Oral history of Richard Kramlich

Interviewed by:
David C. Brock
Douglas Fairbairn

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Brock: July 20th, 2017 at the Computer History Museum. David Brock and Doug Fairbairn.

Fairbairn: Yep, and Douglas Fairbairn, right, with Dick Kramlich, of course.

Brock: I wanted to actually go back in time to start this session, and talk to you-- we've talked a lot about financing of technology. I wanted to talk a little bit if we could about technologies used in finance.

Kramlich: Good idea.

Brock: That is, kind of the tools used by you and your peers and colleagues in venture investing, in financing new or existing firms. So thinking of your first real decade of investing work, the '70s, let's say, I wondered if you could describe to us what sort of tools and technologies did you use yourself, your office, you know, in the venture investing field to do your work? In terms of communication, research, financial calculations, what have you. What was it like?

Kramlich: Pre-internet, pre-- well, let's see. As I recall, it was largely the main means of communication which were TV, radio and newspapers. I'd say that was really-- and telephone. Those were really the main vehicles. Computers were there, of course, but we were using them more for execution than for information.

Brock: And by execution you mean--

Kramlich: Well, you know, the-- in order to achieve the ends technologically that we wanted to achieve. It was a lot of algorithmic work, and things like that.

Brock: In thinking about how to analyze the terms of a deal or come up with the terms of a deal, or project the future values of things, and was that pencil and paper? Was that people using calculators? How did that work?

Kramlich: Oh, of course. It was calculators, right. But we were using-- in terms of terms, that was-- in the '70s, it was just Arthur and myself. And we just were two in an office, with one secretary. And we never got too far away from being a pretty pure term-based V.C., I would say. We had terms that were fair, but not excruciating for anybody.

Brock: So they were simple in a way.

Kramlich: They were simple terms, right. And we actually haven't changed that too much. <laughter> I found that works. We never tried to take advantage of the situation, and we were very fair-minded. And I found most of our colleagues were pretty fair-minded. So it wasn't-- that wasn't where you made your wins and losses.

Brock: We've talked earlier about how important -- what a key that people and their characteristics, their knowledge, their experience, their talents were to the success or failure of the different ventures. And I was wondering if that personal communication and personal connection was perhaps more important earlier for getting information, evaluating technologies, getting opinions on different fields. You know, getting the advice of individuals. Or has that stayed the same?

Kramlich: There were-- it was more concentrated. I mean, there were fewer people. It was after the semiconductor evolution had started. And that led to people who were really very knowledgeable about computational issues. And things like optical electronics, and in the life science area, certain forms of medicine were beginning to revolutionize. So all those-- it led to some breakthroughs. And then to the level that you had access to the scientists who were really responsible for that. It was really, in a way, a more direct approach to validating whatever kind of breakthrough was being proposed in order to start a new company.

Brock: I see. Fewer experts, if you will.

Kramlich: Fewer experts, but deep.

Brock: Yeah.

Kramlich: Be deep. And they were the originators, so they really, you know, when Arthur and I had Bob Noyce and Gordon Moore, and Henry Singleton, and Jay Last and all these people as our L.P.s.

Brock: Oh!

Kramlich: So we brought them into the mix, and that was from '69 to '76.

Brock: Right. And you could go to them for their--

Kramlich: Oh, we did it all the time. Talked to them directly, and some of them had very high barriers to entry, and others were, yeah, had a different slant on it.

Brock: Hm. That's awesome.

Fairbairn: They "had a higher barrier of entry." What are you referring to?

Kramlich: That their standards--

Fairbairn: Their standards.

Kramlich: For breakthroughs were rich-- or--

Fairbairn: High.

Kramlich: -- were high, I would say, yes.

Fairbairn: Hm.

Kramlich: So it's-- and you ask how has that changed? Well, we've had much greater population of people who are-- have gone through educational experiences that have qualified them in certain ways. And also experience in running and developing companies. So it's a much broader spectrum. And levels of expertise that are largely more intermediate. Some people have. But there are fewer people who really have proven their mettle. I mean, look at Mark Zuckerberg, for example. I mean, he defied all the odds. <laughter> I mean, a really great achievement. He's lived up to it. Not many people have. He's great.

Fairbairn: So while we're on this topic of things that have changed and how things have evolved, you mentioned that you started out with very early-- when you started out you started with simple terms, fair-minded kind of approach, and that that has served you well ongoing. What about-- and you said that's the way your other, you know, the other people at the time, the other V.C.s at the time were operating.

Kramlich: They were.

Fairbairn: Has that changed over time?

Kramlich: Yes.

Fairbairn: And can you talk about the evolution of venture capital, especially in terms of the collegiality, or not, of the organizations?

Kramlich: Well, I mean, let's just take Snap as an example. You know, the fellow at Lightspeed who went in there and put in these terms, and the entrepreneur never read the paper. And he really didn't realize that all future financing had to be approved by the investor. And it took the bait away from the entrepreneur and really put it in the hands of the investor, and things like that. And he, as a consequence of that, actually I think then, the entrepreneur overreacted as to his future financing. So all of which led to sort of a unrealistic evolution of their going public at a time when they were only three-years-old. And in order just to get out of the problem that was done by the terms that were put down by the first investor. And he created a real animosity between the company and the investor. You know, there have been exceptions to this, but that didn't happen all that much. Even for somebody like Steve Jobs, who was very explicit about what he expected. But I think that it-- the, you know, if you're willing to work with the terms that were dealt.

Fairbairn: So is there-- especially thinking back over the last ten or fifteen years, are there continue to be firms that you have worked with on a regular basis that you have this very collegial or positive relationship, similar to what you had started out with? And are there firms that you would just prefer not to do business with in terms of their approach?

Brock: You don't have--

<overlapping conversation>

Kramlich: The answer is, for the most part, yes. There are certain other extremes that are not tied to legal documents where these behaviorial approaches can be a very much of a turnoff. But you know, not too many.

Fairbairn: Not too many.

Kramlich: Yeah, and the best ones are definitely not too many.

Fairbairn: Go ahead.

Brock: Thinking about the change of-- well, as institutional investors become a larger and larger factor, in terms of who are the limited partners, it seems that you have fewer and fewer Henry Singletons or Jay Lasts, you know, as a limited partners, and more and more these institutional investors. So you can't turn

to an institutional investor and say, "What do you think about this or that technology? Has that changed how you get advice from these knowledgeable experts? Have you had to--

Kramlich: No, I just don't-- you just don't-- if I were just to try to answer that.

Brock: Yeah.

Kramlich: David, I think that the-- you don't really turn to your investors for advice very often. I mean, what they-- you have to answer to them, ex post facto. But not in the beginning of these things. I mean, they expect you to have your own sources of information, your own sources of evaluation. And that's part of their evaluation of whether they want to become a limited partner or not. And you have to demonstrate that you can think ahead of the curve, and if you have resources that will take you ahead of that, and you have a practice that exemplifies your success or failure in that.

Brock: Right, okay, right. So you wouldn't be asking them in any event, because they're looking at you to have the analytical capability, yeah.

Kramlich: They do. I've always said that our job was seeing around corners. And if you want to see around a corner, you have to stand on the corner. <laughter> You know, it's a real-- that happens to be the way it is. And so it's a responsibility of a well-performing V.C. to be tuned in enough to what's going on technologically, as well as economically and legally, to be able to have a reasoned and long-term point of view at the time you make those decisions.

