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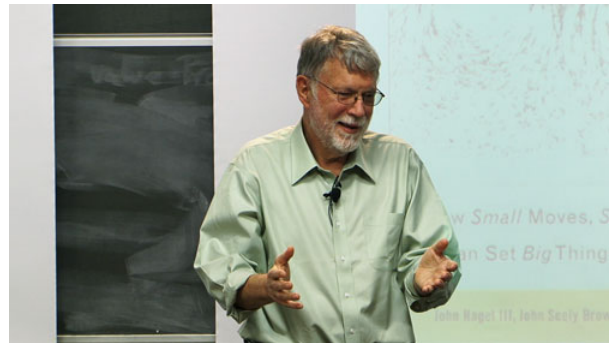## Collaborative Innovation and a Pull Economy (Entire Talk)

John Seely Brown, *Deloitte Center for Edge Innovation*

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What can extreme surfing and World of Warcraft teach the enterprise? Independent Co-Chairman of the Deloitte Center for the Edge and former Xerox PARC Chief Scientist John Seely Brown holds them as examples of the power of frequent benchmarking and full industry info-share. He also uses them to show how the core ecosystem can be made stronger by sharing knowledge gathered from learning on the edge. In addition, Seely Brown touches upon his theory of a monumental economic shift from a push to a pull economy as outlaid in his 2010 book, The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion.

Transcript

It brings me great pleasure to introduce our thought leader for today, John Seely Brown. I have been admiring John's work for many years. He is a legend not only here in Silicon Valley but around the world. Among his many accomplishments are - that he's currently one of the co-leaders of the Deloitte Center for the Edge so if you haven't gone there, you can go to his website and learn more about that. In another life, he was the chief scientist at Xerox Corporation and the head of the Palo Alto Research Center at a time when many innovations spun out of PARC and it really changed our world, as we know it. He's got many books to his credit. One of his most current is "The Power of Pull". And John, we're so delighted to have you with us today. Let's welcome John Seely Brown. In fact, I think it is an understatement to say...

Well, I forgot to - the thing - should I say it? It's up to you, sir. Something you may not know is that John Seely Brown was the youngest licensed bookie in the state of New York. Now, ask him how he got that accomplishment. No, no, that's how I paid my way through school. Yeah. As Tom mentioned, there's a new book out called "The Power of Pull". When I say new, we launched it in New York the day before yesterday. And originally, I was supposed to give you a book talk on that but I'm not going to go through that book in much detail. I'm going to pull out some stories and some fundamental ideas, and then on the very last slide, I'll show how it relates to the overall framework of the book. But I think there are a lot of more interesting things we can talk about, first, that really relate to the opportunity today as entrepreneurs move out.

I think it's absolutely fair to say that there's something fundamental going on. I'm going to call it "the big shift" between the 20th century push economy, which I'll come back to, and the 21st century pull economy. And really talk about if we have a sense of constant flux in our world, you have to admit that in a world of constant flux, never has there been more important in understanding how to be an entrepreneur. So let me just start off in a very simple observation. Our old institutions suck, as we'd say, in some place. They ain' t working very well. Something is broken. Maybe something fundamental is broken and nothing to do with the current financial crisis, maybe something much more fundamental. Getting to the root of that, may open up a view that really says there's a whole new set of opportunities for our entrepreneurs. But why do I think they're broken? Why don't - I could spend the entire talk on that and you'd be too deeply bored, but just two mild observations.

We have at the center been computing not return on equity - because if you look at return on equity, it is possible to play an infinite amount of financial games through debt financing that can disguise as we now know almost anything. We've been looking at hard assets and return on assets, and if you look at the last 65 years, return on assets have plummeted 75%, and there's absolutely no sign that this is going to change. In fact, it keeps going down and down. There are no tricks on this graphic. We could talk about how the top quartile rather than the bottom quartile is performing blah, blah, blah. There'd be a whole talk on this game. That's not what I want to do but I will mention one curious sin for the economist's economically-inclined students. If you take this to where it crosses zero, which means our corporations have gone out business, it happens to be ironically at the same point that the debt equals the gross domestic product. We don't think those things are correlated but it's an interesting observation. To me, more interesting is in the old days, you do a start up, you do really well, the company will build, build, build, build, build, and you eventually make it in the S&P500.

