Speaker: Good afternoon. Welcome to the Marian Minor Cook Athenaeum. It is always a pleasure to welcome one of our distinguished alumni back to Claremont, and as a graduating senior, it's even more exciting for me to see just where CMC education can take me. Our guest today, Jonathan Rosenberg, graduated Phi Beta Kappa from Claremont McKenna in 1983 with a degree in economics. After a short stint at the University of Chicago, where he got his MBA, Rosenberg dove right into the burgeoning information technology sector. He first worked as Director of Product Marketing for Knight Ridder Information Services, where he helped deploy one of the first online relevance ranking engines before moving to Apple, where he managed their eWorld internet product line. Rosenberg then went on to help found the At Home Product Group, eventually becoming Senior Vice President of Online Products and Services for Xcite at Home. But that was just the beginning. In 2002, Rosenberg started working for what may well be the coolest company in the high tech world, Google. At Google, Rosenberg is the Senior Vice President of Product Management and Marketing, where he oversees the design, creation, and improvement of the internet giant's product line. Google's influence cannot be overstated. It's the largest American company that is not part of the Dow Jones Industrial Average, and it continues to grow unchecked. Indeed, we here at CMC are the beneficiaries of some of Google's latest technology, the Google Apps platform, which now provides our college email service courtesy of Gmail. Mr. Rosenberg is a true friend of the college, and embodies the spirit of leadership and innovation that we hope to instill in our students. I am honored to welcome Mr. Rosenberg back to Claremont to discus what really goes on behind the scenes at the Googleplex, Google's immense Silicon Valley headquarters. Please welcome Jonathan Rosenberg to the Ath.

Jonathan: Thank you. So the people at my table have just demanded stories. Right? You just said I tell good stories, you want more stories. So I'm going to interrupt regularly scheduled programming to provide some stories. I did in fact graduate 25 years ago this spring, along with Nat Piken (?), who's come to visit me. And it was just four years earlier that my father drove me down to Claremont. And I had him do what most of us have our parents do, I had him like help me sherpa (?) my trunk of stuff into my dorm room and get set up and then I sort of put my hand out and said you know dad, I need a check. So he foolishly handed one over. And of course he was then hoping to go meet my professors and look around the campus. And I said you can go now, Dad. And so my dad sort of headed out to the car and I went to wave goodbye, and I figured he was going to go directly, what was it, the 210 to Five to the 152 to 101 back to Bay Area. But it turned out that he stopped in Claremont because he had something to say. And he sent a postcard to my Story House address. And it said something like the following: Dear Johnny, Mark Twain once said that when I was a young man my father was so ignorant I could hardly stand to have the old man around. Then when I came back at 21, I discovered how much smarter he became in the intervening years. I'm hoping the $60 grand I'm playing Claremont for you will in fact make me much smarter. See you again in four years, love, Dad. Four years later I was a lot smarter. I was an

arrogant graduating senior, to which Matt can attest. And I was off to conquer the University of Chicago Business School, as you alluded to. I was in fact a lot smarter, and I actually kind of delighted in showing how smart I was to other people, generally at their expense. And this, I assure you, was not what my father had in mind. So I went off to University of Chicago and two years later I graduated even more arrogant and even smarter and went out to conquer Silicon Valley, much as you described. And my first job was for a company called Operations Control Systems that made data center management software. And I was given a lot of responsibility for a product, and it failed miserably in the first year. So pops came and sat me down and said so what did you learn, son? I said didn't learn much, team screwed up, my vision for the product was great. I don't think I have much to learn from this at all. My dad said, this time he quoted John Wooden, you know, Jonathan, it's what you learn after you know it all that counts. Think about that. It's what you learn after you know it all that counts. So in deference to the fact that my father's $60,000 investment in CMC did actually pay off quite handsomely, I titled this lecture Inside the Black Box Technology and Innovation at Google. The title is not in fact original. My father wrote a book the year I graduated called *Technology and Innovation Inside the Black Box: Technology and Economics*. So it's in deference to my father that I now realize that in my entire career I have done nothing quite as scholarly as he did in his work *Inside the Black Box*. That said, I think the CMC senior that graduated 25 years ago knowing it all has in fact learned a great deal since then, and that's at the heart of what I'm hoping to convey to you all today. Was that a story? I'll do some more stories.