Brock: One of these instances of seeing around a corner, I think, was early in the Apple Computer story.

Kramlich: Correct.

Brock: You were there. And this was to see-- some people seeing around, I think it was 1979, that the combination of the Apple II and the spreadsheet was going to be a profound development.

Kramlich: It was.

Brock: I wondered if you, you know, how you saw all that unfold?

Kramlich: Well, we saw it at Apple through the rapid escalation of orders. Right? <laughter> I mean, it was an amazingly straightforward situation. And when the spreadsheet came up, that actually opened up

a whole new application bag. And I think that there were others, as well, but it certainly put together multiplier effects.

Fairbairn: Do you remember when you first saw that? Did it have that impact on you when you first saw it.

Kramlich: It did. It did. And I'm not the most scientific guy in the world. But I'm smart enough to-- and I've been, put it, the right place at the right time to be able, and open to new ideas. So that I saw the manifestation of that, Doug, very definitely. I mean, I saw it in its good forms and its bad forms. And I saw some missed opportunities. And it was usually sort of a tragedy when you see that, because it was so obvious that this was a multiplier effect in a big way to take software and tie it with hardware. It was really, that was the beginning of the software revolution, really.

Fairbairn: Hm, hm.

Kramlich: Which turns out to be, you know, a driver now going forward all the way to cloud computing.

Fairbairn: Absolutely.

Kramlich: You know?

Brock: Did you at some point, after seeing this combination of this new financial tool, and the personal computer, did that start to come into-- I guess at this time it was New Enterprise Associates.

Kramlich: We-- well, yes. We were formed in 1978.

Brock: Okay, right around this time.

Kramlich: Right, and the Apple financing had taken place in November of '77.

Brock: Did you start to incorporate personal computers and use of spreadsheets in your own firm at that time?

Kramlich: Yeah, very definitely.

Brock: Okay.

Kramlich: We got involved in-- it wasn't long after that I, of course, ran into Bob Metcalfe and that whole thing that you and I had talked about earlier.

Brock: Right.

Kramlich: But it was obvious to me that that was a symbol of what was going on, because if you were-- if the personal computer was going to add that much productivity to an individual, the idea of a workgroup computer-- group, which included storage, as well as calculations and other things, and communications. If that was all going to be bundled, it was clear to me that that was another multiplier effect. And then that-- so that's when software became very much on the implementation and valuable to the enterprise.

Brock: And did that-- in thinking about the spreadsheet, the name of the first spreadsheet, VisiCalc, was a kind of a contraction of "visible calculator."

Kramlich: That's right.

Brock: And that made me think about something that we had talked about before that's this graphical dimension of computing that was very-- that you saw as being critical, and it's turned out *to be* critical. Did you see that connection with the spreadsheet, seeing it recalculate, seeing--?

Kramlich: Oh, yes, definitely, right. And again, I'm pretty common sense guy. And I could see that very obviously, to me. And that was, of course, we had talked in the past about Forethought, and about PowerPoint. I was just reflecting on that the other day. I was thinking about how, you know, fundamental that was. And here it was, if I get it right, it must have been about 1983 or '4, somewhere in that range, wasn't it?

Brock: Mm hm, when it first started.

Kramlich: Yeah. And I was-- and I think when we announced it in April of, maybe it was '85 or '86.

Brock: '87, I think?

Kramlich: '87, I think, does that-- yeah.

Brock: Yeah.

Kramlich: And that was the year I left the board at 3Com, but that was about that time. And I was thinking that then to now, there hasn't been anything that's actually substituted for that breakthrough.

Brock: No.

Kramlich: I mean, just think of that! I mean, '87 to '97 to '07 to '17. I mean, 30 years!

Brock: It's 30 years this year!

Kramlich: Thirty years and a single product, now in the hands of Microsoft, dominates.

Brock: Well, and if you think about it, it's--

Kramlich: That's amazing! <laughs>

Brock: It's competition, are essentially clones, you know?

Kramlich: That's right.

Brock: Google Slides.

Fairbairn: Keynote from Apple.

Brock: Keynote. And then some free and open source versions, but they are all 100 percent on the pattern of PowerPoint.

Kramlich: Yeah, I know. <laughs> It was amazing!

Brock: So it's astonishing!

Kramlich: It's astonishing, yeah. Yeah. There's a real life lesson in that. <laughter> Once in a while.

Brock: Yeah, yeah.

Kramlich: Exactly right.

Brock: And in some ways, I think the spreadsheet, also, in a way falls into this category, too.

Kramlich: Totally, yep.

Brock: Where it's so ubiquitous that it even seems strange that it has a history. You know, because it's-- what's the history of a hammer? <laughter> It's not something that seems like--

Kramlich: No, it's really true.

Fairbairn: Well, and both of the existed in exactly those forms in paper form, right?

Kramlich: It did.

Fairbairn: I mean, we made foils, and we made spreadsheets. And you know, in exactly that graphical format. And all we did was automate a format that had been used for decades many more decades than that beforehand, right?

Kramlich: Yep. It makes me think of when I was graduating from Harvard Business School, and I ran into one of the deans walking across the campus. I don't think I mentioned this to you. And he said to me, "Dick, I understand that you don't care for this place very much." And I said, "Well, that's not really true. I have a lot of respect for it." And he said, "Well, no, I've heard," you know? And I said, "Well, look, I have two basic problems that I find that you haven't addressed here." And he said, "What are those?" I said, "Number one, you only have one course that deals with entrepreneurs. And that one is difficult to get into. And it's really not about-- it's not billed as an entrepreneurial course. It's called "manufacturing.""

Brock: Right.

Kramlich: And that's-- and that was overloaded with people wanting to take it, because it had a spirit that we need to awaken in this country. "So you really need to think about your entrepreneurial responsibilities here. This is more than the Fortune 50. It's more than the grey flannel suit, and all that kind of thing." And he said, "Okay, that's fair. That's one." And I said, "The other one is that you don't give people the right to, or the ability to use tools that are going to make their life better and more efficient." And he said, "What do

you mean?" I said, "Well, you know, what I have here is a slide rule. And that's a pretty awkward way of getting to the right answer. And you can allow calculators in the classroom, and stuff like that." I said, "You're shortchanging the future." And he said, "Well, yeah, our second-best graduate since World War II has just started a company in Boise, Idaho. If I called him and asked him to fly you out there, would you go?" And I said, "Of course!" So anyway, that was-- and I never-- I didn't happen to take that job. But that was my entry level into the corporate world, which I did for five years, and decided that, "Not for me."

Brock: Right, right.

Kramlich: So anyway, but it was a good experience, by the way. I learned a lot, and I've been able to apply that ever since. I was Manager of financial planning at the Kroger Company, and we were going through a transformative period.

Brock: Computerizing Kroger, as I recall.

Kramlich: Computerizing it, totally.

Brock: And in the finance dimension of Kroger. Is that correct?

Kramlich: Right. Yep, and systematizing our decision-making process. You don't have to be a scientist to know that, but it makes things a lot better if you have a process whereby you cannot do things on an ad-hoc basis. So that was good! So he and I got along well after we got that cleared up. <laughter>

Fairbairn: Got that out of the way. <laughter>

Kramlich: Yeah, right.