And if you made it in the S&P500, you would live there for a really long time, 75, 85, 95 years. We've been able to kind of compute these business cycles. How long companies that make it into the S&P500 - success that is called - how long do they last before they get toppled, before they die, or are quiet? Not that acquisition is quite the same as death but it's an interesting question. And we're looking at getting down to a point where, basically, people in the S&P500 might last only five or ten years. You got to ask what the hell is going on, or as I sometimes say, depending on where I am, "Why are we paying CEOs so much?" It's a different story. Here's an observation that at the least underlies some of this game. Alfred Chandler got us to understand in the 20th century, basically, there is a fundamental infrastructure that enabled us to transport goods with amazing efficiency and organizational architectures built up to leverage the fundamental infrastructure of the 20th century. And that's kind of a gloss. But one of the most interesting things about this infrastructure is, first of all, it's a simple S-curve. I mean, for a short period, there are tremendous disruptions.

Think about electrification as another example of that. It's a period of which things change and then they stabilize out for a pretty long time. Basically, if this is the infrastructure, the key to success, by and large, is the notion of scalable efficiency. Build a lot, use transportation mechanisms to distribute it, blah, blah, blah. But for this to work, you have to live in a predictable world. You've got to be able to predict ahead of time what to build. Build a lot of it. Store it. Ship it out. Obviously, that also means because of scalable efficiency, you want a hierarchy, you want control, and if you study organizational theory, almost anywhere, basically, think about organizational routines.

They define what a corporation is. And we all know that the game is how to minimize variants and that's kind of the picture of almost all notions of how the 20th century firms really worked. And by the way, almost everyone in this room had the same impression or the same experience coming through K through 12 schools. Our K through 12 schools are built on scalable efficiency, a factory model. Basically, we can predict for you what things you're going to need five or ten or 15 years away, and we're going to build up a stock of assets for you to learn, to acquire so that eventually, you get to use them, very much like how corporations have to work. The catch is, today's world, the 21st century is qualitatively different. We no longer have an S-curve. We could argue, especially on this campus, about this curve here but basically, the digital infrastructure. The technology underlying the digital infrastructure looks like it's going to continue to follow an exponential. It may not be Moore's Law.

We're going to change architectures. We're going to change algorithms. We're going to change a lot of things, but this exponential curve may be slowing down but it is marching on. And the technological infrastructure, we're going to build things around. It is of course more than just technology. It's a socio-technical system and so you get interesting kind of institutional mechanisms creating in order to be able to make this stuff work. So for example, what's happened in the last two years? Cloud computing. Cloud computing at the moment are stand-alone clouds. I'll guarantee you next year, there are going to be issues of how do you federate these clouds. How do you actually harmonize policies across federated clouds, all these kinds of things? These are kinds of institutional mechanisms that, suddenly, will come up to build a fundamentally new type of infrastructure around, which almost all corporations will figure out how to take advantage of it.

If this kind of exponential curve is more or less right and this game is changing through punctuated evolution bang, bang, bang, bang, bang, there's no sign of stopping. It really suggests that the half-life of any given assets, any given set of skills ain't that long. It may actually be shrinking to something like five years. We have no quantitative proof of that. But basically, it is shrinking and the predictability of future needs is increasingly uncertain. This really means that corporations that were built in terms of protecting stocks, and by the way, this also means intellectual property, and thinking that, we have to be obsessive about. But guess what? Maybe this whole notion of stewardship of stocks, of assets, isn't so important and what really matters today is how do you engage in flows. How do you engage on the edge of flows? How do you participate in those flows? In ways that, in fact, not only are you sensing what's going on but by being on those edges, you're constantly creating new knowledge, yourself and with the people you're participating on those edges with. Now, you might say that's obvious. There may be one thing that is not so obvious.

If you're constantly creating knowledge on the edge like this in a world of flux, much of what you're creating has tacit knowledge in it, and tacit knowledge can't move anywhere near the same way that explicit knowledge can move. And we'll

come back to that in the questions and answers if you want, but it's just something to keep in mind that this game is even going to change in terms of how do things actually flow over this edge. But from us here, this may actually be kind of a double win. What this exponential curve says is the old dies faster than ever. That can actually be pretty good, and what it really says, that it must be all kinds of new ways to leverage this exponential power. To do what? To create new knowledge by leveraging the incredible powerful tools that, for example, the cloud actually provides and to be able to find new ways to learn, which I'm going to come back to. I'm sure you guys have had many talks here about how Silicon Valley is now finding ways to do materials science in the garage. I happen to be connected with several companies, basically started out in garages, that do fundamental work in material science. And how do we do it? We kind of use cloud computing. We actually grab electron scanning microscopes on the 'net and ten or 20 people can make this company actually work, which is, you'll also know, that means I don't have to spend my precious funds in Series A or angel funding in order to buy infrastructure.