How many have been to my previous talks? Okay, well that's a problem, because this is sort of Jonathan 301. So let me do sort of a quick, a few minutes on Jonathan 101 and 201. We'll bring you up to speed, you're really going to get your money's worth. See, I'll do a whole course in five minutes and then we'll move on to new material. But in my previous talks I talked a lot about the internet as a change agent, how it's reshaping information exchange and discovery, and some of you may remember I had a pretty slide of a kid down a long dirt road in Mumbai, and pointed out that even these kids have access to the same information as the scholarly researchers at Harvard or Stanford or Claremont. And I also talked about how there's been this secular shift in information and an agent of online advertising, which has basically evolved to finance, free products, and free software, and how there's this huge Cambrian explosion of services that are now motivated and funded by this free engine of advertising. I've also tried to put in perspective my view of business in the 20th Century and why the big shifts in technology caused the communications industry, the entertainment industry, the technology industry to miss the next big trend. And I've tried to explain why dominant players tend to blow these transitions. The last time I came I talked about how oil fueled the industrial revolution, and much as oil fueled that revolution, bandwidth and access to information and people spending online, spending time online and doing search, which drives down information costs,

basically caused all sorts of commerce to occur online. So for those of you who missed Jonathan 101 and 201, that's basically it.

Then there's three books, there's only three books you need to read. I covered those two to some degree. They're Chris Anderson's *The Long Tail*, James Surowiecki's *The Wisdom of Crowds*, and more recently, Don Tapscott's *Wikinomics*. So I always figured I paid my professors to tell me the crap that was in the books. They never did that, they always made me read the books, right. But I'm going to just give you in one minute or less the essence of those three books.

The first one, *The Long Tail*, basically talks about how if you lower the costs of production and distribution, you can offer a lot more variety. And with more variety and the tools to find it, which the Internet offers, then people will gravitate towards their own tastes. And this whole concept of this tyranny of shelf space limiting people to the hit driven items that we see in stores gives way and people can actually find specific goods and services that map to what it is that they're really interested in. That's basically the whole Long Tail, information costs go down, transaction costs go down, economic activity spontaneously combusts and goes up.

The second book, *The Wisdom of Crowds* by James Surowiecki. This basically talks, it starts from the premise of a British anthropologist, Francis Galton, in the 19th Century who went to a fair where there was a contest to weigh an ox. And he looked at the guesses of the ox and he discovered that the experts were wrong, but that the average of the crowd actually turned out to be better than any of the singular experts, from which of course he concludes on page 79 that we learn that the average of a crowd is often much better than experts. Something that we see today in many prediction markets and others if you look at the Iowa Electronic Markets and if you look at the efficiency of the stock market. Page rank and much of what you see on Google today is a manifestation of this crowd wisdom.

The third and last book is *Wikinomics* by Don Tapscott, and basically it talks about this era of internet togetherness leading to mass and global collaboration and people being able to contribute with open standards like you see with Wikipedia trouncing Encyclopedia Britannica with real users doing work. Linux is an open operating system having individuals do work.

So those are the trends that I've talked about before that successful technology companies and web companies understand. They're stitching together services through sharing, they're not over-engineering a closed experience. Flickr kicking the heck out of Webshots, Wikipedia beating Britannica, bloggers beating CNN, Facebook beating Friendster, these are all the examples of this kind of enlightened thinking. So that's Jonathan 101, 201, and 301. We had a pop quiz a little earlier. Some of you did pretty well on it.

I sat down over the weekend and I tried to come up with 16 principles of innovation, things that I've learned at Google that are different. And one of them stems from the concept of network effects. How many of you remember a network effect? What's a network effect? Anyone?

Male: The more you use something, _____ the greater the value.

