

“Venture Capital and Innovation”
Transcript of lecture by Floyd Kvamme
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Thanks. I really looked forward to having this chance to chat with you this morning and what I thought I'd do is some overview of the subject at hand. What I'm trying to do is interject also for you the juxtaposition of government and how its policies had impact on what Silicon Valley became or what the venture capital industry became.

Venture capital, of course, has been name venture capital for some time, but previously it was called risk capital, and in many respects I think that was a better name, because we are in a risk business. I was asked by the student who took me over to breakfast this morning how I felt about the economy and I said, “Well, you know, I've been in the venture capital business for more than 20 years, and we're in a very risky business. If you're not an optimist in my business, you're dead. It's real simple.” So I am a born optimist on what's happening. And clearly we're going through some very, shall we say interesting economic times right now, but I hope you will see that there are lots of opportunities and the venture world is an opportunity-based world, and I hope I can bring that point out.

The risk capital has, of course, existed for many years, but it was mostly family money backing an idea that a son or a nephew, or somebody - a daughter or a niece, an aunt or uncle had and they back that. And it wasn't formulated as such. Venture capital became a structured industry, really you could say ,as late as 1970, 1975, some time in that time frame when most of the venture capital firms that are known today were formed. The firm I'm with, for example, was formed in 1972. So the last 35 years have been a very different kind of time, and it has focused mostly in the technology sector. And I'll go into that a little bit, about why that is true to start with.

To start, however, I want to give you the one key take-away. A venture capital firm is measured usually by the investors by its internal rate of return, IRR it's called, but it's not about investing money. Venture capital is about building businesses, and there's a big, big difference between the two in terms of what you do and how you do it. When I first got in the business, the senior partner in our firm said to me, “The nice thing about venture capital is when you invest in something you only lose one times your money but you can make many times your money”. As a matter of fact we used to keep graphs. In a typical venture capital partnership you usually do about 35-40 company investments. And we used to keep a graph of how many times the investment we made on that particular investment, and then down from that and you hope that graphs stretches so its above zero for a good number of those investments, and of course you lose money, but you only how much you invested. You don't go out on a limb, you don't leverage in venture capital or any of those kinds of things. And some of them are very good. My firm happened to be the founding investor in Google. Good investment. Very good investment. And that number was like a thousand times our money. We earned from that original investment.

Now that's different than things like private equity. Private equity tends to have investment that, while it's private, it's much more a financial play. You don't get that involved in the company. Or a stock investing in public companies. Those are very liquid investments. You can invest this morning and get out this afternoon. In the venture world, once you make that investment, you're there for usually a number of years. Typically four to four and half years while you're working with the company to develop it to the stage where you can have some liquidity.

So first comment about government. Governments have established pools of money and have invested in start-ups and they've said they're in the venture capital business. I don't think they're in the venture capital business. They're in the investing business and they don't go on boards, they don't help develop the company, they don't introduce the new customers, they don't do any of those kinds of functions, and that's really not what venture capital is. So most government venture investments, frankly have not succeeded because they don't do the whole thing of what venture is really all about.

But what are some factors that government does get involved in? It's really the environment that government has had an important role in. And I would say that in the two factors that I'm going to mention principally this morning, I don't know that they necessarily were thinking about venture capital when they made these very very significant moves. The first one was a thing called ERISA, now I'm sure most of you have never heard of ERISA. ERISA is a thing called the Employee Retirement and Income Security Act that was passed in 1974 and what it simply said was it identified the rules by which retirement funds could invest their funds. And it said that its okay to invest in high-risk investments, you just can't invest more than a certain percentage of your fund. And in fact most large retirement funds established, even though this wasn't exactly in the law, said that you could only invest up to 2% of your funds in high-risk investments. Well 2% of a very large number is a very large number, and that opened a lot of funding for the venture capital community from that standpoint. It became legal for us to access those kinds of funds and build them into our partnerships.