Brock: And what point did you, yourself, start using a computer? When did a computer appear on your desk? Or has it appeared on your desk?

Kramlich: Well, right now, my computer's in my pocket. <laughter>

Brock: Was it on your desk for a time?

Kramlich: Macintosh was the first one that I really used. I thought it was my kind of computer, because I'm not a scientist. And I use it for really rudimentary purposes. My approach is different than most other

people's. I basically do everything in my head. And that's a shortcoming for a lot of people. <laughter> Including me! But anyway, I think a lot. I don't do a lot. I think a lot. And I think in dimensions, actually. I'm pretty good at that. As an historian, as you know, that's what I majored in, I really think of how we got to where we are; what are the dimensions; where are we going forward? And the values that have to do with accomplishing-- I've always been in favor of the entrepreneur. And what is going to allow that entrepreneur to change and disrupt common practices for the better, for more productivity? And then spread it across a society of people. That's my modus operandi. And so you're going to find other people who are ten times better at any execution of any sort of science, or development in a sort of a process. They're going to be better at it than I am. But I go largely on instinct, and I change the instincts all the time - calculated risks. And so that's been my M.O. People say, "You don't use what--," I said, "Well, really, I just keep myself informed." I'm a voracious reader. And I still like newspapers.

Brock: Yeah, me, too.

Kramlich: And because I can see where I can start and where I can end. I actually get a whole picture of-- I mean, I think the *Financial Times* is a work of art. I have a whole different process than 99 percent of the V.C.s out here. And I find if I couple myself with people who are complements to that, it really works well.

Brock: Hm, yeah.

Kramlich: And they're in-tune with everything that's current. So I try hard to not put myself in any particular age bracket.

Brock: Right, and it also seems that it's a highly social practice that you have. You know, meeting people, learning from them.

Kramlich: Well, I'm not a glad-hander. You know, I'm not a B.S.er. And I'm really interested in kind of fundamental values and character and challenges and people's courage. I really go on that a lot. And those are the things that, I think, have helped to make me somewhat successful.

Brock: I didn't mean social to mean trite in any way.

Kramlich: I know, but I was just clarifying.

Brock: But people-focused. Yeah, yeah, no, no. I--

Kramlich: I'm not on any social networks. <laughter> That's not my deal.

Brock: Yeah, yeah, I've got it.

Kramlich: I don't have-- I'm not saying it's wrong or anything like that. I think Twitter's great for Donald Trump, I guess. <laughs> But it's not my thing. I don't use Twitter. I don't use anything.

Brock: Yeah, okay.

Kramlich: I'm not on Facebook. Just don't do it. I try to stay subterranean. And keep the information flowing in, and judgements flowing out.

Brock: In thinking-- in taking you back to before these social networks, really, to the first half of the 1980s, when you're getting into Forethought, getting into software, Software Publishing Corporation.

Kramlich: That was a small thing for us.

Brock: Small thing, but it was early--

Kramlich: It was representative, yeah. I liked Fred a lot. Good man. Fred was--

Brock: He seemed to have a good run for a while.

Kramlich: He did have a good run. He was great! You know, a lot of others. The Learning Company. Yeah, like that.

Brock: Right.

Kramlich: Yep.

Brock: Well, the question I had about that time… was this when the real transition from the focus of personal computing being from the hobbyist and the very earliest adopters, into the business world. Is that the main transition that was going on at this time?

Kramlich: I think so.

Brock: Okay.

Kramlich: I think so.

Brock: And what did you--

Kramlich: I'm not a coder.

Brock: Right.

Kramlich: But I really believe in teaching coding at an early age. That's what I really do believe that if you don't do that when you're 15 or something, it's a mistake. You have to understand the technology. It's a totally different thing.

Brock: Right. Totally different era, I suppose.

Kramlich: Yeah, it is. Totally different era. Go ahead, excuse me.

Brock: Oh, no, not at all. I was just wondering what you, as you were-- I don't remember you-- outside of your investment in Apple. Did you invest in other personal computer systems, companies at this time?

Kramlich: We did. We invested early on in a company called-- it was called North--

Brock: NorthStar?

Kramlich: NorthStar! Right. That was actually a great computer. I mean, it was really a great computer. And they got tripped up by their own refusal to keep an open mind. Because they had really developed what IBM then came out with. But they had a running head start on it. They were doing great! And their fiscal year was such that it impeded their ability, were profitable and growing, they could have gone public right then. And we tried to convince them to do it. And they didn't do it. Then IBM came out with the "II," and it killed them.

Brock: Hm.

Kramlich: They went away. They went from being great to being nothing. Too bad.

Brock: Well, that's what I was wondering about that. Did it feel like a seismic shift when IBM got into the personal computing game?

Kramlich: Definitely.

Brock: Okay.

Kramlich: Definitely. They change the ground rules.

Brock: Mm hm.

Kramlich: It was pretty great for IBM. <laughter> Kept them somewhat abreast of things at that point.

Brock: And two of the companies from that period that were experiencing what some people have called hypergrowth. One was Compaq, and one was Lotus, with Lotus 1-2-3, the spreadsheet.

Kramlich: Right.

Brock: I just wondered did you have any kind of perspective on them as competitors to the kind of companies that you were investing in, or any?

Kramlich: No. No. They were both somewhat successful but in different areas. Lotus was I thinking more in some many ways more impactful--

Brock: Okay.

Kramlich: -- because of the software.

Brock: Mm-hm.

Kramlich: And I think Compaq was an execution play. I thought they did a good job.

Brock: That's an interesting distinction - an execution play versus kind of some new thing.

Kramlich: Right. That's the way I would classify it.

Brock: Well, as time went on into the, through the '80s, the '90s to the present--

Kramlich: Right.

Brock: I was just wondering, I was curious to hear your reflection on, in terms of the in practice of venture investing, or financing general, the relationship between computers and software and finance itself. Did you see big changes as computers came into finance, into this whole scene of capital markets?

Kramlich: Mm-hm. Oh, definitely. Oh. Oh yeah, it has transformed it completely. Yeah.

Brock: Could you-- if you have some thoughts on that I'd love to hear them.

Kramlich: Well, it led to a lot of financial practices that were analytical. And I mean I can think of a couple of dozen methodologies. I mean certainly Vanguard changed. Look at what Vanguard did. They sort of systematized and automated the investing process, and that led to analytical practices that led to-- that was part of index funds, of course, and analytical tools. It allowed hedge funds to evolve, all, although, ultimately led to private equity kind of activities.

Brock: Mm-hm.

Kramlich: Yeah, all these things happened and there are some that really… I have a friend of mine who was one of the developers of the index fund-- the first developers of index fund, actually.

Brock: Wow.

Kramlich: And he and I have been friends since early '50s. And he was always in that side of the… He said, "Any time." I said, "I'm not involved in any companies that are doing what you're-- the output of what you're doing. I'm going to stay out of your territory."

Brock: <laughs>

Kramlich: Because we were always on the invention side of things, and the breakthrough side of both life sciences and technology, as opposed to the what I call the systematizing or monetizing side it. And so, and that continues till today. I still see him all the time, and he's getting a couple of awards from university, for having been helpful in breaking through that Booth Computing. Booth rather, it's actually the name of the firm, his Dimensional Fund Advisors. Are you familiar with that?