Jonathan: Right, the more you use something the greater the value, of course the Seminole example being the fax machine, right, for those of you, do you even remember what a fax machine is? All right. The cell phone, the telephone as well. VCRs, of course once people came out with video. So the internet is all about this. eBay, the buyers go where the sellers go, the sellers go where the buyers go. And eBay keeps getting stronger, right. Google is really based on this. Users go where the information is so people bring more information to us. Advertisers go where the users are, so we get more advertisers. We get more users because we have more advertisers because we can buy distribution on sites that understand that our search engine monetizes better. So more users more information, more information more users, more advertisers more users, more users more advertisers, it's a beautiful thing, lather, rinse, repeat, that's what I do for a living. So that's, someone alluded to the engine that can't be stopped.

Hiring is just like that. If you think about all institutions, think about colleges. Colleges are great because they have great professors and administrators, and great students come. Great students come because they're great professors. Great professors come because they want to be around great students. Great alumni networks build out of great students, and so more students come. So everything as information becomes easily accessible becomes a network effect. Hiring is the same thing. And it's the single most important thing that anybody does. And at Google, we do it very differently. We've always believed that A's hire B's and B's hire C's, and so forth. You get A's, B's, and C's, you're in school, right. Okay. You can train A's to keep hiring A's, but you can't train second rate B's to hire anything better than C's because second rate B's are threatened by A's. So you've got to set a very high bar and maintain it forever. You wanted a story. I told a story in the previous discussion about my second interview at Google. The more interesting story is the first interview. I came in and basically the way we interview at Google is we like run a CAT scan. We see if it reveals signs of electrical activity, and if you can go blah- or it can blup, blup, blup, and you say hire her and leave him wherever he is. So I had my CAT scan with Larry and Sergey. And here's what they do. They bring you in and they ask you a whole bunch of questions and then they have, some VC told them ask the person to explain something complicated. And then you just sit there and you make them talk. And eventually they try to make it more and more complicated, and they sound like blibbering idiots. So I walked in, Larry and Sergey said um, explain to me something complicated, that's the way Sergey said it, sort of with a Russian accent, which I can't imitate that well. You could imitate it.

Matt: Explain to me, Jonathan –

Jonathan: Something complicated, thank you. God, I knew Matt came for something. So I'm thinking well, I've got to explain something that I know something about that they don't know something about, Jonathan therum 12, which we talked about a little bit earlier. So I thought well, theory of the firm, I mean, uh, I used to sort of coach people in microeconomics, let's start with a total cost function Q of X, and you guys need to understand that there's an economic law that states that marginal cost bisects average cost if the latter is minimum, and this can be proven through Cartisian geometry or calculus. So I'm going to start with the cost function Q of X define average cost Q of X over X, you take the first derivative, you set it equal to zero, if you don't remember the quotient rule because you have the X in the denominator it's easier, you have ____ you make it X to the minus one, and then you basically take the derivative, you have Q prime of X, which is marginal cost, you said it equaled zero, the Q prime of X equals Q of X over X, right Jerry? Right, it works. So I do this. I'm very proud of myself. And Sergey says, you can help with this, it looks like first year calculus. So I'm like shoot, something more complicated. So I think well, what did I study next? Linear algebra. I'm going to explain the simplex algorithm and how you maximize an objective function at the corner solutions. And then I'm like oh, I just read their paper, and page rank sums the eigunvalues and eigunvectors of the web in end space. I don't want to talk to these guys about linear algebra. So I sort of looked at them, and they were like, I actually interviewed two years before I took the job, so it was eight, nine years ago. And they were sort of young, disheveled computer science types. And I thought I need to move on to my home turf. I will explain to you courtship. And I basically gave them a lecture on courtship and dating. And they thought it was brilliant.

               So, brilliant people are a combustible situation. We take brilliant people and we put them in small workspaces together. If you come to our offices, you'll see all the offices are patterned after the size in the original garage. Sergey and Larry actually measured it. And people work in these little offices in teams of three. Working from home in a development environment is a malignant metastasizing cancer. You should never let people do it. It doesn't work. Put people together, don't hire specialists. Small groups of specialists have lower standards and aren't flexible. Number one, hire great people. I have 15 more of these, so I'm going to go faster.