I actually pay for it as I use it, and I kind of reach up there and pull what I want. I just came from spending the day with Singapore. Singapore now expects to start a company with $50,000 all based on the use of the clouds. Now, they get a lot for $50,000 but just think about what this means. I saw 40 new companies that have been started in that little nation state the last year or so. So this game is changing, and we have to think about, in terms of being entrepreneurials, how we might use social media to be able to spread some of this. How social media and tacit knowledge might actually work together, and how cloud computing might change the game. So, with that kind of preface, I want to kind of take us on a little trip. I want to talk about kind of a fortuitous encounter that actually helped shape a tremendous amount of my thinking. Now, this is a strange encounter.

This is not something that came from Xerox PARC. In fact, they couldn't even have these ideas when I was at Xerox PARC. It's extreme surfing. It turns out that I spend, for lucky reasons, three months a year in Maui. And this kid, who is, by the way a world champion now, lives next door to me. And I've had a chance to observe how basically five kids have come together to create a cohort to engage in incredible fast learning to reinvent aerial surfing to the extreme edge, and now all become world champions. And Maui, up to now, has never ever produced a champion in its history. So an interesting question, what happened? If just one kid had done it, and this kid is pretty talented. That would be interesting but not worth studying. The question is, how did they all become? And I make that, I say, all four of them have.

The fifth one is more complicated who has Asperger disease and kind of only comes - he can't travel very well and so on and so forth although, he turns up to be maybe the best surfer in the world according to some very professional surfers today. So, this is Dusty. Now, he has grown up a couple of years. These were shots when he was like 19. He's now kind of old. He's 20, 21, and these are some of the aerial shots of him. By the way, as you know, I don't know how many of you are hardcore surfers here. There are no straps on these boards. So when they do aerial twists, turns, all those kind of stuff, this is not like snow boarding. It is not something holding you to it.

And in fact, I found it very interesting when I first started seeing him work is he sells the highest-priced real-estate, is the bottom of his board. Why? Because he realized the bottom of the board when he makes a move is what's going to be photographed. I want to just show you him in action a moment. So, if like now, we ran this (but they won't) in slow motion and actually stopped it so you could see some of the moves that he made. You begin to realize why they're defying - defy almost reality. But what's going on here? Why do I bring it up? How did this become possible? So I had a chance to live with these guys, had dinner with these guys because they're, as I said, 200 feet from my house. They find me kind of weird. I find them interesting. Now, the obvious thing is they came together and they said, "Somehow we're going to learn as much as we can from each other." And they formed this amazing ability to critique each other on the fly almost all the time and compete like mad with each other the rest of the time. It's not surprising.

These guys have extreme passion in order to be able to push themselves to the edge. They fail continuously. By the way, when you fail sometimes out there, it's really bad; you get really messed up. So this is not an easy fail, but it didn't stop them one iota. Another thing they do is, again obvious, is they get all the DVDs of all these champion surfers around the world. They bring them in to their living room next door and they sit there with iMovie and a few other thing, and they go through this thing frame by frame by frame, studying each move, seeing how and what they can do about this. They dash down the hill until they surf, try it out, back up, so on and so forth. Another thing they do, and you actually saw it in the water there, is very near, the very end, you saw Dusty almost land on somebody. Well, that was a cameraman trying to grab a picture of Dusty performing. The goal Dusty has to know - let it be known he's about to go surfing and videographers flock from all over the place.

But what they really do is they now equip with their own video cameras, and now others, they go out and they practice and capture their own moves, come back almost like a design studio, by the way, and they critique each other's moves, try to part some, and look at how they can do something better. One of the most interesting things to me, and an idea that I think comes through a lot of stuff that you guys must be thinking about is, how do you get the best ideas from adjacencies? How do you start studying things like it? Well, obvious things like skateboarding, I think Dusty is a champion - not a champion, but a damn good skateboarder, too. So, you go out and you study these skateboard moves, and then you say how do I appropriate a

skateboard move over here into what I'm doing over here? It's not just skateboarding. It's actually mountain biking. It's actually motocross. One the most recent moves that happened is, actually, Dusty will let the board get way out in front of him that actually was picked up. It's called the - I forgot the exact name of it, but I call it the motocross move. It came from motocross extreme performance and the way you can actually see these guys with their motorcycles out in front of them flying over an edge. He said, "Bet I can kind of appropriate that." Okay, those are obvious in some ways. Two more things, is basically Dusty has gained - understand local ecosystems.