Brock: No, I'm not.

Kramlich: Look at it someday. You'll see what I mean. What they've done is taken index fund, tweaked it, and they have done a superior job of funds flow. If you look at the funds flow today going into securities--

Brock: Yes.

Kramlich: And you'll see active management is on the decline and passive management is way up, and then passive management with instinctive or educated biases to it, is way up--

Brock: Yes. I've heard of this.

Kramlich: I mean that's what it is, and Dimensional Fund Advisors, which my friend is involved with, was the really the progenitor of all that.

Brock: And that couldn't-- that kind of work couldn't happen without the computer?

Kramlich: Absolutely.

Brock: I was thinking this might be the same thing for these other forms of… If you're talking about how do new companies get access to capital, they're all these other things, like high yield bonds and--

Kramlich: Right.

Brock: -- and all sorts of fancy instruments, I guess. I don't really know what to call them. And I was wondering if these sorts of things, if the computer made those possible.

Kramlich: Oh, of course.

Brock: Okay. Yeah. You think it's true.

Kramlich: Yeah, definitely. I mean you couldn't really classify and analyze stacks of data without an awful lot of help.

Brock: Okay.

Kramlich: These algorithmic analyses and all that, I mean you needed the computer to do all that. So, I know there's no doubt about that.

Brock: Okay.

<laughter>

Fairbairn: What about the impact on the venture investing world itself? Has it brought in new people who want to make it more analytical? Is it-- you have a very basic sort of people-oriented approach to investing in something.

Kramlich: Right.

Fairbairn: Is there a set of firms that are much more analytical in terms of their approach and?

Kramlich: I'd say definitely, Doug.

Fairbairn: Mm-hm.

Kramlich: I'd say that in fact, it's brought a lot more intelligence into our world. And it's something… I respect a lot. As I said, I sort of float in a different stream. But I'm well aware of that, and I recognize it when I see it. And I think it's increased the value of venture investing big-time. I really applaud it. So, I think, whereas I'm not a practitioner of it myself, I recognize its value. But I think it's brought in several generations of improvement in terms of the capability of people coming into the business. Both those who are willing to go through the learning process on the educational level, as well as on a practical level. And people who have started these companies without graduating from school, like Gates and Jobs and Zuckerberg and others.

Fairbairn: All the really big successful.

Kramlich: All the really big successfuls.

<laughter>

Kramlich: Because they don't get trapped in it, you see. That's my point. They are well aware of it, but they don't want to get caught up in the routine – it's sort of boring to them – of learning too much about it, because they don't need it. They're really above it. And I think those kind of minds are the things that have improved a lot of things that we're doing. So, I like that. But I think it has changed the nature of venture capital. I think it's a lot more professional in a way than it used to be.

Fairbairn: Can it get-- I mean in some cases does it get carried away? It seems to me that--

Kramlich: Yes. <laughs>

Fairbairn: You could analyze data very carefully--

Kramlich: Right.

Fairbairn: -- but the data in the venture world is very difficult to come by. The inputs are suspect. <laughs>

Kramlich: Well, theoretically if you're going to get a breakthrough you can't analyze it.

Fairbairn: Right.

Kramlich: And so I think that has-- that's why there's room for both.

Fairbairn: Right.

Kramlich: That's why there's room for both. And I think as far as just floating into Green Bay Ventures for second--

Fairbairn: Yeah.

Kramlich: -- my younger partners in this, they are so smart, wickedly smart. And so we work together very well. And they are very much into the details of what we're talking about, which is artificial intelligence and other machinery learning. All the things that are actually important today. So I think that you have to be pretty flexible about how you place your bets.

Brock: I had one last question--

Kramlich: Yeah.

Brock: -- on this connection between kind of computing and finance.

Kramlich: Right. Go ahead.

Brock: Which is, currently now, there seems like a hot area in investing and interest and technology development around financial technologies or FinTech.

Kramlich: Yeah.

Brock: I just wondered if you had any-- if that was an area of interest to you? Are you--

Kramlich: Well, I've been involved in several. I was seed investor in the Financial Engines.

Brock: Okay.

Kramlich: And that was as good a-- That was taking the Sharp Methodology and analyzing the way to invest for 401(k)s.

Brock: Okay.

Kramlich: And marrying the two in a process that's turned out to be quite successful. And I was involved in Xoom.

Brock: Right.

Kramlich: And which is now PayPal.

Brock: Oh.

Kramlich: And so that was a pretty good situation. And we're doing one today, it's called TransferWise, which is taking again, money transfers and doing it, as opposed to banks, essentially really multiplying that effectiveness by thousands. I mean it's incredible. We're operating in 70 basis points as opposed to 300 basis points, a difference in making a go at it. And it's making it a lot more receptive to the user. And so all the-- yeah, financial FinTech is very much on my mind a lot. And when I was director of Silicon Valley Bank for 10 years--

Brock: Oh that's right.

Kramlich: Yeah. I mean I was sponsor of a lot of activities there. And I had a great run, and they sort of discarded my age factor in keeping me on the board 10 years after I should not have been on the board.

<laughter>

Kramlich: But I had such a great relationship with those people and they're such-- I admire what they've done so much, and had a good quid pro quo, and a way of doing things together. I think it helped the bank. And if you ask Greg Becker, I think he'll tell you that. But we had a very productive period of time together. It's great.

Fairbairn: What was the name of the company that involved and transfer? Transfer?

Kramlich: It's called TransferWise.

Fairbairn: TransferWise.

Kramlich: That's just a new one.

Brock: Yeah. Well, there's a lot to improve in that area. <laughs>

Kramlich: This is a major one. I mean I, with Xoom it did a lot of good things. But one thing I hated about it was I had to get fingerprinted every time we had a board meeting just about. Or we had to get approval from all the states.

Brock: Oh.

Kramlich: And I mean it's a bureaucratic nightmare. But it's-- we complied with it all because you have to comply in order to do your thing.

Brock: Yeah.

Kramlich: So I'm a great believer in compliance.

<laughter>

Brock: Certain kinds, maybe. Yeah.

Kramlich: Whether I hate it or not. I'm just not a routine kind of guy.

Brock: Well, I think then if it's--

Kramlich: If I could just add one thing, since we last talked, of course, I sort of think that we had a new milestone at NEA, which was raised our 16th fund, which was $3.3B. It takes the total committed capital to just under $20B now.

Brock: Wow.

Kramlich: And now on to the third generation of management, with Scott Sandell being the managing partner. And I'm very excited about the way that firm has evolved. And about a year ago the dean of external affairs at Harvard Business School, Bill Sahlman, he had dinner with us at our house, and he said to me, "Dick, I want you to know something." I said, "What's that?" He said, "NEA, in our judgment, is the only firm that's actually scaled." And I said, "You know, I never thought of it that way, but your saying it makes me understand it, and realize it, and I thank you for that."

Brock: So that is again, another record-setting size of the fund, is it not?

Kramlich: That's right. Oh it is. It's now the officially… I don't think there's a larger one.

Brock: Right. Yeah.

Kramlich: So. I mean we actually did it without much fanfare. In fact, we weren't even going to release the-- we weren't going to put it on the wire or anything, not even released it to Wall Street Journal, but somebody got-- they released it for us.