               Number two, ideas come from anywhere. Most companies say this, but they don't really do it. They have like some little stupid idea box in a corner, right, and they don't reward people for their ideas. We actually, when we were small, had a meeting. And we called it the idea meeting. And we do peer reviews and we hire really smart people, and they're rewarded for actually coming up with good ideas. And the way you talked about your ideas was you went in front of your peers, like

I'm in front of you, and you say here is my idea. And you got to talk about it until they looked bored or booed you off of the stage. Seriously. So basically we're taking the wisdom of crowds and forcing you in front of your peers to showcase the idea that you have. And later when we became too big to do things that way, we started to do the first round of ideas through email. People would send an email, and then we'd all vote on that idea. And the ones that go the most votes as potentially good ideas got to go up on the stage and either get booed off or show their friends that they had a great idea. So you've got to make sure that you're accepting of ideas coming from anywhere. But then you've got to implement a system that actually delivers against it.

The third big thing that we do that's different is sharing an openness. The openness is the Don Tapscott stuff that I talked about in *Wikinomics*, but sharing. If you hire great people, you need to trust them with everything. So everything is on our intranet. Everything. We write the board letter to the board each quarter, we send it to all of the employees so they know what we think is important. When somebody comes to me and asks for information I tell them have you looked on our intranet? If they say no, I say look there. And when I see them again I say did you find it? And if they say no, then I say well, go find it. They go find it. I say did you put it on the intranet? Everything is on our intranet. The same standards of openness apply to all of our product development efforts. If you look at the recent effort we did with Open Social, right, we basically have this protocol to share information between websites that people have already visited. The same thing with Android, the software stack that's open that we're working on for mobile phones. So that's what you have to get out of *Wikinomics*. You have to understand this concept of openness. You have to understand this concept, they talk how the human genome project basically was led by firms that chose to share with everyone because they understood kind of the Ken Arrow model of learning by doing. You win not by locking people in, but by being better at the things that you've actually done. We're better at search. So even if we share all of what we do with people, that's going to help them make us better, and we're going to stay better because we've learned more and we can continue to hire people who are better. So we really personify this model of open that's eclipsed the more traditional models, the AOL closed proprietary systems model. You can't control the platform anymore. Consumers are in control. Customers are free to move from one open platform to another, and they're the key to the continued success of web based enterprises. You also have, as I said, the internet driving costs and transaction costs down and since you have high barriers to entry, you really have the ideal model for creating value if you're in this open and sharing world.

The next big idea that we have is to morph ideas and not kill them. And this also goes to a lot of what I talked about in some of my previous talks about the economics of technological innovation. I've talked about how different inventions come on and we don't foresee their real economic impact for some time, right, the transistor, the laser, the VCR. I also talked about the steam engine, which was

originally developed for pumping water out of flooded mines. And once you connected it to the railroads, basically you tamed the west. So there are all of these technologies that are proposed as point solutions to very narrow problems. What we have today is fast change with the underlying technology, the CPU power, the storage requirements. So you're constantly revisiting these ideas that didn't work before and reapplying them. Blogs were originally about publishing information so that people could reach niche communities. But the whole blog systems that we developed are now the engines behind publishing information in Google Docs and Spreadsheets, which is the next evolution for those of you that are using Gmail. We also used to have ideas that we've morphed like convergence. Convergence was originally about, remember, the device in your pocket that would do everything, right. How many power chargers do you take with you on vacation? Six? Convergence is not at the device level, devices will proliferate. Convergence is in the cloud where your Gmail is, where your docs are, where your spreadsheets are. All of your data needs to converge. The devices that vector into your data are going to diverge. The opposite of what we originally expected, but still the same idea.