They understand spikes. What they do is they're constantly flying all over the world, circulating across - around the world, going to every kind of local talented place, competing with those surfers, looking for new moves, and so on and so forth. In fact, when I have to talk to Dusty, it has to be, of course, by Skype. I have no idea what country he's going to be in. He circulates the globe. But it's interesting how they have figured that out, as we all would expect, that there are seats of incredible talent. I got to go and visit those things, and then how do I appropriate new ideas, how do I build relationships in those spikes of incredible capability, and what can I learn from them. And then, how do you productively interact with folks so that now, people come to them to show them things? They don't have to go out. Now, we might say all this is pretty clear. If you actually think about entrepreneurialism, I think any of you would say these aren't necessarily bad strategies to think about yourself, but I think the key to me is somehow, first of all, it's not that they're just passionate about surfing; their passionate about extreme performance.

And that's what pushes them to the edge and to try all kinds of things. But, secondly, they have a deep questing disposition. This means anywhere they go, they look for new ideas. How can I borrow that idea, how can I appropriate that idea in my space, and so on and so forth? Well, what does it have to with us or maybe everything? Question: Serendipity is not a bad thing. Serendipity sounds to most people like luck. Question: Might it be possible to actually shape serendipity? And basically in the world that's rapidly changing, it's an interesting issue. We don't even know the questions to ask or whom to look for. In a stable world, I use Google. You know the kind of question that doesn't work too well in Google is, "Please tell me what I need to know that I don't know I need to know yet." It turns out that not many interests come up. But shaping serendipity, if there is a way to do that, a way not to just count on luck but to think about how you may be able to choose the right kinds of environments.

By the way, you saw that in spades if you follow Dusty around the world, choosing the right kinds of spikes to visit. What are the practices that you want to develop so you have a better chance of picking up new ideas, as you encounter them? And, how do you actually prepare yourself in order to be able to receive very strange ideas that you have to do a lot of thinking about how to appropriate in this context? I want to go through some of these practices. You're seeing some of them as they laid out in Dusty. But the bottom line here is that all these encounters involve deep listening; that's not a big deal, but deep listening with reciprocity. That's to say, "What do people get out of talking to you as well as what do you get out of talking to them?" Because if you're doing always the take, guess what, and pretty soon you'll find people don't people really like to spend that much time talking about new type of stuffs. So, one of the questions is, "How do you think about this and how do you move from an initial transaction-interaction to actually start building relationships based around this notion of actually reciprocity and deep listening?" So, two quick examples. I want to talk about a guy who I, by the way, serendipitously ran into at a Socrates conference; actually, that's not quite true. I ran into him at a bar outside the Socrates conference. And this guy is pretty interesting, and he says, "You know, John, most people today, they get stuck in one frame. They have one thing that they want to do.

And what I'm finding constantly is I want to find a way to expose more surfaces. I could go into the way our food system actually works in our body so that I'm not too narrow focused, so I'm prepared to hear things that may not seem immediately relevant right away, but I'm still wanting to listen to them and appropriate them." Because if you have only one surface then, basically, what happens is you actually don't get much out of these knowledge flows, unless you're willing to think a little bit out of the box. And in the corporate world, what if I know over and over again, and this shouldn't be a problem to you guys have is, how do you get out of your comfort zone? So what Jack does every year is he goes to at least one conference that he knows nothing about? The first day in that conference, he sits in a conference. He learns the technical terms. He learns the grace, the scope, the shape of the ideas, and so on and so forth. The second day, he hangs out in the corridors just listening to conversations. And the third day, he actually starts to actively participate with people, practicing how do you talk, how do you think about things, but now bringing his broader perspective to this game. Now, you guys know Jack. You may know Jack. At least you know some of the things he's done.

So, Jack shows up at the ASPEN Festival - I mean ASPEN roundtable in the ASPEN Institute. He decides to drop in on energy. He knows nothing about energy. But the third day, he realizes, "Man, this is a serious problem. I want to get engaged." And so he creates what he calls now "The Carbon War Room," which you can go on the Web and see. And he talks a dozen incredibly powerful entrepreneurs, one being Richard Branson to join, and attracts enough attention through creating these beacons, he calls them, that people can now start to discover. To say if you have ideas of a certain kind, come talk to us. And so, he went from this serendipitous encounter to now shaping a space that started to attract and pull relevant people to him to

make something happen. And you know him for two things. If you come from New York, he pulled together the resources and the people to create and to get Mayor Bloomberg to put in the hybrid taxi ruling that says by the next four years, basically, half the taxis, or something like this, have to be hybrids.