Brock: Yeah. <laughs>

Kramlich: But I mean that's why we like to keep these things… That's evolutionary within the firm with quality people who are oriented toward the benefit of the limited partners. And I've mentioned in the past that's what we really care about. We want to treat the LPs the way we would want to be treated if we were an LP.

Brock: And which, through the management company, I think you are, correct?

Kramlich: Right. Right.

Brock: Yeah.

Kramlich: We're thinking of the longevity, the fact that you just don't come-- we've never lost anybody that we felt couldn't do better someplace else.

Brock: Mm-hm. Mm-hm.

Kramlich: And that's a-- that's the way it is. We want the-- everybody to have-- and then we have the semi-permanent pool capital, and it allows us not to lurch from partnership to partnership. So, I think it's changed in a subtle way the way things are done. And I appreciate Benchmark's approach as well, because they're really doing the same thing we did.

Fairbairn: I was about to say, how much has NEA's strategy influenced other firms?

Kramlich: Not much. Because it's not very broadcast and nobody really understands it. And that's fine with me.

<laughter>

Kramlich: I don't think so.

Fairbairn: But Benchmark has adopted--

Kramlich: They did it out of common sense, and on their own approach - value oriented. And the thing that they have done is keep their funds pretty small. Whereas, I think what we've been able to do is to use the same ideology, but deal with it on a larger basis. So, it's just two different ways of looking at. And they are good people. Very good people. Outstanding, I'd say. I really applaud that. So that's-- I just wanted you to know. <overlapping>

Brock: Congratulations!

Kramlich: So now I've been graduated to a chairman emeritus, yeah <laughs>. And in organizing Green Bay Ventures, NEA was our first limited partner. So that's pretty good.

Brock: It's a great vote of approval.

Fairbain: Yeah.

Kramlich: And I love working with them and I have never done anything that hasn't been in their best interest. And that's pretty great to be able to say…

Brock: Yeah. Well, and in thinking about your comment about scale--

Kramlich: Right.

Brock: -- it seems, well, it seems that some of the practices that NEA put in place to be a long-lived organization--

Kramlich: Right.

Brock: -- are in a way, the same practices and structures that allowed it to scale.

Kramlich: That's right. Goal alignment is a big deal; goal-alignment within the firm, and goal-alignment with our limited partners, and with the companies. Have you ever interviewed Scott Sandell?

Fairbairn: No.

Kramlich: When you do, and I hope you do some time after--

Fairbain: Yeah, he's definitely on our list. He's been great, strong supporter.

Kramlich: Yeah. You'll find he is the most thoughtful guy you'll ever interview. I can almost guarantee that.

Brock: Yeah, that's a great recommendation <laughs>.

Kramlich: Yeah.

Brock: Well, I'd like to switch gears slightly if I could, and ask you some maybe unfair questions because they're such big picture. But I'd love to, if you have thoughts about it, I'd love to hear the--

Kramlich: Sure. Yeah.

Brock: -- your thoughts on some big picture about Silicon Valley, really.

Kramlich: Yeah.

Brock: And it's been such a part of your life.

Kramlich: Right.

Brock: I would be very interested to hear what you think are the most important characteristics of Silicon Valley in terms of its-- or just as the center of the action.

Kramlich: Yeah.

Brock: So if you could share your thoughts on that.

Kramlich: When we started NEA, we were the first firm that actually started with offices on both coasts. And I'd been here for-- I came out in '69, and Arthur and I were together from '69 to '76, and then I stayed here for a year and studied the PC world and things like that. And then we started NEA really January 1

of 1978. We concluded the first fund on June 6th of 1978. And the reason that we did that was I felt that, and I still hold this today, that it's absolutely a necessity to be in Silicon Valley.

But it's also great to be at least in one other place, so you don't have a myopic view of the technology world, which tends to be undercutting, in my judgment, to a broad scale understanding of things. So that philosophy holds today. Whether or not it means having a dozen different offices in places, I find that gets a little confusing. And I don't think you need more than a couple of different worldviews in order to have enough information to make judgments.

So, I think about Silicon Valley, I think it's where everyone else in the world wants to be. And it's really become very obvious that even the leading industrialists around the world don't feel they can really make a judgment on technology unless they have some information source in Silicon Valley that rounds out their point of view. It's that important. And I mean it's a differentiator in the world. When I was with Silicon Valley Bank, and Silicon Valley Bank was applying for a license in China… Chinese are very brand conscious, among other things. We were treated like we were descended from heaven <laughs>. I mean it was really the truth. I mean the red-carpet treatment. And JP Morgan wasn't as good as the Silicon Valley Bank. I mean it was really incredible. And so that's the aura. And then wind up, by the way, of getting the first joint, 50/50 joint venture bank agreement since 1994. I mean that was the end result. They got all license agreements and everything that we needed. How that's going to play itself out over time, who knows? But we did start out with a huge deposit base.

<laughter>

Kramlich: That's a pretty good way to start for a bank.

Brock: Yeah.

Kramlich: In any event, I think that Silicon Valley gets a little full of itself every once in a while, and believes its own PR, and tends to make people self-important; and I think that's a danger. And it also has led to some bad practices, and we see it revealed every day really. And this whole sexism thing that's come about, I mean it's not a surprise. I mean it's simple as ABC, C is going to follow A and B, and it's just the end result of exploiting an advantage. And so I think it's really important that we have, tend to have, people who are-- these kinds of activities are revealed. And I think any kind of a reasonable outcome it's going to create-- by having this kind of advantage that Silicon Valley has, it creates jealousies around in other places. And I think academically it's important that we don't get over confident. I think we have to be confident in what we know, but also open to invention elsewhere. And I think a lot of people have taught us that over the last dozen years or more.

And so, I think the rest of the world is catching up with us, and I think that's a good thing, not a bad thing. I don't think it'll diminish Silicon Valley's importance in terms of entrepreneurial achievement, because there's no infrastructure that's anywhere close to what we have here with the academic infrastructure. The well-trained entrepreneur going through a start-up and learning the ropes, having been a product manager somewhere, which is the best possible trial and error position to be in before starting a company. That's the best thing to be, product manager, and make a difference in whatever environment you're in. I think… my original thought about this is it's important to be here but other places as well, not too many to be confusing, is a pretty good barometer.

You know, look at Greylock. Greylock's a great firm. When I was in Boston, I did a couple of projects with Greylock, and their whole point of view is Boston oriented. You don't hear much about Boston with Greylock anymore. They shifted everything and I give a couple of people there a lot of credit to be able to transform a firm, boom, there to here keep high quality in both places. That's a pretty great thing to be able to do. And so others haven't done that as well as they have. I think that it's-- and I think the age, you know, we're sort of an ageless society for the most part--

Brock: Yeah.

Kramlich: -- and I don't have a problem with that <laughs>. I think it's up to the individual to stay current and stay in shape and stay current. And if you can play the game, I mean I look at professional basketball; look at tennis, look at Federer, 35. John McEnroe says he stopped at 25, and so it goes with the individual. You have to take the burden on yourself to stay current in whatever field you're in. And that's the challenge that Silicon Valley faces, getting too self-satisfied, thinking the world begins and ends here kind of like Rome. Doesn't happen that way.