Next big difference, users come first, not money. Sounds simple to say. Very, very few companies follow it. You read the founders' letter, you read Larry and Sergey's focus on the user. I first met them, and they said they didn't know how they were going to make money, but they were going to build great search. They did. Other companies started licensing our search and our ads, and it was almost comical the degree to which they would become addicted to the heroine of revenue. The more ads they put on their page and the more they pushed the users' search results down, the more money they made. And they were our partners. And each quarter they would say to me, Jonathan, how do I make more money? And I said you can make more money by dialing up the ads on the page, right. You end up being like Vogue Magazine, it's nothing but ads. At least the people who read Vogue Magazine want the ads. On the internet the people didn't want that scope of ads. So every quarter they basically would monetize themselves out of share because they were focused on money and not the user, and we were the beneficiaries of that share, even though we advised them against doing this. Ultimately the winners become in this new world where information travels quickly, disinformation gets spread online, but the truth also emerges faster. This is true in politics, and it's true in business. So, users ruthlessly punish companies that do the wrong thing, and richly reward companies that do the right thing. Did we need Steve Jobs to tell us that we didn't need to buy ten songs when we bought music? Did we need him to figure out that we wanted a player with only one button that normal people could figure out how to use? Sony, Samsung, the whole MP3 world didn't understand that, and they lost because Jobs, like Google, was focused on the user, and manically so. Users, not money.

Data drives all decisions. Don't come into a meeting at Google and say I think. Come in and show us. And show us with data, not with data that you've massaged

in some spreadsheet from some external source. Data that comes from our log systems that we know to be true. In every conference room we have two projectors, one you can put up your silly PowerPoint presentation if you really want. And the other you have to show the source data from that that others can question that show your conclusions. Argue everything about your conclusion based on data that everybody else in the room can argue against. Don't come in and say I think. Don't come in with your design and say this is a beautiful aesthetic, users will like it. Try it online, come back, measure what worked, and tell us with data. Note the approach to data that the company took to advertising. There are all these famous sayings about advertising, 50% works, I don't know which 50%. Larry and Sergey did the opposite. They took a return on investment based approach to measuring everything that people do. Our users get conversion tracking software for free that tells them whether or not they should lower their bids or raise them because we want them to understand with real data what on a bang for the buck basis they're getting. In years, advertising is going to be a dashboard that a CMO has, and he's going to figure out how much he wants to spend to achieve a certain objective on television, radio, and the online medium, and we're going to tell him on a bang for the buck basis against any particular objective what works and what doesn't.

I have one other quick example about information and data. I read an article in *McKinsey Quarterly* about sardine fishermen in the Indian Ocean. Sardine fishermen 101 basically look like this. These poor guys go out in these boats to find the sardines. And the goal is to get fish, get them on your boat, bring them back, sell them at the market. And they're in these little villages that dot the landscape like 15, 20 miles apart. So the fishermen all go out in the morning and race to get enough fish to bring it back to the local market. The first guy back gets a good price for his fish. But some days lots more fishermen come back with lots more fish than the market expected. The last fisherman in has a catch that basically spoils. So he has to race back out to sea and go up to the next town, which is another day's ride on their little fishing boat, and hope that they're not overstocked with fish. Well, some genius basically said wait a minute, data can solve this, and put cell phones in the fish markets and gave them to the fishermen. Now the fisherman knows which village to head for because he has data. That fisherman doesn't want to think, that fisherman wants real data, and that real data is basically the livelihood around their economic wellbeing.

Iterating products. Most companies talk about this. They don't really do it. I used to be the king of writing product plans, all my failed job experiences. And when I arrived at Google, Larry basically said when did the engineers ever do a better job of adding features and functions that you wrote in your product plan? When did they ever do it faster than the schedule that you had? And I said well, never. And he said well then don't write them. Just get people working on a demo, iterate it, see what users do, and make it better from there.

Eight, vision. Not all companies share their vision with their people. Or when they do, it's not much of a vision, and it's a vision that doesn't stand the test of time. How many people worked for a company that had a mission statement? How many, okay, all raise your hands. Leave your hands up. Okay, leave your hands up now only if you remember the mission statement. Cynthia.

Cynthia: CMC's mission.