And you also know the Cash from Clunkers program; that was his that came out of the Carbon War Room by attracting, again, the right set of people to help him make that happen. Yeah, that's Jack. So, what you might say, that's an individual. The big challenge we have is more at the corporate level. How may we actually change the way innovation works in the corporation, in the corporate world? I come from, as you know, Xerox. Xerox PARC was designed to be the edge of Xerox. And we did really, really, really cool things. How many of them actually got into the core of Xerox? Our story isn't quite so good there. Don't say anything. A lot more got into the Silicon Valley and did a good shaping job of Silicon Valley.

But the fundamental idea of this and almost every other major corporations that create these skunk works on the edge, do radical things, and then somehow have the core pull the edge into the core to slowly transform the core and to leverage the capabilities of the core. Actually, I argue for that idea. In the 20th century, it may have actually been a pretty good idea. But in a world that is changing this rapidly, I'm not sure that actually works. We want to propose that there's another approach to this problem. And that is, how do you actually build an edge and have that edge be able to attract the core to the edge rather than have the core attract the edges to it? Could we completely reverse this game? I want to show you one interesting example. We go through how this all happened in the book. An example is a modern day conservative software firm called SAP. I think most of you may know about it. It is, I think, the biggest software firm in the world.

It is moderately conservative. That's being polite. And Shai Agassi, when he joined and when they acquired one of his companies, I mean, his company that did this, he said, "Maybe we could build on the edge something that actually drills a completely new way to think about Web services that are open as a new kind of a platform that could actually transform SAP." So, it's not going to be a case of pulling the edge into the core, the question is, "Could you pull the core to the edge?" Now, if the game is to pull the core to the edge, don't expect the core to be all that excited about giving you all kinds of money to do that. He recognized that, too. And he said, "Okay. What I'm going to do is I'm going to create a social development network. And I'm going to go out. And I'm going to find not only developers inside SAP but start to find developers around the world, give them total access to NetWeaver as an open platform and say, "Guys, let's get together and reconstruct what the next generation of SAP product should actually look like on a much more open Web service-oriented architecture." He started this in the first year. He attracted 109,000 people. The last I checked is 1.8 million in 2008; 1.4 million people around the world have come together to build and extend and create momentum behind this edge.

This edge is now becoming a dominant edge and, in fact, beginning to change SAP in interesting ways. So the final thing is, how do we start to break free of - I'm going to call it the Red Queen Effect? The Red Queen Effect, let's go back a moment to the 20th Century. There's maybe one fundamental notion underlying this notion of scalable efficiency. It's called the learning curve, the experience curve and, that is, the more you do something, guess what, the better you get at it. And so, much of the competitive strategies of corporations use, one way or another, this notion of how do I accelerate down this experience curve. Some of us might call it the learning curve. It's a great idea, but it doesn't take very much mathematics to realize this curve is a diminishing returns curve. What does that mean? That means for any new increments you make, you've got to run that much faster. And, in fact, if you have this in a changing world, you're running faster and faster and faster and probably not even staying in place. So, if you wonder why people are so stressed out to a reasonable extent, it's because we're stuck trying to move down this curve for each new increment is exponentially harder.

Might it be possible to completely flip this kind of a curve? How might we actually harness network effects that has a property that more people participate, the better things get? So, my last example is to move from extreme surfing to the World of Warcraft. And you might ask why in the World of Warcraft should we care? It may be interesting to note that the World of Warcraft actually now has close to 12 - this was slightly old - has now about 12 million players worldwide, is overtaking almost everything you can imagine. What's going on here? Well, if you look at the game itself, you don't see what's so exciting about the game. I want to say don't pay much attention to the center of the game. Look at the edge of the game. Look at the knowledge economy on the edge of this game and you're going to find ideas of how to get back to increasing returns in this term of the collaboration curve. Though I'm sure - I mean, probably, I'm sure, half the audience knows and plays World of Warcraft. It's important to realize that the way the World of Warcraft works is it has guilds. If you get anything serious done, you've got to join the guild. These guilds are around from 30 people to 200, 300 people.

