The Power of Pull

An Examination of Firms in the Brave New World of 21st Century Internet Economics

*John Seely Brown's Stanford Entrepreneur's Corner Talk
of April 14 2010 and Thoughts on The Power of Pull
by John Hagel, JSB and Lang Davison*

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The world is broken. Business doesn't work anymore. Across the S&P 500, return on assets is headed toward zero. Wall Street goes on an unregulated tear and tanks the economy. Washington steps in and bails everyone out pushing the deficit to unthinkable heights. A monetarily fueled recovery is knocking at the edge but once more it will be jobless. These events render pretty well impossible any future resurrection of the mass production, centralized, top down, economy-of-scale version of the petroleum fueled, assembly line based, push economy that powered the world up to the point of the popping of the internet and housing bubbles. Everyone would like to understand: 'why did all these things break?" *The Power of Pull* explains the seeming inexplicable.

I first met John Seely Brown almost five years ago not long after his previous book, *The Only Sustainable Edge* was published. Now John Seely Brown and John Hagel, have joined forces with Lang Davison in a new book, *The Power of Pull: How Small Moves Smartly Made Can Set Big Things in Motion.* This work offers both a descriptive examination of failing industries -- one of its stunning conclusions is that they are all failing across the board - and a proscriptive analysis of the kinds of human economic organization that are producing positive economic results.

The book's thesis is that a 'big shift' from push based, mass production, top down, economy of scale kinds of organizations is taking place. The digital micro-processor, internet based economy that has matured over the past 30 years has insinuated itself into the old style companies and enabled them to make changes that squeeze more efficiency out of the old models but that is in pursuit of a diminishing returns strategy as *The Power of Pull* explains. In some ways, what the authors describe has overtones of Carlota Perez but goes beyond her work in showing with finer resolution how the productivity enhancements of our new digital infrastructure enable what he calls creative edge that can pull the no longer productive aspects of the core to innovative projects at the edge. Edge based skunk-works transform the core in this new world.

Frame by frame the authors show how what the networked world does renders the continuation of the old push based world impossible. Its collapse is inevitable and the way forward is to understand what is happening, and get out of the way by going with and enabling the flow!

What Are the Flows Found in the New
and Successful Digitally Based Ecosystems?

The book posits a shift from push-based economy to a pull-based one and is in my opinion at its most useful when it is not positioned as a self-help book. You are the executive and this is what's happening and here at the end of every chapter are the key questions the answer to which will tell you where you are in the process. It seems that the book's publishers bound by the push-based world of economy of scale, assume that this is necessary to sell more and more copies. (*But to many readers the questions may also help to ground what much of this actually means. See below.*)

Such was my first reaction. But JSB responded with the following VERY eloquent informative paragraphs when I asked him to do a final quick review of my text. My thanks to him for permission to include here what he wrote.

"Actually John and I pushed the publisher into putting those questions in. Why? Very simply. The more I talk about this work to executives the more they may nod their heads and say: "yes yes we get it." But do they? When we start laying out specific issues or questions and ask them to start answering them - then we start to get the oh-my-God reaction. "You mean I should change MY behavior? You mean I should actually get out of MY comfort zone? You mean I should think about Reverse Mentorship? You mean I should be re-thinking the not invented here syndrome, MYSELF? And the more precise we are on each element of the Pull Framework, the more they realize they could do something. However, by really grounding it in crisp questions, many realize they are not really prepared to engage in the emotional work required to do that. We want to try to drive the same lessons home to those who are reading the book"

"Our purpose in this book is to bring about a change in behavior at all levels of the firm and eventually public policy. *We need new ideas, new frameworks but also new pathways in - into the minds and action spaces of the firm!* That is what I think is unique about our effort. We have sweeping ideas but also show readers pathways to action."

"Ironically John Doerr was the one who told us that he found the questions at the end of each chapter the most powerful part of the book. These are questions that Boards of Directors should be asking their CEO, etc. These questions are way beyond the purview of HR or Chief Strategy Officers. But they are also questions each of us should be asking. Indeed, you asked yourself many of these (even before reading this material) which, as you have pointed out in this document, is leading to your morphing your own operation .. We hope this gives more folks courage to do what you are doing, yourself."

Before JSB added the above information I had written: forced to chose between self-help and a more descriptive point of view, I much more prefer the writing contained in the December 2009 *Deloitte Shift Index* which gives an analysis of how knowledge flows in the three phases of what the authors see as the big shift. The 20th century firm was structured on the ability to process stocks of raw materials. But flows of knowledge are now key in the networked 21st century pull-based economy. Worker passion fuels better knowledge flows that in turn are the keys to viable economies.

The problem is not binary. It is not just technology or organizational but rather very much the combination of the organizational emotional drive and the human technological enterprise that is critical in determination of future outcomes As the chart on the next page shows, the most basic foundation of everything is indeed telecommunications and computer infrastructure no matter whether you are mapping strategy for your own career or that of your firm or that of government policy.

Shift index indicators

Impact Index	**Markets**	**Competitive Intensity** : Herfindahl-Hirschman Index **Labor Productivity:** Index of labor productivity as defined by the Bureau of Labor Statistics **Stock Price Volatility:** Average standard deviation of daily stock price returns over one year
	Firms	**Asset Profitability:** Total ROA for all US firms **ROA Performance Gap:** Gap in ROA between firms in the top and the bottom quartiles **Firm Topple Rate:** Annual rank shuffling amongst US firms **Shareholder Value Gap:** Gap in the TRS [1] between firm in the top and the bottom quartiles
	People	**Consumer Power:** Index of 6 consumer power measures **Brand Disloyalty:** Index of 6 consumer disloyalty measures **Returns to Talent:** Compensation gap between more and less creative occupational groupings [2] **Executive Turnover:** Number of Top Management terminated, retired or otherwise leaving companies
Flow Index	**Virtual Flows**	**Inter-firm Knowledge Flows:** Extent of employee participation in knowledge flows across firms **Wireless Activity:** Total annual volume of mobile minutes and SMS messages **Internet Activity:** Internet traffic between top 20 US cities with the most domestic bandwidth
	Physical Flows	**Migration of People to Creative Cities:** Population gap between top and bottom creative cities [2] **Travel Volume:** Total volume of local commuter transit and passenger air transportation [3] **Movement of Capital:** Value of US Foreign Direct Investment inflows and outflows
	Amplifiers	**Worker Passion:** Percentage of employees most passionate about their jobs **Social Media Activity:** Time spent on Social Media as a percentage of total Internet time
Foundation Index	**Technology Performance**	**Computing:** Computing power per unit of cost **Digital Storage:** Digital storage capacity per unit of cost **Bandwidth:** Bandwidth capacity per unit of cost
	Infrastructure Penetration	**Internet Users:** Number of people actively using the Internet as compared to the US population **Wireless Subscriptions** : Percentage of active wireless subscriptions as compared to the US population
	Public Policy	**Economic Freedom** : Index of 10 freedom components as defined by the Heritage Foundation

1. TRS – Total Return to Shareholders
2. Creative occupations and cities defined by Richard Florida's "The Rise of the Creative Class." 2004
3. Measured by the Bureau of Transportation Statistics Transportation Services Index

Source: Deloitte analysis

Figure 1: The Shift Index consists of three indices that quantify the three waves of the Big Shift - Foundation Index, Flow Index and Impact Index - each measured by a set of indicators.

The authors presume a very fluid economy rather than static one. If new knowledge gained through productive friction is the new fuel the new raw material and therefore the new currency then, in tracking it, you have a lot more to consider than you would if you were only tracking bags of cement from the quarries to the warehouse to the construction site. Knowledge "flows." Amplifiers of these flows are found in indices of worker passion and social media activity. The old economy valued predictability – something that meant passionate creative workers with new ideas were too often received as threats.   It also flows in terms of physical indicators such as migration of people to what Richard Florida calls creative cities and the authors more loosely term "structured spikes." Movements of people in travel and movements of capital are also indices – as well as virtual flows of Internet and wireless traffic. Finally, in Figure 1 above the authors look at flows in terms their impacts on people on firms and on markets.

Over all what fascinates is that things like intellectual property on which the 20th century push economy focused turn out to be things that are less important and often largely irrelevant in the 21st century economy. What was possible and productive in the former is destructive in the later.

The authors ask critical questions like what is value and where does it come from, in doing so they may help us separate productive from destructive activity.

Perhaps because most of the economic activity of the globe is still found among the largest corporations, they assume that these will remain significant economic engines. The environment in which those engines operate is undergoing rapid flux and the authors are very good at describing that flux while along side of that, the open source knowledge commons world being catalogued by Michel Bauwens is also growing and will be the subject of another COOK Report in a month or two.

New Foundations for Strategy Building and Problem Solving

Problem solving and strategy building is a central foundation for all business. With the very complex changes brought about by the Internet and the continuing exponential advance of computing (often involving new architectures) that the authors describe throughout their entire book, the old top-down ways, "push" based ways of doing this, are no longer very productive.

The authors say that the on going practice of business depends both on accessing resources and attracting new people and their passions.   Doing this is of little value unless coupled with a third set of actions "that focus on driving performance rapidly to new levels. These practices involve participation in, and sometimes orchestration of, something we call "creation spaces" -- environments that effectively integrate teams within a broader learning ecology so that performance improvement accelerates as more participants join." [p.18] I point out that to engage the power of pull you need a creation space. According to JSB "to get better faster at whatever it is you do, you've got to be supported by a broad array of complementary people and resources from which you can pull what you need to raise your rate of performance improvement (and vice versa – reciprocity matters now more than ever)." [p. 19]

To quote the authors: "we need to marry our passions with our professions in order to reach our potential. As we'll discuss later this is not about the select few who surf for a living it's something that all of us need purposely to set out do.   Passion in this context refers to a sustained deep commitment to achieving our full potential and greater capacity for self-expression in a domain that engages us on a personal level. We often develop and explore passions in areas such as sports or the arts outside of work, but we rarely integrate our passions with our professions. As we make our passions of our professions, we may find our dispositions shifting two. Rather than dealing change as a threat and something to be feared we will find ourselves embracing change, recognizing its potential to drive us to even higher levels of performance." p. 21-22.

These descriptions were highly useful to me.   On the night of April 21 I published the following revision my 18 year old business model:

I wrote 'having since Sunday immersed myself in JSB's April 14 Stanford talk http://ecorner.stanford.edu/authorMaterialInfo.html?mid=2425 and in the book itself which serendipitously arrived yesterday morning, I have finished the book and am making it into a mash up of my own world views and figuring out how to integrate the results with the fact that in London JP is building a platform by which to transform 21 CN whilst having COOK-Ins all the time as Tim Cowen is reaching out to London based platform expert Annabelle Gawer.