The other critically important thing was the establishment of the Nasdaq, because in the venture business, you're investing, its illiquid. You cannot get out of that investment unless you sell the company to another company or you go public, and going public is an ability to get liquid on that investment. I was once approached by a senior person in the New York Stock Exchange and they were trying to pitch us on why didn't Kleiner Perkins put more of their companies out on the New York Stock Exchange when we went public. And I said "Because we don't qualify for the New York Stock Exchange when we go public". And they said, "What do you mean you don't qualify?" I said, "You have rules for number of investors, number of periods for profitability, all these kinds of things that don't work for us". He said, "That can't possibly be! You guys are backers of Genentech, you're backers of Amazon, you're backers of the Compaq, you know, and all these companies. I mean, how can that be?" I said, "I'll do a study for you", and I must admit the results of the study even surprised me. I looked at, at that time we'd taken 110 companies public. You know how many qualified on the day they went public for listing on the NYSE? Zero! None! And I'm talking about companies that are leading

companies in the industry today. The larger tech companies, we've had the good fortune of being in a number of them. So the Nasdaq was a very very important thing. It was established in 1971, and that's why the Nasdaq is so technology-rich because many companies went out on the Nasdaq.

In addition to these governmental factors is, of course, the financial factors. And as I said earlier, earlier risk capital used to be family money. You know the Rockefeller family had a venture arm, that's where Eastern Airlines started for example, and those kinds of things. But there wasn't a structure kind of thing, and it was a one deal at a time kind of thing, there weren't pools of money. With a team, general partners were put together, like when I joined Kleiner Perkins there were eight of us. We were the eight partners in the firm, and most of us had technical degrees for reasons I gave you before. We were not financially qualified people. Our education wasn't in financial fields. And then you had to create a fund. That's called raising money, and initially, in the first Kleiner Perkins fund I was not there at the time, I joined at the third fund, it was heavily family money. A gentleman in Pittsburg, Pennsylvania named Hillman bought half the fund, but the entire fund was \$8 million. That was a lot of money for venture capital. But out of that came Genentech and a thing called Tandem Computers which you may not have heard of, but is now part of HP. Two very, very big successes and six losses. That's a bad ratio, but it's not an unusual ratio. Because of that you make many times your money, and you only lose one times your money.

And the limited partners today, however, tend to be university endowments, that's the one that we like a lot as KP. You can't name a major Ivy League or school whose endowment isn't invested in our fund. About half of our money comes from Harvard, Stanford, Yale, Rice, Cal, etc., those kinds of schools. And then there's the thing called the Common Fund where a lot of smaller schools have their funds. Insurance companies, retirement funds, General Motors retirement fund, IBM's retirement fund and that kind of thing. And then some privates, but very, very few private individuals these days are investors in these funds. Today also a typical fund is four or five hundred million dollars and you invest that, like I said, in 35-40 companies. That's the general scheme of how it works. And the reward is you get a small fee for managing those funds, but how it works is either 20 or 30% of the gains go to the general partners, or to the firm, and that's why it's either very, very good, or not very good, because if you don't make any money, if the fund doesn't go down then you've basically wasted your time.

So, moving on to how it works then, the key question of course is: How do you get knowledge or access to good ideas of people who want to form companies? And that's called "deal flow" in the industry. Now here it's important to go back to what I was talking about on risk. We categorize risk in three categories. We talk about tech risk, market risk, or sales risk. Those are the three kinds of things we look at. Tech risk is somebody walks into your office and they have a cure to cancer. Well, if you think about that, you don't need a marketing team, you don't need a sales team, you don't need a finance team, you need to know – do they have the cure to cancer? That's the only question that needs to be asked, so all the money has to go into finding out – do they have

the cure to cancer? And frankly we've done a number of cancer treatment deals over the year in the biotechnology area.