And one of the reasons why these guilds are so important is there's so much knowledge being produced every single day. That without the guild structure to help you process this kind of knowledge, you would simply be overwhelmed, end of story, in terms of how do you really want to get high performance capability out of this. Let's look at this a moment. Last night, actually, I didn't have the chance to check it last night. It's not at all unusual to find 12,000 new ideas created every night. On a good night, it would be closer to 20,000 new ideas. This outstrips biotech in terms of the amount of new knowledge being created. If you're going to do successful high-end rating, you got to figure out how to take your guild and get your guild to know something

that the scientific community quite hasn't yet figured out - how to process tens of thousands of new ideas every week, and then try to figure out how to distill them down to new ways to move. And so, you see, this is part of the knowledge economy that we can actually go in there and begin to understand a lot of what's going on. By the way, in terms of extreme performance, I've never seen anything quite like it.

World of Warcraft for the high-end guilds do after-action reviews on every high-end raid. Totally meritocracies that basically in high-end raid, everyone is measured, everyone is critiqued by everyone else in the high-end raid because it's obviously computer mediated; we can capture all the things that are going on. You have extensive dashboards to actually measure your own performances on how well you're doing. And so, a very interesting sense is in this game, in this kind of world, you have after-action reviews and you have a form of play that says you need to craft your own dashboards to measure your own performance. In fact, right now, in Washington, the Obama Administration were actually trying to lift some ideas on World of Warcraft in terms of how do you help people craft their own dashboards. And these dashboards are, by and large, not pre-made. They're mashups. You do it as you want therefore, you as individuals, what it would mean for you to craft your own dashboards that actually give you a good sense of how you're spending every moment of a day, what you could do better, and so on and so forth. And then, in the guild structure, they get passed around. And, by the way, these guilds work with each other for high-end raids to actually figure out what idea did I pick up over here, I will actually give it to another guild as well.

But I bring it up for one and only one reason and some of this work was done here at Stanford and with Xerox PARC. This may be the first time we've been able to prove exponential learning, the exact opposite. We may be able to flip the curve and get the fact that now we can look at how do you do radical acceleration on what you're learning. Now, we can argue about, is this craft really right, what is experience points really mean, and so on and so forth. But qualitatively, it's pretty damn right. And so, it's a first sign of what we've been able to do of how that might actually be measured to be able to show this. And I won't bore you by taking you into, for example, what we are learning in China, where I spend a good share of my time. But I will show you innovation networks in China that are using very much the same ideas and that I've actually figured out how to generate exponential learning within and across their networks. Leanne Fung is probably the best example of that and we covered a lot in our book. I want to end very much of the same spirit of Dusty and World of Warcraft in saying, we've all grown up, with the belief that the purpose of the firm was to minimize transaction cost and achieve scalable efficiency.

And actually, if you can write that in a formula you got a Nobel Prize for it, we're on our coast. Might it just be the case that the 21st Century, the purpose of the firm ain't going away, quite the opposite. We think the real game is going to be, how do you have, structure firms to accelerate capability building? And so, maybe the purpose of the 21st century firms is to build talent and to be able to do that on the social spaces and the tools of the firm, but also how that firm plays a major role on a much broader ecosystem, such as Leanne Fung, ten thousand factories in his operation. They can learn from each other all over the world how this actually works. So, the real catch is, to me, are we on the verge of a new type of innovation, an institutional innovation that says, maybe we can actually figure out how to operate so we can accelerate bootstrapping in terms of collections of companies learning from each other in this new type of ecosystem? So, let me just say the big picture is there's a lot of structure we can take you through, which we won't, don't worry, in terms of how do you access the right kinds of information, how do you attract the right kinds of people, how do you achieve extreme performance. And most importantly, how do you do it, not just looking at the individual, not just looking at the corporation, not just looking at the ecosystem itself but as a new type of triple helix going on where there's some very interesting interweaving between these elements. Thank you. Are there any questions for John? Yes? What data set did you pull the data on asset returns from? I pulled it from so many you can't believe. And it's called - we've actually published these six months a report on this called the Shift Index. It's all been published.

We're looking at that in the United States companies. Initially, we're now breaking it down into different industries and now are moving out to look at different countries to see if we can actually see some interesting things. The most interesting part of this is the obvious fallacy of that curve I showed you is as an aggregate. And as you guys know, you can play any game with an aggregate. So, we ourselves were stunned by that. I mean, like you got to say, "Can that be true?" You know, Larry Summers is calling them up saying you got bigger problems than you realize. So we look through the top quartile and the bottom quartile. The top quartile is also going down. Nowhere near as fast. The bottom quartile is plummeting very, very fast.