Consequently I would point out that to engage the power of pull (let passion take you on the right trajectory) you need a **creation space**.   As in for example this virtual meeting space that I named in April 2004 the Architecture and Economics of IP Networks. Why? Because this was, I thought, the critical issue – we had this new critical global infrastructure and no one could agree on what the right architecture or economics was.

Here is what the authors of *Power of Pull* say "to get better faster at whatever it is you do, you've got to be supported by a broad array of complementary people and resources from which you can pull what you need to raise your rate of performance improvement." I'd say we have substantial agreement on this. One of my first major clues came when about 20 months ago Paul Budde told me: I am drowning in newsletters, but I have never seen a mail list like arch-econ. Send me an invoice.

Tomorrow I shall be sending out a large bunch or renewal notices - for the arch econ list to which the *COOK Report* is attached as a bonus. The subscription will be a year's membership in the arch-econ **creation space**.

I shall continue the *COOK Report*. The task will keep me learning. Some issues I will do pro-bono as with Eva Waskell, others that go really above an beyond the call of duty will be done for license fees for re-use. A likely further change will be broader release of *COOK Reports* much sooner. Furthermore I have two nearly done. One on the *Power of Pull* the second on the work of Dr David Zakim - the man in chapter 7 of the Dutch science report.

The new world that is emerging is one made almost inevitable by the technology but it is also a world where information is used very differently than in the pre-internet world. It is shared but the sharing is done with reciprocity. If the recipient doesn't get something in return eventually the sharing ceases. You recognize that and I thank you for your continued supported our community. Finally, I welcome comments and questions. I don't want to sound like I am issuing some kind of decree. I am just putting into words ideas that have been maturing over time." The one constant is change.

So much for an Introduction.   However readers will find a valuable intellectual history of the three authors' earlier collaboration at
http://edgeperspectives.typepad.com/edge_perspectives/2010/04/the-power-of-pull-has-finally-arrived.html
It is well worth reading.

Meanwhile here is JSB's talk which had 1200 views on Sunday morning April 18 and 2700 one week later.

Collaborative Innovation and a Pull Economy

John Seely Brown, Stanford University April 14, 2010
http://ecorner.stanford.edu/authorMaterialInfo.html?mid=2425

Editor's Note: John appeared as a speaker in Stanford University's Entrepreneurship Corner Entrepreneurial Thought Leaders Lecture Series

John Seely Brown: There is a new book out called the *Power of Pull*. We launched it day before yesterday on Monday, April 12 in New York. Originally I was supposed to give you a book talk but I'm not going to do this. Instead I am going to pull out some stories and some fundamental ideas and in the last slide I'll show how these relate to the overall framework of the book.

A lot of interesting things that really relate to the entrepreneurial opportunities of today are happening. It is fair to say that there is absolutely something fundamental going on. I am going to call it the Big Shift between the 20th-century **push** economy and the 21st Century **pull** economy.

If you acknowledge that we are living amidst constant flux, you will also have to admit that it never has it been more important to understand how to be an entrepreneur than now given that we have entered a world of constant flux.

Let me start off with a very simple observation. Our old institutions ain't working very well. Something is broken. Maybe something fundamental is broken. Something having nothing to do with the current financial crisis. Something much more fundamental. If we can get to the root of that, we may be able to open up a view that shows us a whole new set of opportunities for entrepreneurs.

The old institutions aren't hacking it very well

Why do I think our institutions are broken? I don't want to spend the entire talk on this and have you deeply bored. Therefore I will offer just two observations. At the *Center for the Study of the Edge* we have been computing not just return on equity because if you look at return on equity, it is possible to play, through debt financing, almost an infinite amount of information games that, as we now know, can disguise almost anything.

We have been looking at assets and return on those hard assets. And if you look at the last 45 years, **return on those assets has plummeted almost 75% and there is absolutely no sign that this is going to change.** In fact, it keeps going down and down. There are no tricks in this graphic.

The return on assets (ROA) for U.S. firms has steadily fallen to almost <u>one-quarter</u> of 1965 levels

Economy-wide Asset Profitability (1965-2008)

Source: Compustat, Deloitte analysis
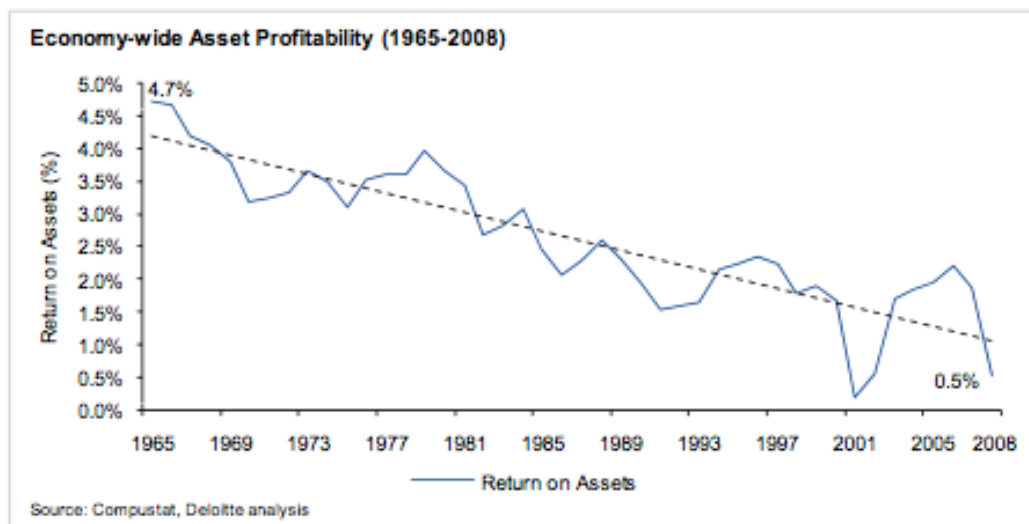
We can talk about how the top quartile performs as opposed to the bottom quartile, but that is not what I'm going to do. Nevertheless, I will mention one thing for the economically inclined students. If you follow the downward slope to the point where it crosses zero -- something that means that our corporations will have gone out of business -- it happens to occur on a projected timeline at the same point where the national debt will hit 100% of gross domestic product. We don't think those things are correlated, but nonetheless it's an interesting observation.

 Still more interesting to me is that in the old days you would do a startup and you will build and build and build and eventually, if you are lucky, you would make it into the S&P 500.   You would live there for a really long time -- for maybe 85 or 95 years.   For companies who achieved success by making it into the S&P 500 list, we've been able to compute how long they last before being toppled by either dying or being acquired. (Original analysis done by Richard Foster – see his book: Creative Destruction.)

As Foster studied the changing S&P membership over the years through a period of business cycles we are looking at getting to the point where companies getting there may last no more than five or 10 years.
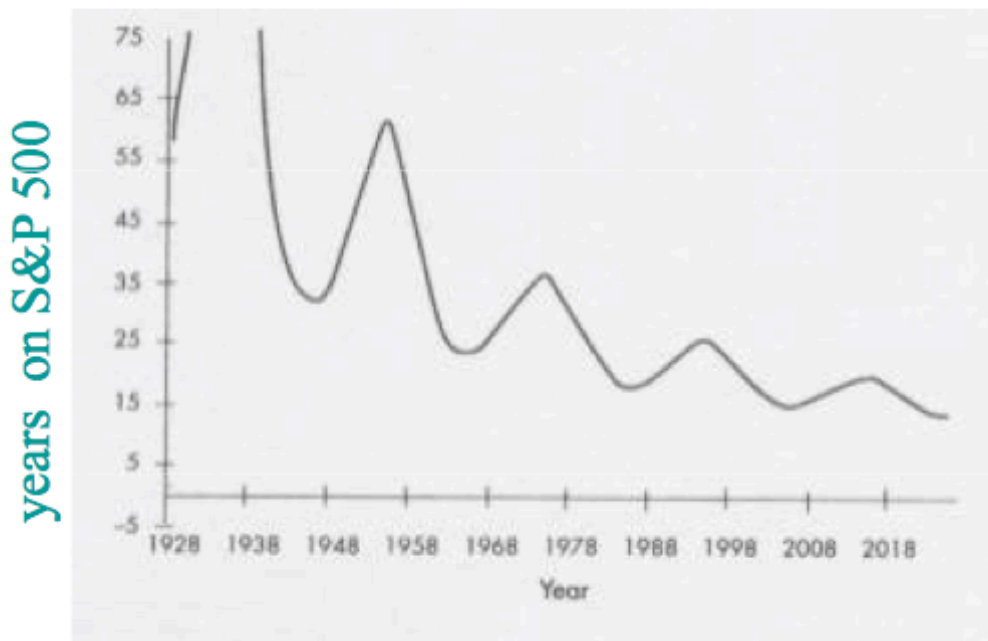
You have to ask what the hell is going on, as I sometimes say depending on where I am: "why are we paying CEOs so much money?"

Different story. So, here is an observation that underlies at least some of this game. Alfred Chandler helped us to understand that the infrastructure of the 20th century enabled us to transport goods with amazing efficiency.   Organizational architectures were built to leverage this transportation infrastructure. One of the interesting things about this infrastructure is that it basically is an S

curve. This means that for a short period of time there is a tremendous disruption followed by long period of stability. **In this environment the key to success was to pursue scalable efficiency**. Build a lot; learn a lot with regard to efficiency and use available transportation mechanisms to distribute what you built.

But for this to work, you have to be able to live in a predictable world. You have to know ahead of time what to build. You will build a lot, store a lot and then ship it out when needed. But to execute on this plan you need scalable efficiency and organizations built around hierarchy. You need to control and carefully honed organizational routines. These routines aim to minimize variance. And this really is the picture of the 20th century organization and how it worked.

20th Century Era Captured by Alfred Chandler
Push Economy

20th century infrastructure
roads/cars/trucks/trains/ships/airplanes

Scalable Efficiency becomes the goal.
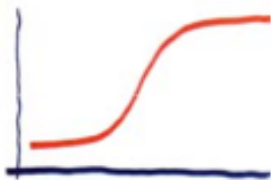
S-curve
stable over decades.
(Few real changes in 60 years)

• predictable
• hierarchy
• control
• organizational routines
• minimize variance

And by the way almost everyone in this room had the same experience coming through 20th century K-12 schools. Nearly all our schools are all built on the principle of scalable efficiency -- a factory model of education. And that model said we can predict what skills that you will need five or 15 or 20 years and we will help you acquire a stock of assets that you will need later in life. You acquire them so that eventually you will get to use them. Very much like how corporations had to work.