Market risk is – there's no market for this thing. Frankly, building a personal computer wasn't a hard thing to do. The question was, is there a market for these things? When I was first at Apple one of the key applications that people talked about was as a recipe collector for ladies or gentlemen in their kitchen using a computer for the recipes. I don't think anybody does that yet! But that was one of the things we thought about because we didn't know what people were going to use computers for but people were finding applications for them all along. But there was no market, you didn't have market data. When Jeff Bezos walked in our office to start Amazon.com, he believed that people would buy books over the internet. Now nobody had ever done books over the internet but he thought it would work. And I remember what we did that night. We all went home and bought books after the presentation. And personally, my family and I, we were going to go to the Galapagos that summer, and I'd been out and I'd bought a book or two on the Galapagos, and every store I went to, you maybe found a book on the Galapagos, maybe you didn't. You certainly didn't see more than two books. I went up on Amazon and I had choices. There were 12 different books on the Galapagos, and it was a pretty good deal. I got a choice! Maybe this will work...and so we invested and Amazon became a very successful company out of that. But there was no market data. You couldn't do an analysis.

Sales risk is something where you know there's a market, you know the product is there, and you might consider sales risk being like starting a restaurant. You can get all kinds of demographic data – how many people in this community go out to eat at night and is this a good location, all that kind of stuff; you've got lots of data. In the venture industry, probably 80% of all investments are tech risks. Another 20% are market risk, and we don't do sales risk. So generally speaking, in the venture capital industry you don't have data, you've got to guess. You've got to use your gut and be comfortable with that. And that is a fundamental part of how the industry works. And you've got to face the fact that you're going to make mistakes. There's nothing wrong with making mistakes as long as you learn from them, and you don't make them again. And some entrepreneurs are going to make a mistake and yet their next venture is going to be very successful. There's many examples of that of people who actually plowed into the wall – Splat! That one didn't work! Plan B, please. And they start something else.

Now if you take a look also at the venture capital industry, the big successes have generally created whole new industries. Certainly the personal computer was an example of that, the software industry was an example of that. Many people don't know that before about 1975, software wasn't even sold as a separate thing. It was assumed to be part of the hardware that you bought. I mean, IBM didn't charge for their software in those days, they kind of sold it with the computer. You paid a fee, an upgrade fee. I remember being at a conference in 1978 at a place called White Sulphur Springs, West Virginia that was an investing conference, and a guy named John Cullinane was taking his company public, a thing called Cullinet that they were in the database management systems business. And I knew a lot of the securities analysts were in the audience, but

John happened to speak before me and I knew him because we'd met when I lived up in the Boston area. And after the session I was really pleased because the analysts flocked around me. I thought they really wanted to talk about what I had just talked about. Turns out they wanted to talk about John because they didn't know him. They said, "What is this business? Look at the balance sheet. There's nothing here!" Because you take a software company, they don't have any assets, you don't write up the value of your software, and general business measurement schemes didn't work for the software businesses. It was a cash flow business and didn't work very well at all, so it was a brand new industry and of course the personal computer industry made a very, very large industry with the Lotus and the Microsofts and all those companies.

The internet was another example where when the guys from actually downstate here in Illinois came to us and formed Netscape, you know, browsers...the internet had been around since 1968! It's 1992-93, you know, and so what's this? This new way of getting at the internet, and of course they invented a browser and that became a very big business. And of course in biotechnology the great number of leaps forward that happened in that particular area. Brand new industries were formed. Lots of companies then followed those industries as they started.

But the other fascinating thing is that essentially every major industry that the venture capital business has formed was started by people in their twenties, essentially all of them. We were in our twenties when we started the semiconductor industry in the 1960s. The personal computers – Steve Jobs was 19 years old when he started Apple. In the biotech industry Bob Swanson was twenty-something, I think he was 27 when they started Genentech. You can just give example after example after example. And generally they had new ideas coming from a university environment. They wanted to take that idea into reality, they got backing, and that's how their company was formed.

And people say, "Well, that's a new phenomenon". I think it's interesting that Thomas Edison was 22 when he got his first patent and basically did every major piece of work that he did from an invention point of view before he was 35. So the other thing you have to be comfortable with in the venture industry is investing in people like you that are very young, that have no experience, and the neat thing is that young people don't tend to know what can't be done. And it's a great attribute that you have right now in your life. You can dream big dreams and they just might happen and you don't necessarily have to believe that it impossible for this to happen. And that's what I've lived with now for many, many years in my career. Yeah, it can be a little risky, but what difference does it make if it doesn't work when you're 23 years old? You do something else when you're 24! It's not a big deal. And it's really an important mentality, and looking for a lot of security in a job when you're twenty, twenty-two, twenty-three years old may not be the right thing to do. Take a risk. Take a flyer at something that you have a passion about, and that's kind of the way I look at it and it's been good. It's been very, very successful.