Jonathan: Outstanding. Good job, Pamela, they can all recite your mission by heart. Okay, that's good. I like that. Well, like I said, Google is more like a university than a company. So we've got this mission to organize the world's information and make it universally accessible to people. Like it's going to take the rest of my lifetime and the rest of yours and the rest of your children's children to achieve this mission. Everybody understands it, everybody internalizes it, and it means something to them. 20% time. No company has ever officially defined 20% time. Our engineers work on anything they want in 20% of their time. And out of this 20% time come pretty fabulous things, like Google News, which was basically a guy by the name of Krishna, who is following the 9/11 efforts and wanted to pull information on what was happening together in a dashboard, and he basically invented Google News, which today is one of the most visited news sites. Thinking big. The antibodies in all companies try to reject big thinking. Larry and Sergey to the opposite. You come in with some little idea, and they leverage it up to a giant idea. They even institutionalized it in what we call the OKR process, objectives and key results. One of the VCs told them when they first got started everybody needs objective and key results. So the company did what normal companies do, you learn from McKinsey, under promise, over deliver to your boss, right. So everybody wrote these pathetically whimpy little objectives and key results. And Larry and Sergey went in and mocked them and said what's this? This isn't very difficult. You're solving this problem for the Bay Area. Solve it for the known universe. It's pathetic. So they created a process where you're only expected to achieve a mark of about 60% on your objectives and key results. Other companies do the opposite. In the middle of the quarter they all get together and they say what are all the commitments that people have made? Beat them harder if they're not making them, or give more resources to the ones that aren't successful. We've done the opposite. We've defined very big goals, and in many cases people don't come close to achieving them, and we're rewarding the people who do reasonably well. Sergey, I recall like it was yesterday, there were only 500 million web searches a day like several years ago. And Sergey sort of looked around and had this look in his eyes _____ said you were all thinking too small. There are 10 billion web page views a day and only 500 million searches. I wish an ad on every page. And then we had AdSense, which is basically the reverse of search, putting the ads on the web pages. The X PRIZE, somebody sending a moon, somebody sending a Rover to the moon, driving it around, sending back data. I was just in a meeting on energy, and somebody said we can make renewable energy cheaper and Larry said well, then put an OKR up to make

renewable energy cheaper all over the world, cheaper than coal, because that's what really will make a difference. Well, think big.

Bet on a trend or fall victim to one. Everything about success in technology is internalizing and understanding what Eric calls the technology base case. You guys read about this, but you don't internalize it. Moore's Law, right, processing doubling every 18 months, improving by an order of magnitude ten times in five years. Kryder's Law of storage, storage becoming half the price in a year. It's hard in normal industries to think this way, to think that the cell phone that's in your pocket is 100 times more powerful than the PC that you used ten years ago. Or how many of you have a Wii? Yeah, it's more powerful than the computers that powered the Apollo missions, right. That's very hard for people to think about when they're doing development. And Larry and Sergey internalized that before they got started. They built a system that they knew couldn't work at the scale they needed it to work with the processing power of the day. All of you are using Gmail. When we launched Gmail we couldn't afford to give people two gigabytes of storage. But we knew it would take time for them to use up all of their storage. And by then it would be cheaper, it would be a year later, it would be half the price. Again, betting on a trend. Chad Hurley, who was one of the founders of YouTube, you look at what he did today and it doesn't seem so brilliant. But you talk to him about what he saw, and he said you know, there was a moment four years ago when I was sitting down and I was thinking and I saw that it was hard to create video because we didn't have ubiquitous deployment of cameras. And bandwidth was scarce and it wasn't fast enough to download these things. And you needed special client software because we didn't have the open standards and robust browsers that we have today. But he said in a year or so all of that's going to change. And in a year he created $1.6 billion worth of value. There are many other trends like this that we're tracking today. Cell phones obviously, we're getting over the form factor, we're getting over the display issues, we're getting over the battery life, we're cramming all sorts of processing power into these things. We're adding GPS location enabled ability into them. Well, it's not going to be, we're not far away from being able to walk around in stores, take a picture of a barcode with your cell phone, and have your cell phone tell you how far you have to drive or walk to get the same device in inventory somewhere else cheaper, right. That's going to fundamentally change commerce. People with devices in their hands ready to consummate transactions who have knowledge, data, information about where they can get a better deal.