The catch is that in the 21st century the world is qualitatively different. We no longer have an S. curve. Especially on this campus we could argue about this other curve but basically the digital infrastructure and the technology underlying the digital infrastructure looks like it is going to continue to be based on an exponential.

But the 21ˢᵗ C infrastructure driven by the continual exponential advances of computation, storage & bandwidth, with no stability in sight!!

S-curve
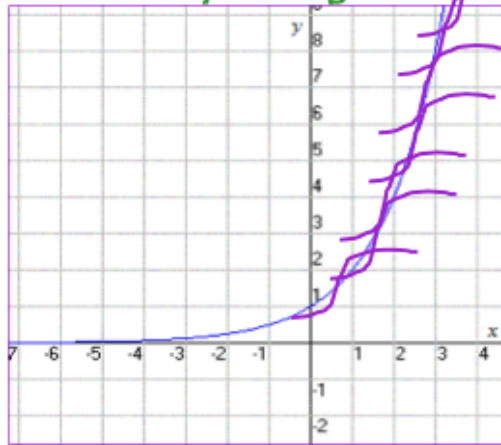
rapid set of punctuated moves (potentially never ending)

infrastructure is tech + institutional arrangements & work and social practices

It may not be based just on Moore's Law. We are going to change architectures. We are going to change algorithms we are going to change a lot of things. This exponential curve may be slowing down slightly but it is still exponential; it is still marching on and it characterizes the technological architecture around which we will continue to build. Of course it is more than just technology. It is a socio-technical system and consequently you new institutional mechanisms get created in order to help transform this collection of technologies into a seamless, productive socio-technical system.

Consider cloud computing. It happened in the last two years. At the moment these are standalone clouds. I guarantee you that by this time next year they're going to be issues emerging of how do you federate the clouds? And how do you actually harmonize policies that interconnect federated clouds. To make the technology seamlessly work, you will wind up with a new interlocking infra-structure of technology, institutional arrangements, as well as work and social practices that almost all corporations will eventually figure out how to leverage.

Technology Changes the Way the Corporation Uses Knowledge

Therefore, if this exponential curve is correct, the game is changing to a rapid punctuated evolution – bang; bang; bang; bang – with no sign of stopping. It really suggests that the half-life of any given assets, any given set of skills isn't that long. It may actually be shrinking to something like five years. We have no quantitative proof of this.   But basically it is shrinking. And the predict-ability of future needs is increasingly uncertain. This really undermines the foundation of corpora-tions that were built for the purpose of protecting stocks of assets -- assets that, by the way in-clude intellectual property, about which we, in the 20ᵗʰ century, have become obsessive.

But what if this protecting these assets were not so important? What if what really mattered today is how do you engage in the flows of new knowledge creation? How do you engage on the edge of flows; how do you participate in the flows in ways that not only are you sensing what is going on but that, in fact by being on the edge of those flows, you are constantly creating new knowledge between yourself and the people with whom you engaging. Indeed, not just smooth interactions or transactions but ones that generate productive friction?

in a world of increasingly rapid change,
the half life of a given stock/skill is
constantly shrinking

& the predictability of future needs is
increasingly less certain!

Stocks =====> Flows

protecting   participating
knowledge assets   in knowledge flows

sharing knowledge   creating new knowledge
(explicit)   (strong tacit component)

You might say that's obvious. But there may be one thing that is not so obvious. If you are constantly creating new knowledge on the edge in this world of flux, much of what you are creating has a strong tacit knowledge component to it. And we know that the tacit does not move in the ways that explicit knowledge move. We will come back to this. And remember the tacit can't be readily codified and stored in data bases or books. It lives in us and comes from doing real things.

But for us here the decreasing half life of a relevant skill or asset may actually be a kind of double win because what the exponential curve says is that the old dies faster than ever. That's actually pretty good. But what it also says this there are apt to be alternative ways to leverage the constantly increasing power of our digital infrastructure to create new knowledge by leveraging the incredibly powerful tools that, for example, the cloud actually provides and to find new ways to learn.

A double "win" from this exponential:
(for the entrepreneur)

old ways die even fasters

New ways can leverage this exponential power
to create powerful knowledge creation tools
and
powerful new ways of learning/innovating.

Ah, you mean like cloud computing,
social media to access & attract resources.

Opportunities -- Create an Eco-system that by Using the Cloud Allows Start-ups in Garages Once More

I am sure that you guys have had many talks here about how Silicon Valley is now finding new ways to do materials science in garages. I happen to be connected with several companies that basically started out in garages that do foundational work in materials sciences. We actually use cloud computing and go out and grab the electron scanning microscopes on the net. With this in- frastructure 10 or 20 people can make this company actually work. Which, as you also know, means that I don't have to spend my precious series A or angel funds for creating infrastructures like fancy electron microscopes or servers. I actually pay for the use of infrastructure only when I need it. I can just reach into the cloud grab the resources I need, and use only what is appropriate to the task at hand.

I just came from Singapore. Singapore expects to be able to start a company of only $50,000. This low capital foundation cost is made possible by use of the cloud. Just think about what this means you get for that $50,000. I saw 40 new companies that had been started under these condi- tions in that little nation-state in the last year. This is changing their basic landscape. And in terms of being entrepreneurs, we have to think about how to do things like use social media to in- crease our reach and scope. And about how social media and tacit knowledge might actually be able to work together. And about how cloud computing might change the game.

A fortuitous encounter that helped shape my thinking.

Oh – an example from your years of running PARC?

How Talent Learns

With this kind of preface I want to take us on a trip and talk about how a fortuitous encounter to shape a tremendous amount of my thinking. This is strange encounter. It is not something that came from Xerox Parc. I could not have had these ideas when I was at Xerox Parc. My encounter was with extreme surfing. It turns out that I spend, for lucky reasons, three months a year in Maui. And this kid, who by the way lives next door to me, is now world champion. I've had an opportunity to observe to come together to create a cohort to engage incredible fast learning aerial surfing at the extreme edge and now all become world champions. Maui up to now has never ever produced a surfing champion in all its history.

What happened? If one kid had done it and now this kid is pretty talented, that would be interesting but not worth studying. How did this happen to all of them? And when I say all that let me point out that it is four. It is more complicated because the fifth has Aspergers disease and because of that he can't travel very well although he may be the most talented of them all according to some of the greatest professional surfers today.

So this is Dusty. These were shot when he was 19. It's now a couple of years later and he's grown older all of 21 perhaps.   These are some aerial shots of him.

The Grommets

A story about how fame & fortune was brought to Maui

The first junior champion ever in Maui
and a new genre – aerial surfing.
And now ALL Five!

By the way I don't know how many of you are hardcore surfers here but there are no straps on these boards. Consequently when they do aerial twists and turns and all that stuff, it's not like snowboarding with something holding his feet to the board. In fact I found it very interesting that when I first started seeing him work that the most valuable real estate purposes of endorsements is found on the bottom of his board. Why? Because he realized that the bottom of the board, when he makes a great aerial move, is what is going to be photographed

I want to just show you him in action for a moment. [JSB Runs a Movie from15;07 to 16:15]. So if I reran this for you in slow motion and actually stopped it so that you could see some of the moves that he made, you would begin to realize why he almost defy reality.

So what's going on here? Why do I bring it up? How did this become possible? I've had a chance to live with these guys given that Dusty's house is about 200 feet from mine. He and his gang find me kind of weird. I find them fascinating.
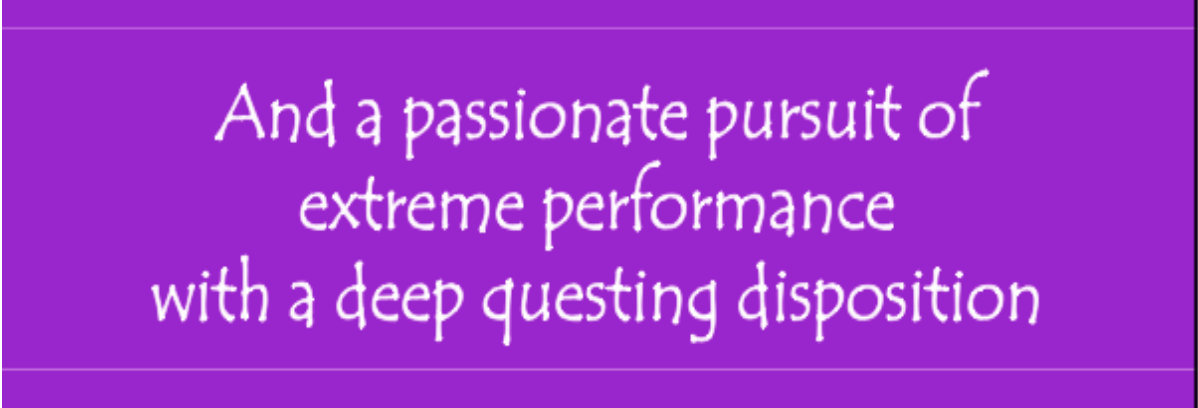
The obvious thing is that they came together and they said that somehow we are going to learn as much as we can from each other. They formed this amazing ability to critique each other on-the-fly almost all the time and to compete like mad with each other the rest of the time. It is not surprising that these guys have extreme passion in order to be able to pull themselves to the edge. They fail continuously and by the way when you fail out there, sometimes it's really bad. You get really messed up. It is not an easy fail, but this doesn't stop them one iota. Another thing that they do and that becomes kind of obvious when you think about it, is they get all the DVDs of champion surfers from around the world. They go through those DVDs frame by frame-by-frame studying each move.   They see what they can do. Then they dash down the hill to the surf and try it out and come back up and repeat the process. And when they try out new moves themselves, they video everything and download it into iMovie and analyze it to the extreme.

How was this possible?

> Deep collaborative learning with/from each other.
> A passion to achieve extreme performance and a
       willingness to fail, fail , fail on the way.
> Accessing and analyzing frame by frame the best
       surfers around the world via video's of the pros.
> Use of video tools to capture and analyze each of
       their own improvisations.
> Pulling the best ideas from adjacencies: wind surfing,
       skate boarding, mountain biking, motor cross, …
> Accessing spikes of capabilities around the world –
       leveraging networks of practice in a ecosystem.
> Attracting others to help them around the world.