The other interesting thing about it is in the innovation business it turns out that if you really study it most of the innovationists come out of small companies. In the semiconductor industry it wasn't the established companies building vacuum tubes and

those kinds of things that succeeded in the semiconductor business. It's a whole new category of companies. Big companies didn't create a lot of the innovations in computing. The pharmaceutical companies didn't start biotech. It was the young companies, the new companies. Communications – ATT didn't do the exciting new things in communications. And for lots of reasons, all of which I couldn't explain to you, a lot of innovation doesn't tend to come from large companies because they have practices that require data to make decisions, and as I said earlier, in innovation frequently you don't have any data. You have a gut idea that something's going to work. But there are very few examples where a lot of innovations come out of big companies. There are exceptions to that. Bill Hewlett at Hewlett & Packard, he came forward with the idea of a hand-held calculator, and it worked very, very well. And the reason was he wanted one! And he thought it would be a handy thing to have, and of course that became a very big business for them.

And by the way, the same thing is going to happen in energy. People think that Exxon Mobil is going to solve the energy crisis. I don't think so. There's no other example where a larger organization has solved a major shift in an industry's capabilities, so I'm going to bet on the guys and the gals that have the new idea, that have this little tiny thing over here and if they get some funding they can maybe pull it off. And I think part of it has to do with vision. I like to say that in every company one of the most important functions is the person, and, for example at Apple – Steve Jobs was definitely this, always was, even before he was CEO. He was the key part of the vision. He was, and is, a nut for precision and for being very accurate. I'll tell you one story.

Before we introduced the Macintosh it was like 2 or 3 weeks before we introduced the Macintosh, at that time I was running everything on the outside, so I had distribution, sales, marketing, customer support and all those functions. The guy calls me from the distribution center and says, "Floyd, Steve's just been here". And I could tell that wasn't a good piece of news from his point of view. And I said, "So what happened, Roy?" and he says, "He's rejected all the packing boxes." This is the piece of cardboard that the computers were going into. They weren't the right white. And I said, "Okay, so how do we get the right white?" I mean there wasn't a discussion about whether it should have been the right white or the wrong white...it was the wrong white! And you say, "Why did that matter?" I mean white is white...it's only the box, its going to get thrown away when the computer ships out the door. What's the big deal here? Steve understood that in the store, particularly in those days, our package sat there next to that brown corrugated cardboard package and it just looked better. It had the nice red Apple logo and it had to be the right white. And you say that doesn't matter – it does matter. Having that vision for what you want a product to be, and young people are much better at that than people who are more financially minded. It cost us a lot of money to get the right white, but we got the right white and obviously the Mac's been a very successful product.

So moving back to the venture capital field then, what do we do for a living? Probably the most important thing in the work of a venture capitalist is to have the attitude with that young team of "How can I help?" Because they don't have any experience, by and large, and they want to work with somebody but they like fresh ideas or they like to at

least bounce their ideas off somebody and that's one of the key roles we have, but it works in a number of ways.

First of all, building the team. As I mentioned earlier, most start-up ventures don't need everybody on the team to start with. Many of them just start up as engineering projects, because you've got to reduce the risk, you've got to say, "Do I really have a chip that's 10 times faster than the competition? Do I really have a drug that works and does X, Y, Z? Do I really have the cure to cancer?" And in building the team, one of the questions we always ask of the person whose going to be the initial leader of the team, "Is it more important for you to be CEO of this company, or for the company to succeed? Which is the most important thing for you?" Because sometimes the leader of an engineering team isn't necessarily qualified to be the CEO of the company. Now many times they are. In fact we've had very, very good success with developing engineering talent into managerial talent over the years. That's an important thing. Building the team. How do you get the best possible folks in the different slots that you need for finance, manufacturing, marketing etc. etc.