Accept the smaller piece of a larger pie, rather than hogging a bigger pie. We have Matt here who's a writer. I'm sorry, let's talk about your industry. The Hollywood writer's strike, they wanted a raise, they wanted a higher cut of DVD sales, right. I don't remember what the number was, it was like four cents to eight cents, right. So we held up the world for the future of DVD royalties. How many of you students watch all your network shows online? I know my niece does. Put your hands up. Come on. Do you even want the DVD if someone gave one to

you? You don't have a DVD, many of you don't have DVD players. So we're arguing about a larger piece of a smaller pie that's turning into a crumb, right. Google is the opposite. We're focusing on making the partners successful. When we first developed AdSense, which monetized websites, the business people with MBAs all said to Larry and Sergey, we're the only game in town. Offer them 40% of the revenue. And Larry and Sergey said no, no, no. It's their revenue, it's their pages. They're the ones creating the content. Give them the vast majority of the revenue. We'll just take a tiny piece. What did we end up with? A small piece of a much, much larger pie. I'm glad they fixed things in Hollywood, Matt.

Matt: Yes. Unbelievable. It's perfect, yeah.

Jonathan: You're working again. Okay. So given that Matt's eating again, the next concept, feed the winners, starve the losers. This is the opposite of the way that most companies work. Most companies start out with people with these objectives. Think about other portals. All these general managers think about their own area, not the greater good. So the homepage of the portal is where you get distribution. The guy running the career site, the guy running the finance site, the guy running the mail system, they all want traffic. So the one who is doing the poorest relative to his narrow objective and key result comes and begs the person who owns the distribution, my career site is doing really poorly, it's not getting the traffic I need. Push it on the homepage so that more people use it. Well, this is the opposite of what you should do. Your career site sucks, that's why I'm always picking on my right and not on my left. Your career site sucks and no one is visiting it. Your finance site rocks. We're getting all the traffic there. Why don't I steer the users to the finance site which is good instead of the career site which sucks. That's the way most general manager oriented companies run. That's why we are functionally oriented and we'll always be functionally oriented. You feed the winners and starve the losers.

Avoid hippos. I went to Africa recently and I learned about hippos, Latin river horse, hippo kills more people than any other animal in the world. Hippos kill more projects in organizations than any other person. A hippo is the highest paid person's opinion. I am a hippo. When people in a room start talking, eventually the hippo speaks and says I think. I don't like it when people say I think. Somebody said they wanted a Sun story, was it Cynthia. Sun, Eric used to work at Sun and he tells a story about coming in at Christmas in the late, mid '90s. He had a project he wanted to do and to accomplish it he needed one of the work stations. So he went to the shipping dock and stole, borrowed, whatever you want to call it, his PR people I think say borrowed. Anyway, he took one of the boxes off the dock and took it to his office and unpacked it. There were eight read me first documents in the box. He put them all up on the wall and he looked at them and he realized that it was the company's org chart. Eight hippos insisted on a read me first document in the box. You could write an entire senior thesis on this particular sentence, eight read me first documents. Rule of thumb, if you can see

the org chart in a product, don't buy it. That's the difference between the iPhone, manically driven accurately and correctly by a man of vision, Steve Jobs, and these other phones that have multiple different applications on them that don't work together, that all vector into six different address books. Avoid hippos.

Who did I say I would pick on today? What kind of people? Auditors, well, that's the whole security thing. Let's pick on lawyers and bureaucrats, people – I do like some lawyers. I like pragmatic forward-thinking lawyers that think through the issues relative to a business objective. The kind of people, who comes from a place where they have toll roads? Anybody from like the, what's the process?

Speaker: You queue and you wait.