One of the interesting things to me and an idea that comes through in what a lot of the things that you must be thinking about is **how do you get the best ideas from adjacencies**."? How do you start to pull ideas, moves, recoveries from adjacencies to hard core surfing. Obviously skateboarding would be one. And yes, Dusty is a darn good skateboarder too. And so he goes out and studies these skateboard moves. And so you say how do you appropriate this skateboard move over here and do what I am doing over there? But it doesn't stop with skateboarding. Let's look at mountain biking and motocross. One of the things that he does is to let the board get way out in front of him. It is a move that he appropriated from extreme performance in motorcross where you see these guys with their motorcycles out in front of them flying over an edge. There is an incessant ethic of how can I appropriate what I see into my own skill set?

So okay those are kind of obvious but two more things. Basically Dusty and his guys understand local ecosystems. They understand spikes. They travel all over the world going to every kind of local talented place observing surfers and looking for new moves and so on and so forth. In fact when one needs to talk to Dusty, of course it has to be by Skype, because you can't tell what country is going to be in next. And it is interesting to see how they've figured out that there are local hotspots of incredible talent where they have to travel and visit and to build relationships in those spikes of incredible capability, in order to find out what can they learn from them. The learning however is often reciprocal.

> And a passionate pursuit of
> extreme performance
> with a deep questing disposition

And next, how do they productively interact with folks so that people will begin to come to them to show them things with the result that they don't have to go out as much.

This is pretty clear if you actually think about entrepreneurialism. I don't think that any of you would say that these are not necessarily bad strategies to think about yourself. The key is that they are not necessarily passionate just about surfing but **their passion is about the extreme performance**. This is what pushes them to the edge and to try all kinds of things, but secondly they are governed by a deep questing disposition. This means that anywhere they go they look for new ideas. How can I borrow that idea? How can I appropriate that idea into my space?

Serendipity – How Do You Facilitate Learning
in a World in Flux?

What has all this to do with us? Well maybe everything. Question: serendipity is not a bad thing. Serendipity sounds to most people like luck. Might it be possible to actually shape serendipity? In a world that is rapidly changing this is 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? It is please tell me what it is that that I need to know but I don't know that I need to know now. It turns out that not many answers come up.
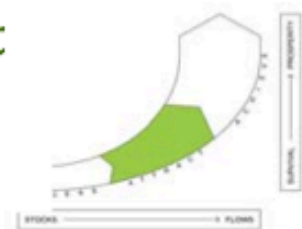

But think about a world in which there could be a way to shape serendipity -- a way not to just count on luck. Think about understanding the way in which you would be able to choose the right kind of environments and by the way you saw these issues in spades if you follow Dusty around the world. Think about how you may be able to choose the right kind of spikes that you want to visit. What are the practices that you want to develop so that 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 the context in which you find yourself?

I am going to run through some of these practices. You have seen a lot of them laid out in Dusty.

But the bottom line here is that all of these encounters involve deep listening. That's not a big deal but what is necessary **is deep listening with reciprocity.**

Shaping Serendipity
Can be more than just luck!!!

Choose
Serendipity
Environments

Develop
Serendipity
Practices

Enhance
Serendipity
Preparedness

All encounters: deep listening with reciprocity
Transactional --> Relational

That is to say what do people get out of talking to you as opposed to what you get out of talking to them? Is because if all you are doing is taking, then guess what? People don't like to spend much of their time talking about new kinds of stuff with you. A key question is how do you think about this and how do you move from an initial transaction interaction to build relationships around this notion of reciprocity and deep listening?

Two quick examples. I want to talk about a guy whom I serendipitously ran into at a Socrates con-ference -- actually that's not quite true -- I ran into him in a bar outside the Socrates conference.

This guy says to me, you know JSB, most people today get stuck in one frame. They have only one thing that they care about or want to do. But what I am doing is trying to find a way to expose more surfaces so that I am prepared to hear things that appear not obviously relevant, right away yet seep into my subconscious and impact my ability to see new patterns.

He said that if basically you have only one surface exposed to new information, you –are more apt to bet stuck in a rut. In a world of constant flux it is more important than ever that you dedicate time and effort to get out of your comfort zone?

Consequently what Jack does, at least once a year, is go to a conference about which he knows nothing. On the first day he sits in the conference and learns the technical terminology -- the scope and shape of the ideas out of which the subject matter is formed. On the second day he hangs out

in the corridors just listening to conversations. And on the third day he starts to participate with people focusing testing his own ideas; bringing his own broader perspective to the discussion.

Exposing 'surfaces'

People become too dependent on one facet of their lives.

Jack Hidary

"How many surface areas do you have?"

Folks tend to isolate themselves from the flows of new knowledge and the people creating them.

"How often do you get out of your comfort zone?"

Now you guys may or may not know Jack, but for sure you know some of the things that he has done. So Jack shows up at the roundtable at the Aspen Institute and he picks energy as a new topic to expose himself to. He knows nothing about energy but by the third day he understands: "man this is a serious problem." He decides that he wants to get engaged and he goes out and creates what he calls the carbon war room which you can go on the web and explore. www.**carbonwarroom**.com/ And he talks a dozen incredibly powerful entrepreneurs -- one being Richard Branson -- into joining.   His tactic is to create what he calls 'beacons' that can attract or pull others whom he doesn't even know about to his cause. His message is that if you have ideas or technologies of a certain kind, come talk to us. As a result he went from this serendipitous encounter to a point where he began to shape a space to attract powerful and relevant people to him in order to make something happen.

Carbon War Room –
a platform for entrepreneurs to get engaged, leveraging ambient findability –
another serendipitous practice

hybrid taxi
regulation nyc
With mayor bloomberg
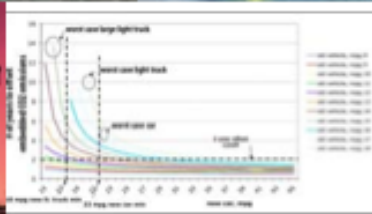
Cash for Clunkers

If you come from New York you would know that he pulled together the people to get Mayor Bloomberg to put through the hybrid taxi ruling. This says that at the end of four years at least half the taxis operating in New York must be hybrids. And you also know of the cash for clunkers program. That was his and it came out of the carbon war room where he was able to attract the right set of people to help him make that happen.

So that's Jack. But he is just an individual and you might say that's all very good but the big challenge that we have is out at the corporate level. How may we actually change the way innovation works in the corporate world?

I come, as you know, from Xerox. Xerox PARC was designed to be the edge of Xerox. We did really cool things. But how many of them actually got into the core of Xerox? Our story is not so good there. A lot more got out to Silicon Valley and did end up shaping a fair amount of silicon valley. The fundamental idea Xerox had and in various other major corporations, was to create skunkworks on the edge do radical things. The challenge then was `to have the core pull the edge into its core and thereby slowly transform the core while at the same time leveraging the capabilities of the core. A great strategy in times of great predictability and a slowly changing world.

ok – jsb but how is innovation changing in corporation in this new world of the big shift?

In fact, I argued for that idea. And in the 20th century it was a pretty good idea but in the 21st century in a world that is changing this rapidly, I am not sure that this actually works or at least is sufficient.

Build an Edge that Attracts the Core

We want to propose that there is another approach to this problem. How do you actually build edges that can attract the core to themselves rather than have the core attract the edge to itself. Could we completely reverse this game?

A new entrepreneurial possibility:
Reversing Edge Core dynamics

Old: create skunkworks and innovation labs on the edge of the firm and then absorb them when they start to work.

New: structure the edge so that it can pull the Core to the edge.

I want to show you one example that we go through in detail in the book. The example is a moderately conservative's software firm called SAP. I think most of you know about it. It is probably the biggest software firm in the world. After SAP acquired Shai Agassi's company he wondered if he

could build an edge that creates a complete a new way to deliver business value to its customers in the form of Web services that, in turn, would become a new kind of platform that could actually transform SAP. It is not going to become a case of pulling the edge into the core but rather it will be a test case of whether the core could be pulled to the edge.

Pulling both SAP and developers to the edge – the open platform NetWeaver

SAP Community Network
Growth in Members 2003-2008E
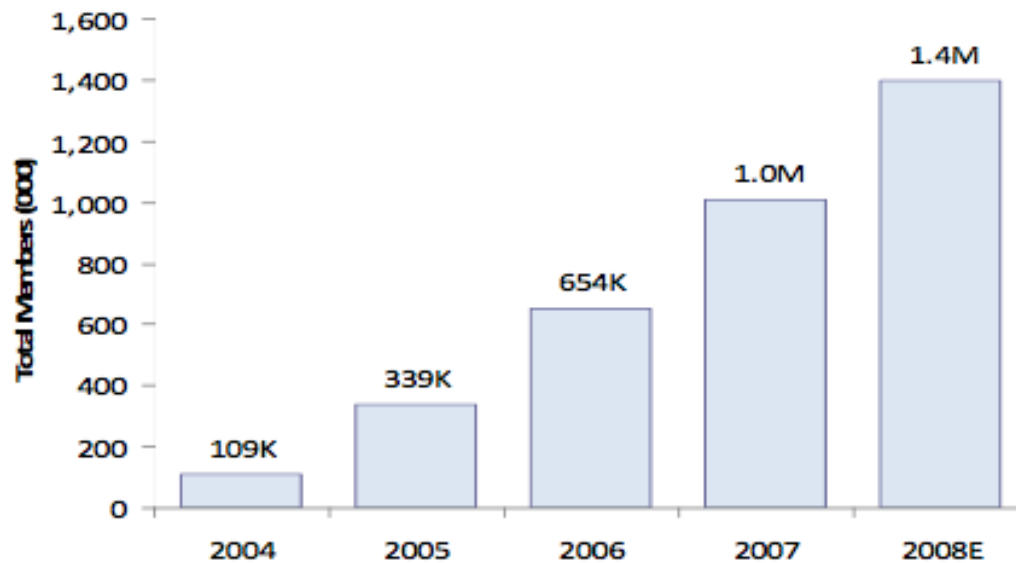
Now if the aim is to pull the core to the edge don't expect the core to become all excited about giving the edge all kinds of money to accomplish this. He recognized this problem and said "okay what I'm going to do is create a social development network - SDN. Now I am going to go out and find not only developers inside SAP but I'm going to start attracting developers from around the world and 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 products should actually look like -- an open access service-oriented architecture. He started this and in the first year (2004) attracted 109,000 people.   Five years later in 2008, it was 1.4 million people. Think about that. 1.4 million people have come together to build and extend and create momentum behind this edge. This edge is now becoming a dominant edge.   One that is beginning to change SAP in interesting ways.