Bring the risk up front. Sitting down and saying "What really is the risk in this transaction?" I was talking to somebody the other day who has this idea for a notebook, a tablet kind of entry thing that is kind of a takeoff on PDAs but it's a larger format for a tablet so you wouldn't have to sit here writing on pieces of paper, you'd write on a tablet and you'd actually know what you had later. And if you think about it, it's the actually input device, the other stuff is pretty straightforward. That's the risk in that. How do you get a vendor base to provide the right input screen that you need. But whatever it is, every venture has risk. What is it – get very, very set on it and only invest in that. Invest in nothing else but the risk before the deal. And it's usually technology risk because we mostly do technology deals and the industry does that.

Constantly assessing the status of the project. If you have an idea and it's going to take you a year and a half to bring that idea to fruition, or a year to bring that idea to fruition which is a typical time, into a product, your competition generally isn't sitting on their hands. They're doing stuff also, and they're trying to move the industry forward, so is your idea still a leadership idea? Because if you go to market and you have your product and it's identical to some large company's product, the chance of you prevailing in the market place is not good. In fact, it's bad. You're liable to get killed, so you're constantly assessing that and usually do that from a board membership position. Boards in venture start-ups usually meet every month, they're not quarterly readings because every month there's a crisis, and you have to address it. And I'm in contact with my CEOs usually at least every week. How are things going? What about this? Did this actually happen? etc. etc.

Staying on top of things because things are constantly changing, particularly in the tech field. You know most tech companies do over half their business with products they introduced within the last three years, and that's a general rule. On some of them it's even shorter period of time, so it's not like something that's more of a commodity nature of a product. The big thing that the venture capitalist frequently does is establish

relationships with customers. Just because I've been around for a few years, I know a few people. And so you introduce yourself to that large first customer, that first client. Almost every successful start-up can name a customer that was the key. There was a company up in Boston that was the key to Sun Microsystems. We were very involved also in the start up of Sun, and they made that one deal and that deal propelled the company. A company I'm on the board of that is very successful supplier of things to the cable and satellite communications industry, it was a Canadian company called Rogers that gave them their break, and big deal.

You need that one big deal. Another company I'm involved in, Alcatel has just made things wonderful for us. So you do that and then you worry about keeping it financed. Usually a venture company is never financed for more than a year in advance. So you're always running out of money. I have a company right now that's in the marketplace to raise money and you can imagine how much fun that is right now. As a matter of fact we're in deep sauce, but we'll figure it out somehow or another. But it's a difficult time for raising money. But that's what you do.

How does all this apply to Silicon Valley? First of all, where do you get the name "Silicon"? Well most of you with an electronics background may know that if you take the table in the chemistry lab about the elements, on the one side are the conductors and on the other side are the insulators, and right down the middle are the semiconductors. That's where semiconductors come from. And in that column of course there's carbon. Diamond is a semiconductor, a very expensive semiconductor, but nevertheless a semiconductor. Silicon is a semiconductor, germanium is a semiconductor. It all started with germanium because it was easy to work with in the early days, but soon it became silicon. And so silicon is the key to the semiconductor business so in what is called Silicon Valley it turns out they never worked with germanium. Everybody else was working with germanium and silicon in those days. Silicon Valley only worked with silicon thus it got the name Silicon Valley.

And in the Valley, the inventor of the transistor, Shockley, had moved to Stanford University in the early 1950s and he had done the invention at ATT but he moved to Stanford University as a professor and he brought a team of guys to start a thing called the Shockley Semiconductor. Well it turns out his team didn't enjoy working for him, shall we say, and so they all left and formed a company called Fairchild, and that was really kind of the beginning of Silicon Valley.

Now other companies had been there. Hewlett Packard was there, and Hewlett Packard was a very important part of the Valley but not with the start of the Valley really. And Lockheed Missiles was there, but Fairchild was really the way it all started. That's 1957, because we've just celebrated the fiftieth anniversary of Fairchild. And angel investors and small corporate investors actually backed that, but that led to professional VCs like I said earlier, in the early 1970s.