The gap is expanding. But even the best, even the top quartile, obviously, there's some companies in that top quartile that aren't doing this. Now, you might say return of asset doesn't really matter. You might say, what about intangible benefits, blah, blah, blah. But, actually, if you sought to measure intangibles because these are measuring hard assets, actually, the story gets worse. So, if you're going to the financial industry and things like this, it turns out that the denominator gets bigger and so the story gets even worse, which is very surprising, because I keep thinking that most of our assets today are intangible, but if we try to guess what those are, I mean, it doesn't help. I mean, directionally, it goes the wrong way. And so we're really just calling the least attention to the difference between return on equity, which is the way we always looked at the world, which you can do fancy things with debt financing. And so, let's strip that away and see what the core story is. Now, return on asset does matter, but we just wanted to get a baseline of what's going on here.

I think it's part of why we all feel more stressed out. I mean, that fits so completely with the diminishing returns curve as well. I mean, some economist say, "Duh, it has to be that way." I said, "Yeah, duh, but maybe we ought to find something to do about it." And I think the answer is you got to get off that diminishing returns curve and try to figure something else out. And you guys are coming up in the generation of social media, collaborative technologies, and cloud computing. I mean, to me, this is the most exciting period in the world, to completely re-think how to be an entrepreneur, because you have the tools, which are boggled on my mind, and I think we completely blow up that ROA curve. Did you guys were just looking at net income divided by assets for, I guess, public companies? Public companies. Yeah, it's hard to get that data from private companies without going to jail. Although, I mean, the private companies, by the way, there are a couple of private companies that have pulled this aside and said, "Big private companies, we don't have quite the same problem." And I believe that's really true because right now, the big companies like Xerox and AT&Tet cetera, et cetera, Wall Street is driving us so you don't want to make the investments to do a lot of more research to try to push that innovation curve up, the private companies. The big private companies, you have much more freedom to call the shots yourself. And I was stunned.

I went to a huge private company and they said, "Hey John, this is the way we want to come. We want to do innovation." And I said, "Well, pardon me?" "You don't have any sex appeal at all as a New York company." I said, "No. Look at our finances and tell me that." So, if you want to go for 15 years on an idea, I mean, who'd going to go 15 years? But you know what I mean. Yeah? Yeah! Great ideas. Thank you so much. And that competitive advantage that is based on building talent and I think it's something that we understand pretty well here at Stanford. Taking to a business context that presumes, doesn't it, a long-term relationship and the relationships between companies and their employee have, of late, been more short term than they were decades before. Do you have some thoughts on how that's going to settle out? Yeah. As one of the reasons, first of all, why, if we look at the firm, things get complicated. If you look at the ecosystem, it's a different game.

So, if all the companies get better in that ecosystem, that's going to accelerate learning amongst each other. And the good people in one company move to another company, the ecosystem still gets better. So in a funny sort of the way, I mean, take Google among the best examples of a talent platform. The way they - and you guys know much better, probably, as much about it as I do. But the way they run that operation is one of the best examples of a talent-driven company I've ever seen, in terms of how they do allow poaching from inside the company and .... But, of course, as you know people leave. I mean, Xerox PARC in some sense fueled Silicon Valley. Well, we all profited from that including Xerox PARC. So there is something kind of interesting about - as you know, there was a lab called Interval Research Center built down the street from Xerox PARC. And it was started with the belief as saying, "We're not going to screw up like you did.

We're going to not let anything leaked out." And this is a characterization about them. But there's something they forgot. Let nothing leak out. Actually, nothing leaks in. That has to do with its reciprocity structure I was talking about. And guess what happened? I mean, we could argue this, I don't - nobody here from like... Actually there is. Okay. Nice to see you again, John. But from my point of view, you could argue.

But in some ways I have to say that you guys were slow on to understand the Internet. I couldn't much leaked in. And I used to - because there is so much connection and including the director comes from PARC. I used to go over there all the time and we're all welcomed. But after a while, I said, "What's the point?" I mean, there's paranoia about stuff getting out. So ecosystems have balance and there is reciprocity. And to me, the interesting issue and structural point of view is can you build, for example, can you get scale without mass? Can you build things that are very large but are tremendously agile? Now, in physics, it will tell us no, because if something gets larger, it has more mass, it has more inertia, it can't move. Might there be fundamentally new types of institutional innovations that enable you to break that law and to find a way to get scale without mass? And I'm going to argue that Leanne Fung has cracked that, figured out the DNA of how to do that. And let me just tell you, one way he does this, basically, his network is a relationship network. Once you join the network, there is very interesting governance protocols.