Deconstructing the Learning Curve

Kind of a final question may be: how do we start to break free of what I will call the "Red Queen" effect? Let's go back for a moment to the 20th century. There may be one fundamental notion underlying the notion of scalable efficiency. The learning curve or the experience curve. It says in effect that the more you do something the better you become. Consequently most of the competitive strategies of corporations use, in one way or another, this notion of how do I accelerate the learning curve? You realize that it's a great idea, but it doesn't take much to realize that this curve

is a curve of diminishing returns. What does this mean? It means that with any new increments you make you have to run just that much faster in order to keep up.

Breaking free of the Red Queen effect

Experience curves ➡ Collaboration curves

harnessing network effects where
the more people that participate the
greater the potential returns

And in fact if you have this in a rapidly changing world, you find you are running faster and faster and faster and probably not even being able to stay in place. So if you wonder why people are so stressed out to a reasonable extent it is that we are stuck in the process of moving down this curve where attaining each new increment is kind of exponentially harder.

Flipping the Curve with The World of Warcraft

Might it be possible to completely flip this curve? **How do we harness network effects so we arrive at the point where the more people participate the better things get.** So my last example is to move from the world of extreme surfing to the World of Warcraft.

World of Warcraft
#### A massively multi-player online game : MMOG

on a quest

Why should we care????

You may ask why should we care about the World of Warcraft? But it may be interesting to know that the World of Warcraft has 12 million players worldwide, and its overtaking almost everything you can imagine. What's going on here? If you look at the game itself you may not see what's so exciting about it. I want to say don't pay so much attention to the center of the game, look at the edge. **Look at the knowledge economy to be found on the edge of this game and you are going to find ideas about how to get back to increasing returns in this context of the collaboration curve**.

Emergence of MMOGs
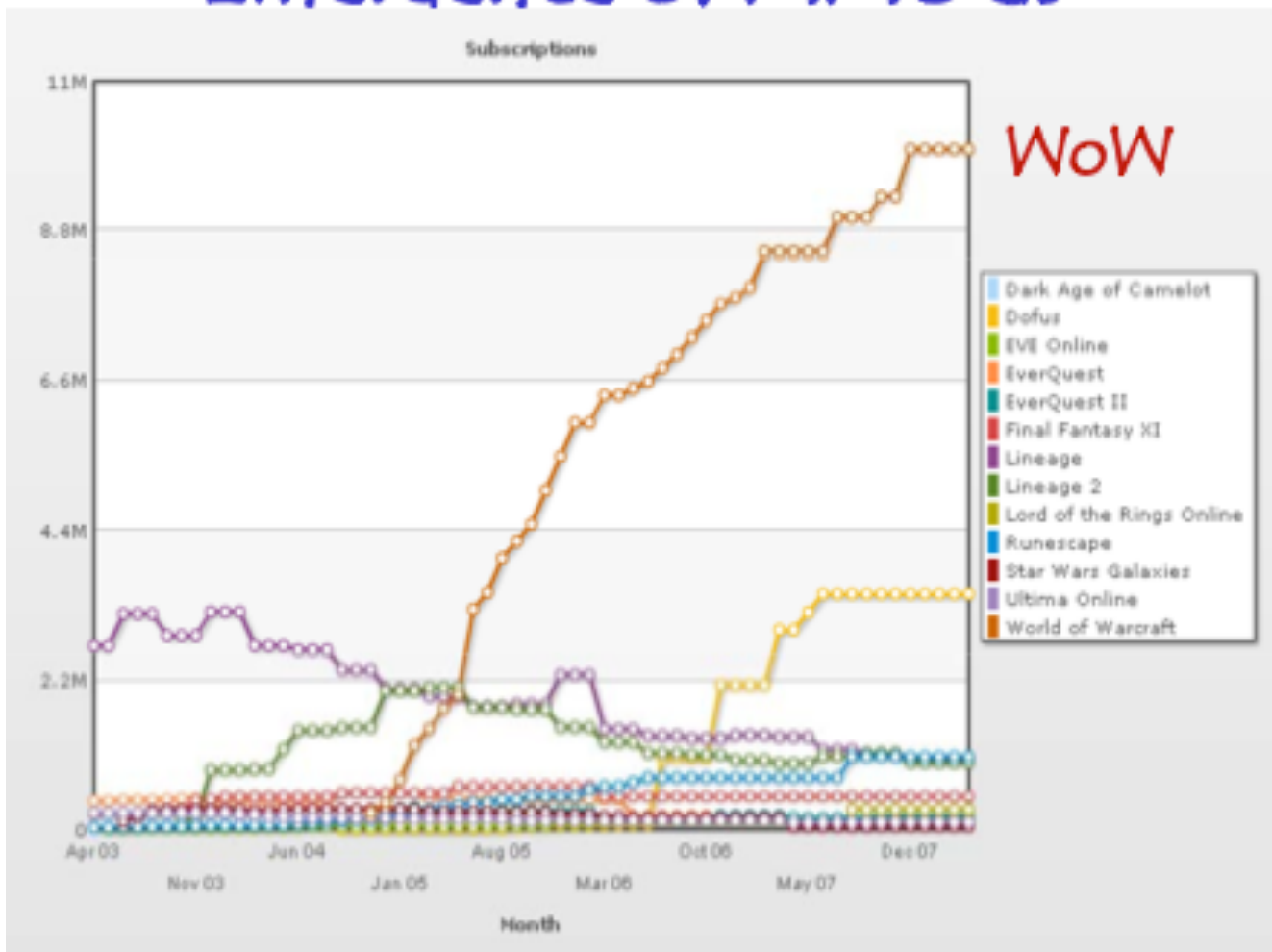
I'm sure that about half this audience plays World of Warcraft. It's important to realize that the way World of Warcraft works is that it has guilds. To get anything serious accomplished you have to join a guild and these guilds run from 20 or 30 people to 200 or 300 people.

Managing Knowledge in Guild-based Creation Spaces

> Structure of filtering and feedback loops
>> – Problem: Knowledge is constantly changing
>> – Problem: Too much information to reliably manage. (around 12k new ideas just last night.)

> Guild structures allow for small groups (20-200) to test, filter, and disseminate information

> Guilds more than crowdsourcing & self organizing entities.. Have governance protocols, constitutions,..
> Guilds can help other guilds for cracking high end raid challenges.

One of the reasons that these skills are so important is that there is 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 as considered from the point of view of how do you want to really get a high-performance capability out of this.

Let's look at all of this. It is not at all unusual to find 12,000 new ideas created every night. On a good night there will be closer to 20,000 new ideas. This outstrips biotech in terms of the amount of new knowledge being created. If, in the World of Warcraft, you are going to do successful high-end raiding, *you are going to have to figure out how to take your guild and figure out something that the scientific community has not yet figured out and that is how to process tens of thousands of new ideas every week.*

The guilds must try to figure out how to distill all these new ideas down into new ways to move. If we see this as part of the knowledge economy in the World of Warcraft, we can begin to actually go in there and understand a lot of what's happening. By the way in terms of extreme performance I've never seen anything quite like it. In the World of Warcraft the high end guilds do after action reviews on every high-end raid.

It is a total meritocracy. Basically in a high-end raid everyone is measured. Everyone on the high-end raid is critiqued by everyone else in the high-end raid. Because it is obviously computer mediated we can capture everything else that is going on. Have extensive dashboards to actually measure your own performance and determine how well you are doing. And so in a very interesting

sense, in this kind of world you have after action reviews and a form of play that says you need to craft your own dashboard to measure your own performance.

## WoW's knowledge economy/ecology – help players gain & create knowledge exponentially faster

Other Forums (~countless)
(www.worldofwar.net/forums, www.wowforums.com)

Blizzard Forums (~300)
(forums.worldofwarcraft.com, forums.wow-europe.com)

Over a million

WoW Interactions on the EDGE

Videos
(www.warcraftmovies.com)

26,000 videos from over 5k guilds

Databases
(www.thottbot.com, www.wowdb.com, www.wowguru.com)

Blogs
(www.worldofwarcraftblogger.com, www.wowinsider.com, www.resto4life.com)

Wikis
(www.wowwiki.com)

And after action reviews of a quest. Dashboards created by the player for him/herself.

In fact right now in the Obama administration in Washington some people are actually trying to use some ideas from the World of Warcraft in terms of how do give government workers the ability to craft their own dashboards. These dashboards by and large are not pre-made. You do them as you want. They are for you as individuals. Consequently, you may want to ask yourself what it would mean for you to craft your dashboard in a way would give you a good sense of how you are spending every moment of the day and what it is you could do better and so on and so forth.

In the guild structure these high-end reviews get passed around and by the way the guilds work with each other on these high-end raids to figure out how, when they pick up an idea, they can transfer it to another guild. But I bring this up for one and only one reason -- some of this work was done here at Stanford at Xerox PARC -- this may be the first time that we have been able to prove the existence of exponential learning. In other words the exact opposite. We may have been able to flip the curve and get to the point where we can look at how you do radical acceleration of what you are learning.