Silicon Valley, when I was a kid, I was born and raised in San Francisco but we used to go down the peninsula to a place called Mt. Herman for vacation. It was a Christian

conference center. My dad was a carpenter and he only had one week off a year, but that was our family vacation. But in Silicon Valley in those days, you drove through apricot orchards. It was mostly a truck farming kind of area.

So it didn't have a lot of lawyers, it had a few. It didn't have a lot of bankers or investment bankers or any of that kind of stuff, so the people who were assigned to the offices down in San Jose were very young people, just starting their career, and they're willing to back anybody. You know they were looking for business. So they were very, very young as well. The legal and financial support was young. And the timing was perfect. ERISA was there, the inventor of the transistor was there. Silicon started to happen. Silicon got more and more complex with time and therefore it became valuable to have the computer companies be where the silicon was being developed, and that's how Apple started in the 1970s and how Tandem started in the 1960s, and the different companies, and today Silicon Valley is about 7,000 high-tech firms in a radius of about 30-40 miles. Probably the biggest concentration of high-tech companies anywhere on the planet. But it was because of that beginning.

And people ask me frequently, "Well, how do you build another Silicon Valley? What do we do? We're from northern Indiana or southern Illinois or northern Illinois... What do we do?" It's a hard question, but I say you know you've done it when you have one key success. If you look at every other area of the country that has successful technology region, you can point to one key success. We were fortunate enough to have been the backers of AOL for example. When AOL succeeded in northern Virginia, a whole bunch of companies came in. Some of them were spin outs of AOL, but others came because there was a region started. When Microsoft succeeded in the Seattle area it became the hotbed for software development companies and there were like three or four hundred a decade or two after the formation of Microsoft. When Compaq succeeded in southern Texas, it became a region. When the biotech companies succeeded in San Diego it became a hotbed. San Diego's the hotbed for biotech companies today because of that one key success. So success is a wonderful thing, it's a great magnet, and brings other things in. So that's how you know you're there.

How do you get that one key success? Well you've got to work at it and pray that it all works out. But I think to just wrap up this part – Frankly, I think the whole attitude of the Valley was that no one really seemed to know what couldn't be done. And it was very, very successful for us, and it builds a whole regional success in a lot of industries. I remember when we started National Semiconductor it actually was a failed company located in Connecticut and we went in as the new management team to resurrect the company, and it was a kind of interesting story. It was in bankruptcy, and again this was early 1967, and the reason it was in bankruptcy was that a judge had found against them because the group had left a company called Sperry Semiconductor and the founder, when he was on the stand in the court, was asked the question about the company and he admitted to having gone up to his boss and, shall we say, made pejorative remarks about the company he'd left. Well it turns out in Connecticut law, it's against the law to leave with a vengeance. And he basically left with a vengeance, and that's illegal in Connecticut. So it was a broken company and we re-started it in California. And the first

year we did \$5 million, then 11, then 33, then 99, then 213 and I can't remember what the numbers were beyond that, but early on – I think it was the year we did \$30 million, we were redoing our lobby and there were five of us that started the company and I was kind of the kid of the group, but I was in charge of product of planning. I was looking through the lobby and happened to be staying with the CEO who was the leader of our team and he said, "What do you think of the lobby?" And I said, "Well, it looks pretty good. I mean I think we could probably use this lobby until we were about a billion dollar company". Now we were a \$30 million company, and he looks at me and says you know what Floyd, you believe that, don't you?" Well frankly, I didn't even think about it. It just seemed like that was a good a number as anything. We were already at \$30 million, why not dream of a billion? Big part of success in the venture field, because you don't have a lot of knowns, you have an idea, you want to push the idea to completion. You just don't accept that something can't happen. It's amazing what does happen. Have you ever noticed in athletics that once a key milestone is broken, the four minute mile or some other milestone, the 10 second 100 meters, then a lot of people do it? What's happened? They've found out that something is possible. The key to success is doing it before everybody thinks it's possible, and it's a lot of fun. So that's how the venture capital works, our industry works.