Jonathan: You queue, you wait, you burn gas, you throw money in, then what happens when you come back? The same thing. Well, who was the brilliant guy that actually said, maybe we should just have the toll roads in one direction, like on the Golden Gate Bridge? I'm sure many weenie bureaucrats said that won't work. How many of you have only paid that toll and then driven all the way around the Bay Area to get back to Mill Valley, right. We need more people like the guy that said we only need tolls in one direction. Of course we need more people paying attention to Stubblebine and use taxes and fixing all these stupid taxes that we pay that actually waste gas and that sort of thing. We should have a big gas tax that would fix it, but that's an entirely another lecture. We could make it less regressive on the poor by fixing the income tax rate, and then people wouldn't drive such big cars and the world would be a better place, but that's a different lecture. Okay, more on lawyers. How many of you have cars where you have to hit I agree every time you get in, or you have parents who have these things, it's a Japanese car. Oh, what is it? An American car. Well, my cars are all Japanese and I always have to hit I agree. In German cars you don't have to hit I agree. Are the German lawyers smarter than the Japanese lawyers? Or do they make a better business decision about the relative risks? Every time you download a feature online you have to click I agree. This is just stupid. This is just lawyers saying that you have to do this who don't understand the online medium anymore. If your kid is in the hospital, if you guys go to the hospital and you haven't signed a release, do you know the hospital can't tell your parents what's wrong with you because it's a HIPAA violation? All of you should tell your parents to sign this, by the way, which I'm going to do for my kids. That's crazy. It violates the spirit of HIPAA. You may be over 18, but if your unconscious because you got in an auto accident, all of you would want your parents to know, and vice versa. You see this, who came from one of the banks? Somebody said they were visiting from Capital or something. Every time I get a message from you it says this may contain confidential boring whatever, blah, blah, blah, blah at the bottom. This is just wasting bits, right? At Starbucks, finally, a genius decided that you didn't have to wait for the transaction to be approved before they let you go stand and wait for your latte. It just goes through as though it's going to be approved, then an alarm

bell can go off ten seconds later while they're serving the next customer. I mean what did the lawyer think? Pamela was going to get her chocolate mocha and run out of the store with a Visa card that didn't work. Somebody go get her. This is just, this is ridiculous. These weenies in the world in linear programming language create a constraint set that becomes the null set. And then you end up optimizing around that. We talked about that in the IT discussion this morning with respect to auditors and onsite backup. The auditors just have the wrong rule. You don't need onsite backup here with a key to the vault anymore. You could have it in eight data centers all over the world. You have earthquakes here, right. You don't want it in a vault that you can't get to. At Google we never would have done images, books, Google Search, or any of the things that we did if we didn't have reasonable lawyers who explain to us the risks, and then let us make an informed business decision. Never surrender to the lawyers, the accountants, or the bureaucrats, except when they're right, especially when they're keeping you out of jail, like reg FDI violations. That's very bad. I won't be talking about anything that could send me to jail. There are no broadband connections in jail. I wouldn't do well without a broadband connection.

Rewarding innovation. Again, seems simple. Most companies don't do it. They have profit sharing, at HP, I have to pick on somebody, I said I'd pick on HP, the profit sharing goes between 5.5% and 6.5% every year, and everybody gets the same. Well, that doesn't work. That's like some other country's approach to the world in rewarding things. Pay the people who deliver lots of money. Baseball players, shortstops, they make a lot of money, the best guys in an investment bank, they make a lot of money. Matt, if his voice had been as good as the best guys in Hollywood would have made more money and he wouldn't be a writer now. But he's a producer. You pay the best people way disproportionately more. Millions of dollars. The guy that built Google News has made us millions of dollars, billions of dollars. Pay him millions of dollars. And when some weenie says that isn't fair, say you don't care. Life's not fair. I wish I could hit a step back 23 foot jump shot like Baron Davis, I can't. So I don't get to play in the NBA. I wasn't as handsome as Matt was in college, I didn't get as many dates. It wasn't fair.

Matt: He's right.

Jonathan: It's still not fair. There's a final ingredient in this, and it's one that I haven't talked about. And it's one that all of you I think have going for you. And it's about learning, it's why you go to a great liberal arts school, because underlying all the things that I talked about is this one idea, it's learning how to learn. I learned a lot at Claremont. I can no longer articulate the cultural underpinnings of Japan's economic miracle, as Leon Hollerman taught me. I cannot articulate all the theories of personality that I learned in Professor Snoredom's(?) class. I might be able to say a few things about the theory of the firm matching wits with Jerry if I was lucky. But what I learned here was I learned how to learn. On graduation

day 25 years ago I'm quite confident that I knew it all. It's amazing how much I've learned since then. Thank you for letting me share some of it with you.

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