Exponential Learning
Hours to Gain Experience Points (XP) in WoW
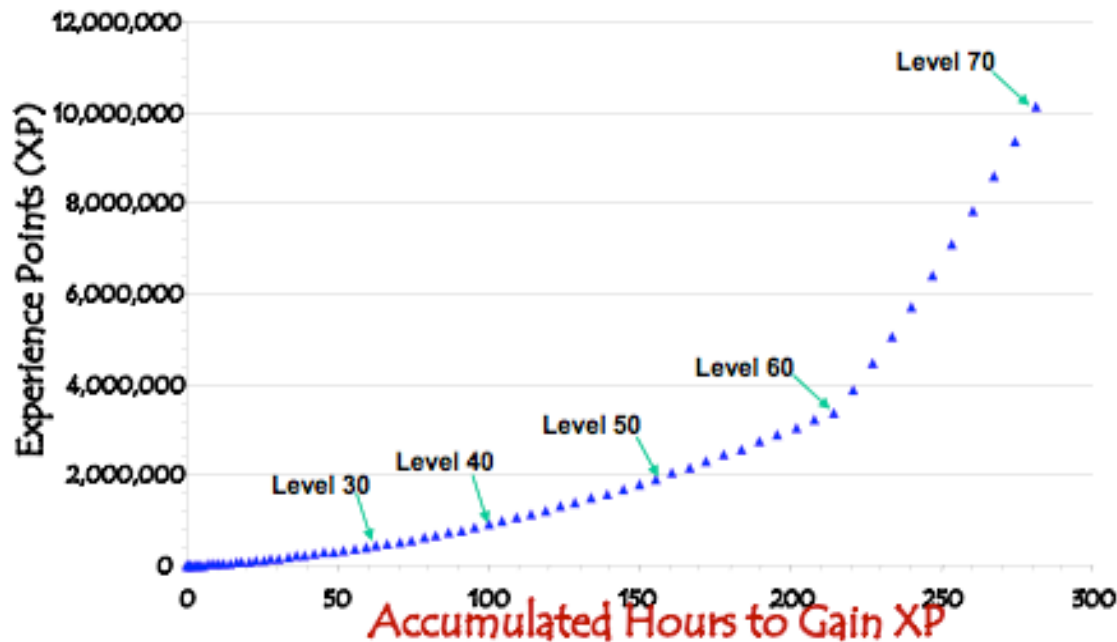
Source: Palo Alto Research Center (PARC) PlayOn http://blogs.parc.com/playon/; Deloitte Analysis

We can argue about the point of whether this graph is really right and what these experience points really mean and so on, but qualitatively it's pretty damned right. And so this is the first sign of what we've actually been able to do about how this could actually be measured. For example we take you inside of what we are actually learning in China where I spend a great deal of my time. I will show you innovation networks inside of China that are using very much the same ideas and have actually figured out how to generate exponential learning within and across their networks.

The Purpose of the Firm is Changing

The best example of that and we have covered a lot in our book is Li & Fung. I want to end very much in the same spirit of Dusty and World of Warcraft by saying that we have all grown up with the belief that the purpose of the firm was to minimize transaction costs and achieve scalable efficiency and actually if you could write that in a formula, you got a Nobel prize for it. Ronald Coase did. Might it be the case that in the 21st century the purpose of the firm isn't going away -- - quite the opposite --we think the real game is going to be how you structure firms to accelerate capability building.

The purpose of the 20th century firm: to minimize transaction costs & achieve scalable efficiency

The purpose of the 21st century firm: to achieve <u>scalable capability building</u> (building talent)

Learning from others as they learn from you: accelerate bootstrapping in an <u>ecosystem</u>

And so maybe the purpose of the 21st Century firm is to build talent and to be able to do that on the basis of social spaces and on the tools of the firm. But we must also how that firm plays a major role on the basis of a much larger ecosystem such as that of Li & Fung who has 10,000 factories in his organization all of which can learn from each other all over the world how this actually works.

Therefore the real catch to me is whether we are on **the verge of a new type of institutional innovation that says maybe we can actually figure out how to operate so that we can accelerate the bootstrapping in terms of collections of companies learning from each other in this new type of ecosystem.**

The Big Picture

So let me say that the big picture is that there is a lot of structure that we can take you through in terms of how do you access the right kinds of information and how do you attract the right kinds of people and how do you achieve extreme performance but most importantly how do you do it not just looking at the individual;
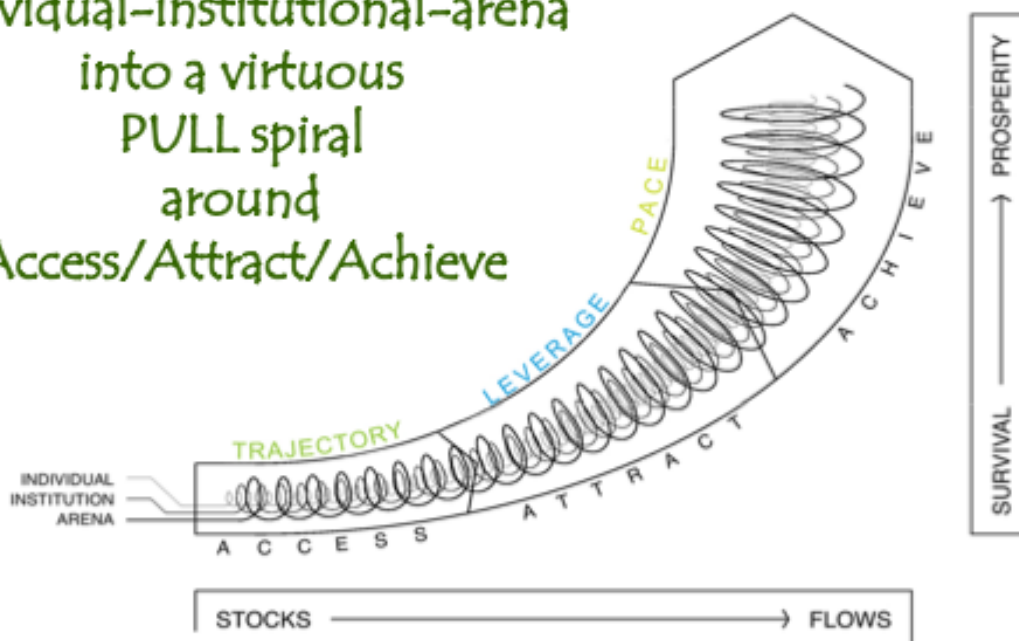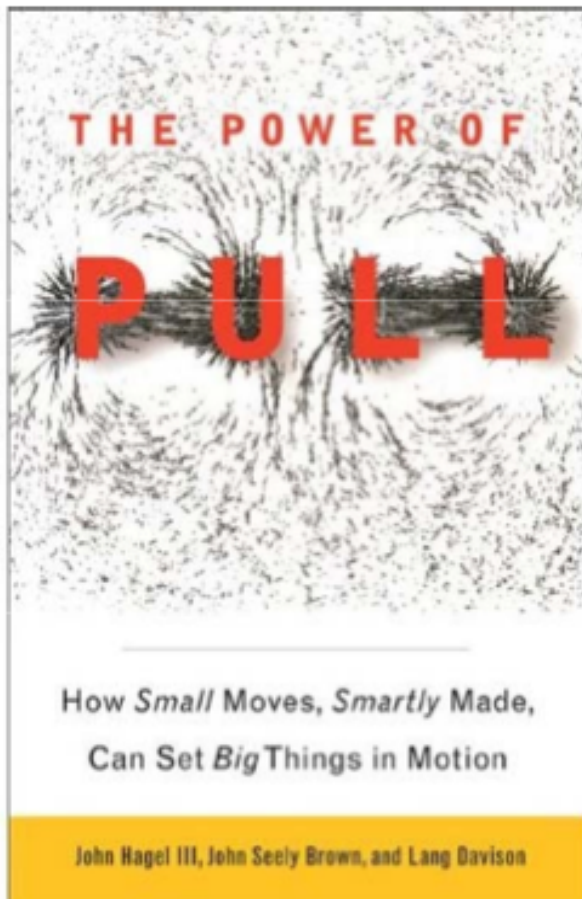
and not just looking at the corporation and not just looking at the ecosystem itself but at a new type of triple helix where there is some new type of interleaving going on between these elements.

Thank you

Questions

Question. What are the datasets from which you pulled in your information on the return on assets?

JSB: We pulled the information from so many sources you actually can't believe. And we also publish a report on this every six months called the shift index. Initially we are looking at United States companies that are now breaking it down into different industries. And we are now moving out and looking at different countries to see if we can see other interesting things.

The obvious fallacy of the curve that I showed you is that it is an aggregate. And as you guys know, you can play any kind of the game with an aggregate. We ourselves were kind of stunned by it. The reaction is call Larry Summers up and tell him that you have bigger problems than you realize. We looked at the top quartile and the bottom quartile and we found that the top quartile is also going down. Nowhere near as fast -- while the bottom quartile is plummeting very fast indeed.

But even the best, even the top quartile is headed down. but obviously there's some companies in that top quartile that aren't going down as fast.

Economy-wide Asset Profitability by quartile (1965-2008)
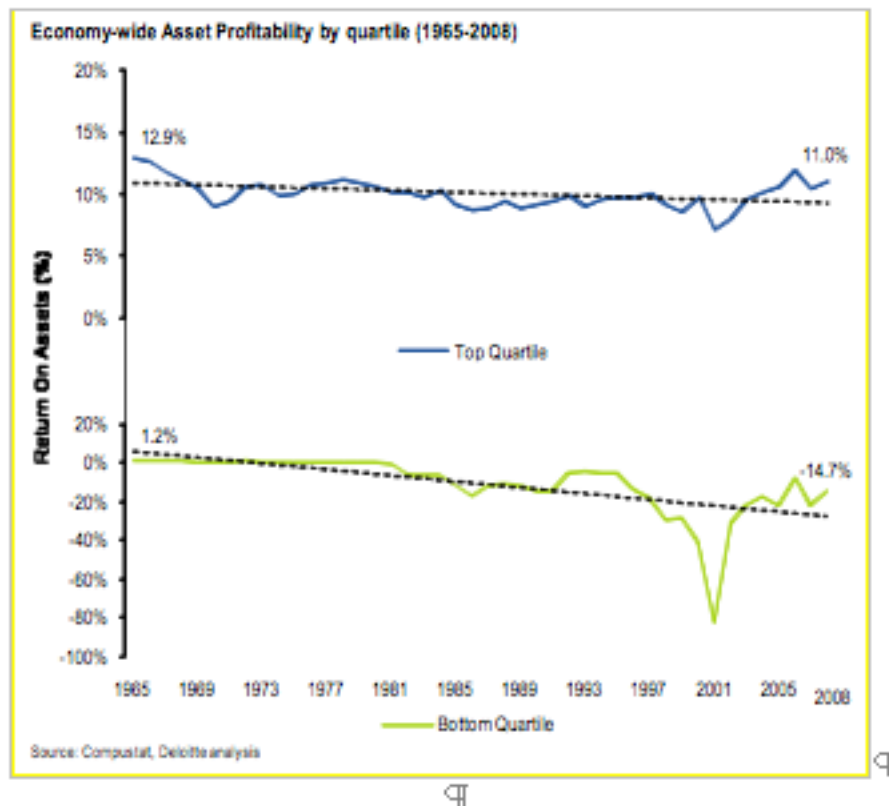
Winning companies are barely holding on, while losers are rapidly deteriorating

You might say that return on assets really doesn't matter. You might ask what about intangible benefits. But actually if you start to measure intangibles because these are measuring hard assets, actually the story gets worse. If you go to the financial industry it turns out that the denominator gets larger and the story gets 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, it doesn't help, directionally it begins to go the wrong way.

