees that have earned equity in the firm or who are on the board of directors, because upsetting them could cost them their job or large bonuses during an evaluation. Related to the recruitment of other employees to projects, Jeri Ellsworth stated that the bonus based compensation structure made it difficult to get employees to invest their time into risky projects (Grey, 2013). Ellsworth's assessment was that because employees could potentially make large bonuses working on the newest game which they knew had a good possibility of being released, it made it more difficult to attract employees to spend time on riskier projects such as augmented reality that may never come to fruition (Grey, 2013). This second point may have made it difficult for Valve to motivate engineers to work on risky products.

The social hierarchy permeated many other aspects of Valve as well, such as recruiting. Former employees suggested that employees who obtained social capital within the informal hierarchy often sought to keep it, sometimes acting in ways that may have been detrimental to the firm. For example, one employee that worked on Valve's game engine, Source, lamented the inability of the firm to hire world class graphic programmers. The former employee suggested that people with social capital could often times find excuses not to hire highly talented graphics programmers because the employee with social capital feared that the new people would depose them of their social standing when the new employee showcased their talents. This same employee felt that when he was hired, other employees were threatened by him when they discovered his talents because he could upset their place in the social hierarchy. When this employee began working on a major project, he felt like his work and ideas were rebuffed by those with social capital leading the project because they feared his work may make him more prominent in the hierarchy. This employee eventually had a successful career at Valve, which suggests that he was adding value and did not have poor quality ideas, and may give the employee's concerns merit.

A second issue regarding hiring was that every employee may not have needed to have top tier talent. Jerri Ellsworth, the augmented reality engineer previously mentioned, stated that her team needed to hire a machinist to create parts for the team's project. However, whenever the team tried to hire such a person, other employees in the organization suggested that a person with a lower quality skill set may ruin the culture of Valve. Therefore, her team felt starved for resources; even though they had a workshop with millions of dollars of equipment they were unable to hire a machinist for $40,000 a year (Grey, 2013). She attributed this issue to a paranoia within the firm that their culture might be 'contaminated' by less talented employees and therefore she was stopped from hiring people that her team needed in order to make progress (Grey, 2013).

Additionally, from our interviews with former employees, a theme emerged that the social hierarchy and peer evaluation system put a lot of stress on employees. For instance, one former employee that worked in a large room with his teammates felt that he needed to be seen working

on his project constantly; otherwise he felt that he may be perceived by his teammates as shirking when it came to peer evaluations. This fear caused the employee a lot of stress, to the point where he did not even want to discuss parts of the project in that room with his team. He feared that people would overhear his conversations and criticize his thoughts on the project or disagree with his thoughts and mark him lower in evaluations. This employee commented *"I have never had to self-censor so much. "* Another employee that joined Valve early in their career claimed that they worked over one hundred hours a week on average in order to show that they were adding value to impress others. Therefore, employees may have felt a lot of stress from social pressures within the organization which may have made them become less satisfied and less committed to the organization.

Apart from the important concerns related to the social hierarchy, with its decentralized structure, communication was difficult to do throughout the organization. Often times, since there was no centralized leadership, employees may not have known what different teams were working on which led to difficulties in recruiting people to join project teams. For example, Jeri Ellsworth found it difficult to recruit software engineers to write software that would make the augmented reality hardware work better and expressed frustration at the inability to let other employees know of her team's project (Grey, 2013). She stated that she and her team considered taking the headsets to the cafeteria at lunch to show off their work in an attempt to recruit people to her team. Her recommendation was to add a layer of management, though such a recommendation was antithetical to Valve's organizational structure. When she mentioned this communication issue to more veteran employees, they suggested that if communication was important to Valve, methods to do so would have evolved a long time ago.

Related to communication, former employees felt that the evaluation system was not as transparent as they wanted it to be. As described earlier, there were peer reviews and stack ranking done once a year. However, some employees thought that the peer review system was not scalable to hundreds of employees and the problem would get worse as the firm grew. One former employee suggested that he believed that Valve may not have reviewed employees that had been with the firm a long time, or employees with stock options or members of the board of directors. Additionally, the people reviewing other employees tended to be long standing employees with social capital within the organization. Therefore, if an employee upset someone with social capital, that employee could easily be fired or given no bonus at the evaluation period. Overall, employees felt that they did not know how the peer evaluations and stack ranking were used to calculate the value an employee added to the organization, which ultimately determined their future.

Lastly, and perhaps most importantly from a product development point of view, is that there was an important tradeoff that Valve made between the effectiveness and the efficiency of its product development system. Valve employed some of the best talent in the industry and gave these people autonomy to work on projects which intrinsically motivated them to create highly effective products for their customers. However, the former employees that we talked to agreed that this effectiveness came at the cost of efficiency in product development. Without managers instituting milestones and holding employees accountable for hitting objectives, product development became sluggish. Employees noted a few cases in which Valve instituted

milestones in order to meet contractual agreements with other firms, but generally product development was more inefficient compared to hierarchical organizations. Therefore, while Valve had a history of making effective products that are held in high esteem by the industry, they may not have been the fastest firm in product development. Luckily for Valve, their Steam digital sales platform served as a cash cow to fund the long term development of other products.

Conclusion

Valve undeniably created many innovations and was highly successful at creating products that their customers desired and used. However, Valve's lack of formal hierarchy led a social hierarchy to develop within the firm, which had positive and negative aspects compared to more traditional firms. On one hand, Valve was highly profitable and produced innovative and disruptive technologies for its industry, and was a highly sought after firm to work for because prospective employees wanted autonomy and the ability to work with other highly skilled people. Drawbacks included slower production times, the social hierarchy putting a multitude of stresses on employees, and poor communication across the organization. While the flat hierarchy worked, a major question was how long could it scale as Valve continued to grow in size?

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