And if you going to be really successful, you have to spread the religion that you're practicing to other places, so that you get people. I think right now, to what I see going on, and one thing I'm really excited about is because I think the Industrial Internet has affected the two coasts without affecting Middle America too much. I think Rust Belt America has gotten about a 10 to 20 percent improvement in productivity but not much more than that. And I think what we're doing right now in taking artificial intelligence and machine learning particularly, and robotics, those fields, and actually implementing them in the manufacturing centers of the United States is going to be a big improvement in productivity for this country. And so, I think we're entering a whole new era that has from a standpoint of financial and economic benefit, just scrape the surface.

So, I'm really excited about the next era that we're going into, and that's I think, that's pretty great. So, I think we're going to go into a new era that's going to spread the-- right now, what we've done is enable. When you really think about the biggest' strokes right now, what we've really done is enable the consumer to access products. And you look at why is retailing suffering. It's suffering because pricing power has gone from the manufacturer to the consumer, and it's transformative. We have 10 percent now of all retail

sales on the-- are online, it's fantastic. And so, this is only-- and now we have other challenges-- that actually 80 percent, 90 percent of America's population is within eight miles of a Wal-Mart. And what that really does-- and now you have an all-time war going on between Wal-Mart and Amazon.

Brock: Yup.

Kramlich: And maybe Amazon is going to the brick and mortar business and Wal-Mart's going the opposite way. We had this company called Jet.com--

Brock: Oh.

Kramlich: -- that got acquired by Wal-Mart for $3B. And the guy who ran that, Lore, Marc Lore, is now trying to basically-- he was at-- his prior company -- we got [it] acquired by Amazon so he--

<laughter>

-- he knew Amazon from the inside out.

Brock: So why do--

Kramlich: It's a-- this is how bizarre this all is. But he was in the East Coast, he moved to Seattle and then he's now-- it's amazing situation. So now he's living in Bentonville.

<laughter>

Brock: Middle America.

Kramlich: Isn't that amazing set of circumstances? But it's reflective of what we're doing. So we're just going to see a major world war between Amazon and Wal-Mart, and Wal-Mart is not going to give up. I mean is there a population base similar to ama-- no. Can they transform? A little bit, maybe more than a little bit, but having 90 percent of the country's population within eight miles… That's pretty amazing.

Brock: Pretty good head start. <laughs>

Kramlich: Pretty good head start. That means they can have-- they don't have to develop their own delivery system and the-- and Amazon's big challenge is going to be can they really make that delivery system economical and efficient. So, everybody has their challenges and they've convinced Wall Street that it doesn't need earnings. It's a whole different ballgame.

Brock: Which I guess is another magnificent start <laughs>.

Kramlich: So this is all part of what I like to follow. And in the process, what I think is that it's created opportunities that are going to be to a different part of our population and our economic…..and our corporate area that hasn't been really dealt with before. And it's all using artificial intelligence for both maintenance, I mean anticipated maintenance. I mean all these activities are so great.

Brock: Well I--

Kramlich: I'm really-- I'm tuned into what's going forward as much as I like to reflect on the past it's a prelude.

<laughs>

Brock: I have been interested in this whole discussion that you were just talking about, Industrial Internet.

Kramlich: Yeah.

Brock: Some people are calling it Fourth Industrial Revolution.

Kramlich: Right, it's true.

Brock: And I like Industrial Internet better as a phrase, actually, because I think it's… If you think back to what you saw at 3Com… <laughs>--

Kramlich: Right,

Brock: …with Metcalfe's law and the network effects--

Kramlich: Right.

Brock: -- and this seems to me, in a way, a continuing unfolding of the impact of the network.

Kramlich: That's right. That's what it is.

Brock: And if it gets into… now the parts of the car are connected to the network… What does that mean for manufacturing and all of these…

Kramlich: It's a lot of opportunity is what it is. It's going to transform our day to day life like the traffic jams that we have today. I mean that's either going to explode or it's going to improve. One of the two. And I'm a great believer that it will do both. It will explode and improve. And it becomes a necessity. I mean I look at gas stations as free turf. I think it's going to change real estate values, I think. There a lot of byproducts…

Man 2: I'm sorry, what is going to change real estate values?

Kramlich: The autonomous driving and electric cars. We went to the Salzburg festival a year ago. Our next-door neighbors down in Florida named Swarovski. They're from Austria. They're great people. And they've asked us to go to the Salzburg festival several times. So, last year we went. and it's great in its own right. but the people who own the Porsche live in Salzburg. And so Helmut Swarovski said, "Dick do you want to go to the Porsche personal family museum?" I said, I'd love to go there. So we go there and their family is-- they're very industrially oriented. I mean they own Volkswagen. They own all of these companies. And so, we were going around the factory. And I noticed that there was in the corner there's this fabulous Model A car. And I said, where did that come from? He said, "That was delivered to us in 1905 by Thomas Alva Edison." I said, what is it exactly? He said, "It's an all-electric car." I said no kidding. Right next to it was a car that was built in 1910 by Porsche. A silver car but it looked like a bullet. It went 100 miles an hour - all electric. All electric. The electricity was in the wheels. And I said to the guide who was taking us though, and their family was there… I said, why is that you didn't prosecute this further? And he said, "Petrol was so cheap."

And I think if I were putting myself back in history in that time and I think I just discovered oil in Pennsylvania, I might have a different point of view about how I priced that product. And when I saw that electricity was the obvious answer, but that it needed a lot of invention along the way. And Tesla was really there, and he and Edison had a real shoot out. And J.P. Morgan was on Edison's side but he was critical of Edison because he took so long to deliver products and that was one of those things. That I said to myself, "we essentially mortgaged 100 years of pollution for a decision that was based on cheap petrol". When you really analyze that, it's momentous. And maybe we would have done something different, if we had understood the consequences of what we were doing. That's just something to think about.

Brock: Well, that, if you don't mind, that leads directly into a question that I had, to think about your perspective on climate change, and where Silicon Valley can fit into the story that remains to be written about what happens with that.

Kramlich: Well, I definitely believe that climate change is reality. I think that it's not a-- the worst part about it is it happens very gradually. And it's six-tenths of a degree a year something like that. And it's not-- maybe that's even overstating it. But it's not very obvious. But the fact is that is that it is upon us in a major way. And unless we get it solved by 2050 it's going to chew us up by the end of the century. And we're going to have-- about a third of the world will be probably uninhabitable and that's the consequence of it. You start getting over 127 degrees it makes it very hard to live. And we've had some climates in the Middle East this year that have reached 127 degrees. So it really gets serious stuff. I mean as you know I'm a total advocate for fusion energy. And I think that actually is-- it's helped-- I mean the problem is helped by wind power and by solar power. There's no doubt about that.

The problem in both those cases is storage. And it's also cost, because they range from nine to twelve cents a kilowatt hour. So they're really expensive. They're going to come down with scale. But we need a magic outcome here. We really do. We need another miracle. Whether we can actually do that still remains to be seen. I think that the international consortium that's funding the ITER Project in south of France is false… It's not going to work, I think, because it costs too much. There are seven countries that are supporting this. I mean we can't afford it in the United States. If we can't afford it, who can afford it. And I think our Ways and Means committee is going to shut it down. And there are rumors to that effect. Now, they're using essentially an old Russian technology.