We are really just calling attention to the difference between return on equity which is the way we have always looked at the world but with which you can also do fancy things with debt financing and consequently we are saying let's strip that away and see what the core story is. Now return on assets does matter. But we just wanted to get a baseline of what's going on here. I think this is part of why we all feel more stressed out.

This fits so completely with the diminishing returns curve as well and some economists say well "duh it has to be that way" and I reply "well duh maybe we ought to find something to do about it." You have to get off of that diminishing returns curve and try to figure something else out.

You guys are coming up n the generation in the generation of social media, collaborative technologies, and cloud computing. To me this is the most exciting time in the world to completely be able

to re-think how to be an entrepreneur because you have the tools that just boggle my mind and I think we are going to completely blow up that return on assets curve.

Question. You are looking at net income divided by assets for public companies?

JSB: yes it's kind of hard to get that data from private companies without going to jail. Although there are a couple of big private companies that have pulled aside and said you know we don't have quite the same problem. And I believe that's really true.

And right now with the big companies like Xerox, AT&T, and others, Wall Street is driving them and as a result they don't want to make investments into more research and push that innovation curve up because they are thinking only 90 days ahead. However, in the big private companies when it comes to investments you have much more freedom to call the shots yourself.

And I was stunned when I went to a huge private company and they said John this is where you want to come if you want to do innovation and I said well pardon me, but you don't have any sex appeal at all as a New York company and they said: well look at our finances and tell me that. But if you want to go for 15 years on a single idea - but who would want to do that? I think you see what I'm getting at.

Question The competitive advantage that is based on building talent is understood pretty well here at Stanford but if you look at it in a business context that presumes does it not a long-term relationship. But relationships between companies and their employees of late have become much more short-term than they used to be 10 years ago. Do you have some thoughts on how that is going to settle out?

JSB: Yes it is one of the reasons why if you look at the firm things get complicated. But if you look at the ecosystem instead it becomes a different game. So if all the companies in an ecosystem get better, then that is going to accelerate learning among them. And if the good people at one company move to another company, the ecosystem as a whole still gets better.

Take Google as one of the best examples of a talent platform. The way they run that organization is one of the best examples of a talent driven company that I have ever seen in the way that they allow poaching from within the company. But as you know people leave. Xerox Parc in some sense fueled Silicon Valley. And we all profited from that including Xerox Parc. As you know there was a research center down the street from Xerox PARC. It was started with the belief that we are not going to screw up as we (@PARC) did. They were not going to going to let anything leak out.

But there is something they forgot. Because when you let nothing leak out actually there is nothing that leaks in. It has to do with the reciprocity principle I was talking about earlier and guess what happened. It didn't work! For example they were blindsided by the emergence of the Internet because so little leaked in. I had very good connections over there and I used to go over quite frequently but after a while I said what's the point? There's too much paranoia about something leaking out. **Ecosystems have balance and reciprocity.**   This failed this basic test.   It is now closed.

On agility - to me the interesting issue and is whether you can get scale without mass. Can you

build things that are very large but are also tremendously agile? In physics and they tell us in no. If something has more mass it has more inertia and the less quickly it can change directions. I am wondering if there are types of institutional innovations that enable you to break that law? And find a way to increase scale without increasing mass. I am going to argue that Li& Fung has cracked that. That is, it has figured out the DNA of how to do that.

Let me tell you one way he does this. Basically his network is a loosely coupled relational (as op-posed to transactional) network. Once you join the network there are interesting governance pro-tocols just as there are in the world of war craft guilds. But these are just not randomly self-emerging fuzzy little things. The good guilds have serious governance protocols and serious reso-lution dispute protocols. In Li & Fung's network once you join and get qualified for having safe work processes, he says something very unusual.   Once you join my network I will guarantee I will always take 30% of your output but I will also guarantee that I will never take more than 70%. I want you to work with my competitors. I do not want to lock you up because I want you to learn from those competitors because if you learn from those competitors I can learn from you.

There is a sense here that there may be quite novel ways to structure these firms and creation spaces. His network is loosely coupled. It is not transaction-based; rather it is relational based. They can move on a dime. I can tell you some amazing stories about how they had to restructure their entire logistics network for a particular set of products the day after 9/11.

We have great pride in this country in saying that Wal-Mart is probably the world's leaders in supply-chain management in terms of how you orchestrate thousands of suppliers. Well guess what. A few weeks ago Wal-Mart signed a deal with Li & Fung and said we can't compete with your processes. The time has come. We want to learn from you. The push model of how to run the Wal-Mart 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 ac-celerate the building of trust. And so on. I must admit that even being a geek at heart there is more leverage to be found now in terms of rethinking institutional innovation and finding new ways to work, new ways to organize and new ways to collectively make things happen than in just creat-ing new technologies – as fun as that may be, especially given the emerging social media tools, streams and capabilities of immersive video.

Question: You said earlier that K-12 was essentially broken. What in fact do you see when you look at the university processes of education?

JSB: We are proud to say that our research universities are the best in the world. But you guys here are so used to thinking that everything lies within the realm of intellectual property. But in some ways intellectual property makes it hard for academics to cooperate with other academics in diverse universities (e.g.; spikes of activity). Given Bill Joy's law that not all the brightest are al-ways going to be here on campus (or any one campus) then the ability to pull the best experts to-gether from all the various schools will become important if we really want to crack some of our grand challenges such as a AID's vaccine.   To facilitate that we again need some institutional inno-vation around intellectual property management that facilitates rapid and full throated cooperation.

I have 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 the biologists would all start screaming. But look at the fact that the key dimension for a lot of the new knowledge is tacit dimension; and it is tacit that cannot be wrapped up in patents. It is the explicit that gets wrapped up in patents. So that if I always want to utilize the most cutting-edge ideas here and I believe that as in fashion they are changing (or advancing) every six months, I must position myself as a company or as a start up next door to you. And, of course, I want to hire your students and your faculty as consultants. That's how I – as a startup leverage the tacit knowledge that is constantly emerging from the labs here on campus. In this manner the campus profits from the rich ecosystem that emerges that is pushing the boundaries of how to make the idea practical; the faculty and students profit from having feet in both the academic and commercial camps and the companies that build close relations win in being able to translate the research ideas into practice by leveraging the non-codified tacit knowledge so omnipresent in radical research.

And it is also the case that if you create tremendous wealth on the edge of the campus you will find that that some of that money comes back to help you. It is a gift economy based on reciprocity as opposed to a transaction-based economy. So if you move from transactions to relations and you grok how these ecosystems rich in tacit knowledge socially (informally) function, then you begin to see that this intellectual property regime is both more complicated than you have thought but also could be infinitely simpler. Perhaps open source, open university is a way to go in the 21st century

A *COOK Report* Afterword

JSB 's talk and the *Power of Pull* present a powerful lens that can be used by strategists and policy makers to understand and focus an otherwise blurred and therefore incomprehensible reality. Here is both an executive summary and a refocusing of the wisdom in terms of out interest in the ICT foundation of the over all system.

The scalable efficiency of the 20th century pre-digital, Chandler-built corporation is fundamentally at odds with the way that knowledge flows in an internet connected world. It creates a world where rewards, on the one hand, are gained by capturing, hoarding and controlling stocks of knowledge. This conflicts with the digitally enabled ability to use the new Internet based tools to capture, duplicate, distribute and create new information. In the 20th century economy rewards are based on hoarding and hierarchy rather than on problem solving. The closed proprietary model needed to protect the old style corporation helps to ensure that benefits of new tools and technologies are tied up in keeping people bound to old closed proprietary systems where lawyers are used to protect fortresses and kingdoms and to bar the creation of new wealth, this return on assets goes down because emphasis on billing systems and maximum extraction from "customers" goes up.

The digital internet creates alternative models and delivery mechanisms that permit disintermediation of old parts of Chandler corporations that spend money fighting change. The economy of scale in a pre-digital age becomes diseconomy of scale leading to the declining return on assets noted above.

Like it or not ICT has set in motion fundamental changes that are bankrupting 20th century corporate structure.

Internet Based Business Will Have Characteristics of Eco-systems

With the Shift Index the authors show that the 20th century economy of scale companies are going broke. The early parts of Power of Pull show why.

But this is the slide that is most profound.
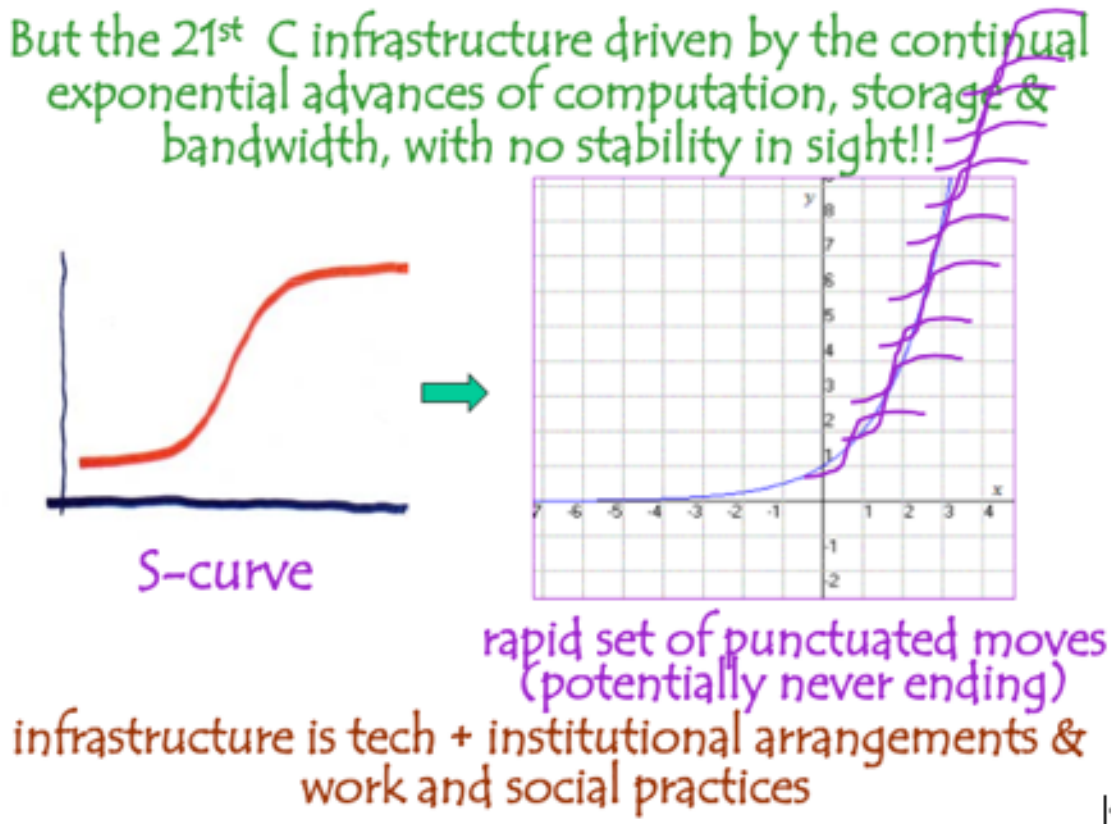
1, Technology disrupts.