By the way, just like there is in World of Warcraft guilds. I mean, these are not just self emerging floppy little things. I mean, the good ones have serious protocols, governance protocols, serious review protocols, serious dispute resolution protocols, so on and so forth. In Leanne Fung's network, once you join and get qualified for safe procedures and a whole bunch of other things like that, he says something very unusual. "You join my network. I will guarantee. I will always take 30% of your output. I will also guarantee. I will never take more than 70%. I want you to work with my competitors.

I do not want to lock you up. I want you to learn from those competitors because if you learn from those competitors, I learn from you." OK. There's a whole sense and maybe there are quite other ways to play this. So his network is loosely coupled but not transaction-based but relational-based. They can move on a dime. I can tell you some of the amazing things how they had to restructure part of the stuff. And we have great pride in this country in saying, "Wal-Mart and probably the world's leaders in supply-chain management, in terms of how do you orchestrate thousands of suppliers." Guess what? Three weeks ago, Wal-Mart just signed the deal with Leanne Fung to say we can compete. The time has come we want to learn from you. So the push model of how to run that supply network is now changing. How do you get win-win situations? How do you take this flex

between 30 and 70? How do you accelerate the building of trust and so on? So, I think, I'm constantly now coming back to the fact that being a geek like some of you are here, who always believe that the world resolves in terms of how to build better nanoparticles and super computers and so on and so forth.

Maybe there is more and more leverage now in rethinking institutional innovation in terms of new ways to work, new ways to organize, new ways collectively to make things happen. And there couldn't be a better time to think about it because of the social media tools we have and because the cloud computing tools we have. So in some ways we may have a bigger game to play now with this. Yeah. You mentioned earlier that K through 12 was essentially from an old century. Right. What impact do you see on universities in this thought process? I mean, you touched on it in your last few comments. Well, we are proud to say our research university is the best in the world. Maybe. OK.

We are - Call up John and get him here, will you?" We are used to - he and I had this argument in public. But, you guys here are so used to thinking everything lies in intellectual property. And in some ways, intellectual property makes it hard for academics to collaborate with other academics in other spikes of activity. Now, as long as you believe (before Billy Joy's law came into play) that all of the best and the brightest are always going to be here on campus, which for you guys you can maybe kid yourself into believing. Then, the fact that you encompass the campus with an intellectual property blanket, you can more or less get away, maybe for a while. And so I'm much more interested in how do we - again, the institutional innovation. What are the new ways we think about distributing intellectual property management or - and I've argued this to one of the biggest research universities in the world today - maybe we should make the university all open source, make it all creative commons. Now, biologists first start screaming. Other people would take out contracts on you, but I think it's such a dangerous idea. But, if you actually look at the fact that the key for new knowledge is tacit.

Tacit can't be wrapped up in patents. It's the explicit that gets wrapped up in patents. So, basically, if I want to utilize the newest cutting-most ideas here and believe that they're changing every six months fashion, I want to position myself as a company, as a startup next door to you. And I want a hire students and faculty as consultants. And that's how this thing works. And basically, the university wins that way and from an economic model at first level. And just like you guys are fantastic here, you created Silicon Valley, did have a fair amount to do with Stanford. You create tremendous wealth around you and that money comes back. It's a gift economy based on reciprocity as opposed to transaction-based economy. So, if you move from transaction to relation, and you move from how these ecosystems work, you begin to understand tacit knowledge is intellectual property game and may be much more complicated then we first think.

So horrible ideas once you start to unpack them, actually, form the basis of a pretty, interesting argument. And I've actually gotten a moderate percentage of the faculty at one of - not Stanford - but another major university to take this seriously and to think what a creative common's license for the whole university might mean. It won't pass but it's a - these discussions can now be had seriously with serious argument with a provost and so on. So these are interesting times but you see that in AIDS vaccine right now. There are new institutional mechanisms so we can pull all the different disciplines because Stanford is the best in X, the best in Y is actually Johns Hopkins best in Z as actually University of Maryland. I won't go through what XYZ is. And now the question is, "How do we take those spikes and connect them so that we can actually get productive friction rolling to accelerate in our ability to do this?" What? No more questions? Thanks very much, John. On behalf of DFJ's STVP and BASES, we'd like to present you with this trophy. Oh. Thank you.