And the Russians are part of this, and they know it very well. And they're part of our project, too, by the way. And I brought them in myself. And they put in $50M for RUSATOM and RUSNANO - $25M, for each. And Chubais went on our board, Anatoly Chubais who is a very well-respected man in Russia. And so, I said we had these two things we had to achieve in order to prove the point. We achieved sustainability. We are on the course to achieve our temperature. And by the way, the good thing about what's going on in ITER, even though it's going to cost 30 to $40 billion, and not be obvious until 2030, they're going to achieve their goal by the way.

And when I talk about it imploding, it's because it's economically not sound. But they're going to achieve their goal. They use a form of technology here called magnetic confinement, which is really important and that is sound. That is the core of what you need to do because this all has to do with plasma. And unless you actually are able to control the plasma-- plasma is more flitting than a cloud. And so you really have a hard time controlling it. I think that in this second plant that we just completed, if you ever take a trip down there and see it-- I got MIT to go down and see it, and they all of a sudden became believers.

Fairbairn: Where is the plant?

Kramlich: It's in Irvine, California. If you want me to set it up, I'll be glad to do it. Elon Musk said, "If I weren't doing SpaceX, Dick, I'd be doing what you're doing." I mean, that to me, is about as good a compliment as anybody could ever have. And we got into it, not because of me, it was because of Arno Penzias, who is a Nobel and got it in '76. And he was the one who got us into it, and urged me to get into it. I said, look I did well with chemistry and physics, but I'm sort of a regular guy. And he said, "Dick no, we're going to need you." And I said, I'll do it on two counts. Number one is you give me a tutoring course in plasma physics. And number two, no tests.

<group laughter>

Kramlich: So at any rate, the point is this is going to transform the world. I'm absolutely convinced of it. We now have evolved our management. We had a really smart guy from Caltech, who was really a software guy, who was running it. And he said look, "This is becoming a little too serious. This is a real company now. We have 800 patents." And he said, "It's time we get somebody who really knows what they're doing." So we had on our board Steve Specker, who was the president of GE Nuclear. And then he became the president and then chairman of EPRI, Electronic Power Research Institute. He's a fantastic guy. And he's agreed to be the president for the next several years, the CEO for the next several years. We elevated our chief technical officer, an Austrian, by the way. His name is Binderbauer, Michl Binderbauer. He's now the president and CTO. And we just had joining our board the former secretary of energy for the United States, Ernie Moniz. And he came from MIT and professor at MIT. I mean undoubtedly…

Brock: A top, top person.

Kramlich: …top guy. So what I'm talking about it's not a foreign language. These people they know every bit. I've had to be self-educated about this. but these people really know the nuances of this. And do you know Dick Meserve?

Fairbairn: I don't know that name.

Kramlich: He's really another one who is really-- he's a lawyer who has practiced in this area. And we've engaged the three top utilities in the United States as of three years ago to get engaged with this because this doesn't happen overnight. I think we have to qualify for the advanced nuclear program which will be in 2030. So we have to start making contractual arrangements earlier than that. And so we've had everybody from CEO, CTO to the CFO of all of these companies come down and we're very engaged with them. So we want to be able to start entering into contractual arrangements with the utilities of the United States and abroad. Our headquarter is in Geneva. So we think three quarters of our revenues are going to come in our part of it, which I'll explain in a minute, are going to come from abroad in various places. So this is a serious deal. And I've been lucky enough to be sitting next to Arthur when Intel was

formed. I knew a lot about that, Apple and all of these other companies. I've seen them all. And I think this one is as important as any that I've seen.

And I think it leads to climate change, because it's affordable. It's plentiful. The radical thing here is the choice of materials. And we chose boron, proton boron PB 11. And the light end of the periodic table, not the heavy end. Everything else, up to this point involving nuclear, is all the heavy end of the periodic table. The guy who had the breakthrough on this, his name is Norman Rostoker. He was a physicist from Southern California. He went to CERN and practiced-- he ran it through the testing there to see if you can excite boron enough to create its conversion under temperature and pressure to hydrogen and then to helium and then helium three. And he found he could. So that's been our mission.

And so we're using this Russian technology that was under a German physicist who had joined after World War II. And he had a laboratory in Siberia. We've been under contract with them for the last fifteen years. And we've perfected it and patented it. But it really has to do, as I said, with plasma technology. And so now we are applying that through a series of shots we call them. And you'll find this Thursday, today, we're going to announce the fact that we've been working with Google for the last two years to improve the algorithms that lead to our perfection of the shots that we're making to increase the outcomes. So that will help us with the…

Fairbairn: Using A.I.

Kramlich: Using A.I. Exactly right. So it's really-- and they own a little bit of the company. And they haven't made any comment about it because they didn't want to-- they weren't really quite sure what it was going to wind up being. But I'm really an advocate of this. And I think that we have already had a little more than $600M that's gone into it so far. Compared to $30B, it's a bargain. And our plants are going to be 300 megawatt plants. And our economic model calls for us to get a penny a kilowatt hour. And the end result is the outcome is going to be somewhere-- it's going to have to be scaled, ten plants are going to be where we get scale. But it will be between four and six cents a kilowatt hour. Coal is four cents a kilowatt hour without remediation. So that adds another penny or two on top of it. So we're basically equivalent to coal. And that's the other great pollutant. So we have oil and coal carbon society that we've got to eliminate in order to conquer, in an efficient way, the climate problem. So I'm 100 percent in favor of all of this. And I think that politicians better reckon up with it, because it's on our doorstep.

Fairbairn: But you're right. It's the slow increase is just people don't just don't see it. And when they see it it's too late. Right?

Kramlich: That's exactly the point. Precisely, Doug.

Fairbairn: It's like warming the pot a degree at a time, you don't know you're getting boiled. Right?

Kramlich: That's right. And all of a sudden you burn the bottom.

Fairbairn: Yeah.

Kramlich: And that's the way it is. So, I'm totally dedicated to that. I also think and this is-- I don't have a bias on this particularly. But I think Fukushima, and then following that by the bankruptcy of Westinghouse, and the cost of the power plants that are being built by Southern Company in Georgia, spell the end of the nuclear power. I think we've fooled ourselves on the ability to deal with atomic waste. And I think it's time for us to quit that, and go on to something better, that doesn't involve radioactivity. So, I think these are all really serious big time problems. And we better get on with it. That's my feeling. That's my answer to climate change.

Brock: Thank you. Thank you very much. I'm glad I asked the question.

Kramlich: By the way, one other thing, is we asked McKinsey and Company to do a study of using our beam technology could we actually-- because the plasma creates the beams… are there other uses of this technology? We found there are two. One is in medicine. We found that our beams are useful in being able to kill cancer cells. We just raised $40 million, with a $100 million post, with external investors. We're calling it Tri Alpha Life Sciences. And the idea is that these are so precise in their ability to kill cells that you can go in and beam these cells, kill them, without disturbing cells on either side. And so, at the end of the day, if the dream is realized, at the end of the day, you need no chemotherapy, no radioactive treatment at all. Just kill the cells. So, we have a situation going there. The second thing is we think there also could be great improvement in battery technology using beams. So that's a little earlier on in the science, so we don't have an answer to that. But we have a business model for a company to begin to populate the world of … We have seven different sectors of the world. We want to give exclusive licenses to various sectors, and make it an economically attractive outcome that way.