2. The legal regulatory, political framework within which we and technology live must adjust and that takes time.

3. But the digital, network-based foundational infrastructure under pinning everything else is undergoing one disruptive innovation or "s-curve" after another.   These s-curves piled up on top of each other produce continual exponential change.   We face a backlog of tech induced changes piled up. The pile up produces a regulatory backlog that is continually gamed by the incumbents. Change is no longer has a period of equilibrium in which the legal political economic infrastructure can catch up.

4. Therefore as Erik has been explaining the centralized top down, push based, national regulatory blanket can no longer cope. So then what?

5. We have local regions where like minded people tend to gather. Silicon Valley, Portland Oregon, Seattle Washington, Austin Texas, route 128 Boston, spikes that accommodate more quickly to the changes and will spur the creation of new businesses that are edge based, flow oriented that can better accommodate to the on going change. These business will locate in friendly environments.

6, In these spikes with smaller more nimble companies, successful ecosystems can emerge because knowledge created moves in flows rather than static stocks protected by Intellectual property law. Furthermore without the weight of the centralized, top-down push hierarchy, the costs of doing business are less, change is faster and successful adoption of each disruptive shift is far quicker and easier.

7. How do we cope in a world where the center is good primarily for fighting wars and governs by protecting a means of economic organization that is going bankrupt?

Why What Worked in the 20th Century Will Fail in the 21st

The intersection of exponentially disruptive technology with the much more static nature of existing infrastructure made up of regulatory institutional arrangements and social practices creates a choke point -- disruptive change banging into an inflexible environment. And the choking is magnified by the fact that these disruptive changes no longer occur in S curves sparked by bursts of creativity followed by equilibrium but rather by the emergence of a rapid set of punctuated moves where advances follow quickly along the path of earlier advances. The path is no longer a Carlota Perez-based one of disruption followed by long periods of equilibrium. It becomes an exponential path of continuous disruption.

As technology continues along this exponential path built out of a series of punctuated moves, it faces integration into existing legal frameworks within nation states that are ill equipped to handle the vectors of change powering the big shift from push economies to pull economies. The infrastructure with which they collide is a hostile one governed by institutional arrangements of regulatory systems and corporate work practices governed by intellectual property law encased in proprietary straight jackets.

The clash created between the increased pace of technology within the more static social and institutional infrastructure creates the entire series of tensions between the design of the firm in the 20th century push economy and the design of what will become successful firms of the 21st century pull economy.

Progress marked in an exponential series of punctuated moves runs headlong into the old way of thinking of the necessity of protecting stocks of more static knowledge. Under these conditions, we must make decisions about from where economic progress will come.   Will progress come from lots of old knowledge, patent protected "stocks" or will it come from flows of new knowledge and in doing so will it have a better chance of enabling new products that prove successful in the marketplace that capitalism claims to love?

It can be argued that the 1986 Gram Bliley Leach law encouraging universities to patent research was a huge step backward in locking our universities into 20th-century silos and prohibiting cooperation and collaboration the very tools that are the foundations of 21st-century learning in science.

As JSB pointed out in answer to one of the questions in his April 14th talk, effective work by a pharmaceutical house on AIDS vaccine might well be inhibited by the fact that the three most appropriate researchers they would need would be locked into separate intellectual property protection silos within their three separate universities. And at a more important level that the deep collaboration between the three academics is slowed down and impaired.)

Suppose a university agreed to open source. This would mean that entrepreneurs wishing to commercialize would need to set up on campus. They would need to hook into the universities digital networks as well as social networks. They would need to hire, part-time at least, students, graduate assistants and faculty. They would need in this short to build process networks that would turn in to ecosystems in their respective fields -- materials science for example or bio informatics as another possibility. They would position themselves to benefit directly in edge based knowledge flows benefiting from tacit knowledge that is from the experiential knowledge of everyone involved and ignoring explicit patentable knowledge that the 20th century firm spends years in protecting and living off of during an assumed steady a state of equilibrium that is no longer there.

In environments like this the lifetime experience of the participants in developing skills and levels of which they often are not clearly aware, builds the tacit knowledge that that enables them to derive insights to test the ideas that may result in explicit patentable knowledge. However, in the meantime that tacit knowledge needs to be left free to flourish.

One must fear that in the United States and Europe and perhaps in Japan and elsewhere, the very processes that made the 20th century push model firms productive are the ones that are causing failure when applied to the firm of the 21st century. We continue to use the lenses of the 20th century in the 21st at the peril of being unable to create sustainable futures.

Meanwhile in the Netherlands

SURF has established a new digital infrastructure that functions within a regulatory infrastructure designed to benefit the largest 20th century style corporations. In the world described by JSB, these firms may well get the least benefit from the SURF infrastructure. The reason for this is that the legal, political and policy structure in which they operate lags behind the rate continual technology innovation that keeps disruption of the old static hierarchical core underway. The ones that could get the most benefit are the Netherlands' new small and medium start-ups that are prevented from joining SURF as full-fledged users of the SURF infrastructure.

Why? Because the old Milton Friedman based rules of the European Union prohibit state aid. The system is warped because the politicians of thirty years ago privatized the basic incumbent telco assets in return for money used to run the government. But now the government finds itself prohibited from competing with the 20th century telco incumbent on behalf of its people. In theory the

private incumbent is incented to give modern services. In practice the analysis of the *Power of Pull* shows us why the wont happen without the incumbent committing rapid financial suicide

The government's objective for the Netherlands to join the top five knowledge economies of Europe may be hindered by the policy that inadvertently protects the old order. On April 19 their report recommend putting half the total investment of stimulus money into area's which have already a strong established international status: flowers, water management, chemical industry, and high tech.   With in the next thirty days as Commissioner Neelie Kroes prepares to unveil proposals for an EU digital agenda, tensions have emerged around the issues of interoperability and open standards for ICT systems. The big 20th century push-based companies are at the table in a way that the smaller ecosystem oriented ones described by the authors of the *Power of Pull* are not.

If in Singapore a new company can be started for 50,000 dollars because it can have a broadband connection to the cloud that allows it to rent an electron scanning microscope, rather than have to buy it, then the policy that makes it more difficult for the dynamic entrepreneurial learning described by JSB from having unfettered access to the SURF infrastructure is most short sighted. Of course for the present, nothing can be done because the EU prohibitions against state competition with the private sector are law. Unfortunately the law and its enforcement serves as a lens for slowing down the some of changes in the telecommunications foundational sector needed make pull-based innovative ecosystems work.

How do you transform Surf into a nationally inclusive knowledge sharing eco system? Right now there are no easy answers. The most likely seems to be by a process of evolution. SURF appears to be playing a very intelligent game that relies on a policy of making the infrastructure a common good and then offers the investors like banks and housing cooperatives a path to sustainable investment while all the time letting networking services flourish. The long-term solution is dependent on gradual local progress.   When there is fiber to the home in the right villages, they become spikes and small and medium enterprises simply move there because they can find the talent needed to start new business in their garage. Meanwhile at the research universities that are SURF members there are locations next to nearly every institution where startups can go and bandwidth is not an issue because the startup can connect to the university network and avoid the high prices of commercial bandwidth standing in the way of unfettered access to the cloud.

But this problem is European wide and indeed systemic throughout the OECD. I focus here on the Netherlands only because I know more about this innovative pragmatic country than any of the others.

Coming Full Circle

I am frustrated by the gap between the optical research networks and the rest of the world. I have tried to interest my arch-econ list in the idea that the next big thing is not broadband but perhaps may be e-science. Not much response. I suspect the reason why is that the busy people there haven't had the recent exposure to this that I have. Cloud-computing however is becoming ever more prominent. I published an interview on the subject about two years ago. Last December I heard Werner Vogels Amazon's CTO explain Amazon's view at Supernova. My reaction: interview

Werner to get the latest. A mistake. My thinking was so "last year". It turns out that Werner keeps the world pretty well informed of what he is thinking and doing via his blog.

The most recent post on April 23rd says it all: "I am looking for new application and platform services." "The ecosystem of new application and platform services in the cloud is the future of application development. It will drive rapid innovation and we'll see a wealth of mobile, web and desktop applications arrive that we couldn't dream about a few years ago, and these building blocks are the enablers of that. These services will be delivered not only by new startups but also by enterprises looking to capitalize on their IP.

As examples of such services I always use Twillio (voice & sms) and Simplegeo (location), but it is time to start building out my knowledge of all the different services that are in the ecosystem. If you run such a service or know of one that I should be checking out, please leave the info in the comments below. I'll be using that information in presentations and some future writings on this topic."
http://www.allthingsdistributed.com/2010/04/i_am_looking_for_new_applicati.html#comments

Within 12 hours he had 24 comments identifying 24 new services delivered to him by members of the eco-system coalesced around his blog. The core enabling edge-based creativity which is then pulled from the edge back to the core enabling the core to see new opportunities.

This pull based world of learning eco-systems is shaping the world in a way that the web began to 15 years ago. In doing so it uses transmission belts that the cognoscenti are aware of but are being used in ways not so obvious unless one has been paying careful attention. Answers about the evolution of the cloud are out there. And because of the *Power of Pull* they are obtained in new ways.

A Note to Readers

For the fifth month in a row I have not included arch-econ list discussion. I probably will include some discussion in future, but if you really miss it. Tell me please.

Next Issue - July 2010

The 4th paradigm based work of Dr David Zakim. Out before the end of May. I hope Sheldon Renan by the end of June and Michel Bauwens by the end of July.

Executive Summary

Pages three four and five will tell you what this issue is all about. Basically this work makes clear why the world of the large 20th century corporation has crumbled beyond repair. In doing so it portrays the impact of ICT and especially the Internet as a general purpose foundational technology that overturns the traditional top down alleged economy-of-scale strengths of the 20th century firm.