Fairbairn: What's your reasonable expectations to commercialization - to actually have a plant up in and operating?

Kramlich: Well, I think we're in the middle of doing that right now. We have the business model at a penny a kilowatt hour is part of it. And we have license agreements that are going to do that. And we're working with utilities on license agreements. And we'll be, I think, before the end of 2018 I think we'll have a business model that we can adhere to. And we can get somebody else to buy into. That's what we have to do. And so now we have-- we were a little ahead of schedule on what we're calling it C2W. The prior one was C2U. This is C2W. And we think that now we have a plant that will pass everybody's muster. And so that's what we want to do. It's phenomenal. We're getting into the big leagues now. And with kind of guys like the secretary of energy, and now our chairman is member of the Board of Trustees

at MIT. We have a lot of advocates who have seen enough to make them believe that we have something of worth here.

Fairbairn: That's exciting. Very exciting.

Kramlich: Yeah. So that's all in this advocacy that I have that you don't need to be a specialist, but you have to be open to the best in the world. And then what a venture capitalist ought to do in this situation is have the ability to attract enough capital that is subject to a lot of scrutiny and a lot of skepticism that it can pass muster and do something right. So that's the way I-- that's my job.

Fairbairn: We're going to have to wind up pretty soon, but I wanted to go back to a less perhaps significant but important question about entrepreneurialism and the differences in Silicon Valley. So, you've had the perspective of seeing entrepreneurs around the world, and compared Silicon Valley with other locations and so forth. People talk about well what's the secret sauce in Silicon Valley in terms of well you need universities. You need sources of capital. You need various other things. And some of these are tangible things, you can compare well "we have this" and "they have that" and so forth. How would you compare sort of the cultural mindset, society mindset and the role that that plays in the success of a particular region? Both here in Silicon Valley, and especially as compared to the east coast or Boston, such as we mentioned earlier, and places like China. What are some of the intangible factors which you-- and how significant do you think those are in the success of an area from an entrepreneurial point of view?

Kramlich: I think they're central. I think everybody loves a winner. And I think we need winners. And I think what's happening New York is actually pretty exciting, because I read a review the other day of the fact that New York considers itself a center of innovation these days. I mean what a great thing.

<group laughter>

Kramlich: I'm all for it. And so I think it's great. And I think China is great. I think China is really a force to be reckoned with. And nobody-- Alibaba proved that you can do this anywhere. And I think the other great companies in China like Baidu and Tencent and others. So, I think that China is going to be-- the Chinese there's no more natural entrepreneurial race in the world that's entrepreneurial than the Chinese. I have equated them in the past to the New England Yankees because they are hard working. They love education. There's no time clock and the energy is great. They respect success. And so I think China is going to be a very big entrepreneurial force, for as far as the eye can see.

And I think the United States has broken out of this Silicon Valley envy a little bit. I think the major thing that we have to do in terms of a society here is allow the unicorns to prove their worth. I think that's the big thing. I have a personal point of view about this. And I think we are going to have somebody who is

going to change the way the unicorns dare to go public. And I think that's going to be Dropbox. And I think the economics are going to prove the fact, that if you play the game right, you take time to reckon up to challenges and overcome them and become an economically sound activity, that you can attract capital at a good multiplier. I think that that's going to-- and I think I am wherever the wood is right here because we have a stake in that in Green Bay Ventures. I think Dropbox is going to make a difference. And that's what we need to do.

Fairbairn: In terms of setting the model for going public for these unicorn highly valued private enterprises.

Kramlich: Precisely. Right. Not loss making, but cash flow positive, and profit making and growing with high growth margins and recurring revenue. Have all of the business models right. And you don't need a computer to do all of this, but they don't hurt. But that's what it's going to take. So that's the lesson I think in the near term for us in this part of the world, is we need really good role models that are going to prove to be winners for these unicorns. To differentiate themselves - the winners from the losers. And they'll give you a lot of license. The world, the capital markets will give you license, as long as you're adhering to a business model and achieving your goals, such as Amazon. They've already awarded-- a perfect example of an extreme situation, but I mean look at Apple and everyone is having a different discussion. But I think that we've seen that. But now we have this backup of 175 or 200 unicorns and 50 of those are going to be successful. And let's get on with life and unlock some of this capital that's been tied up for so long. I think that's the big risk. And to me that's the burden of proof that we have right ahead of us - Airbnb, for example, something like that.

Fairbairn: So in terms of Silicon Valley companies versus other east coast-- let's just stick to the United States. How would you characterize the differences between an east coast startup or a west coast startup? Are the successful ones all the same? Do you see different whatever in those? Or there's one formula and wherever you get it?

Kramlich: Well, I would differentiate first of all between life sciences and technology. So on the life science side, I'd say the east coast has a lot going for it, in Boston, in New York ,in the middle Atlantic states, Johns Hopkins, other places and the FDA. They're all there. We are not bad. We have a lot of good things around San Francisco, up in Seattle, down in San Diego and to a lesser extent in L.A. But we're pretty good. Chicago isn't all bad; And then there other points or places that have outcroppings of good things.

But I would say geographically, life science is a quite different timespan than others. In fact, when I look at how much capital you have tied up for a longer period of time, is really FDA controlled. It's really benchmarks. You have to reach each benchmark. As far as technology I would say the east coast is more consumer oriented than the west coast, although Los Angeles, you would have to say is consumer oriented in a big way too. East coast is population driven. And I think there's a lot more technology that's

being developed in the east coast as well. Boston used to be-- I came from Boston to San Francisco. Boston was really where a lot of this started and it was well done although their modus operandi was more incremental. We're here, we take the big risks out here.

And so, I think Boston is still in there in a way but I think it's mostly moved down a little to the middle Atlantic and other places in Virginia and Pennsylvania, and South Carolina, and Atlanta and even in Florida. I mean the east coast really has a lot of technology outposts and some really good work is being done. I mean the leading people in the country in certain-- I mean this is how idiosyncratic it is. Orlando, Florida has the best space engineers in the United States. Why? of course. But it's amazing. And a lot of these things when it comes to autonomous driving they use a lot of technology that was used in the space industry. And so you'll find this is kind of all over. It's very specific. So I think but as far as I'm concerned there's no better place than Silicon Valley. But I think that we better be aware of the fact that there's a lot of other-- there are another 327 million people around other places in the United States that are important.

Fairbairn: Yeah, absolutely. Do you want to finish up?

Kramlich: Did I answer your question

Fairbairn: Yeah.

Kramlich: Okay.

Fairbairn We could talk forever but that's fine.

Brock: Yeah. Maybe one last question, which is probably an unfair question, but I'd be interested to hear through thought about of what are you the most proud?

Kramlich: Well, I-- I don't want to talk about that. I mean I can tell you - sentimentally I'm very proud of NEA.

Fairbairn Pretty well justified probably.

Kramlich: Here I am a guy from Green Bay, Wisconsin and Appleton, Wisconsin. I dream big.

Brock: Well, that's a great answer. Well, maybe that's a great note to end on.

Fairbairn: Great note to end on.

Brock: Thank you.

Fairbairn And congratulations.

Kramlich: Thank you.

Fairbairn Can't argue with that one.

END OF INTERVIEW

