



## **Oral History of James (Jim) Morgan**

Interviewed by:  
Stanley Myers

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**Stanley Myers:** Jim Morgan became President and CEO of Applied Materials in 1977, when Applied Materials was about a \$20 million in sales company. At that time, Applied was struggling and needed new leadership. During the 20-plus years, Jim built Applied to a \$10 billion global corporation. He has received many distinguished awards and recognitions during his very successful career. Also during that period of time Jim established Applied Materials Japan one of the first wholly owned companies in Japan and wrote "Cracking the Japanese Market" Strategies for Success in the New Global Economy.

Jim, it's been a long and most interesting history that brings you here today, February 16, 2011 to record the Jim Morgan story at the Computer History Museum. So let's go back to the very, very beginning.

**James Morgan:** Right.

**Myers:** Where were you born and where did you grow up?

**Morgan:** Well, I was born in the Midwest, and grew up in Indiana, in a small town, about 900 people. Coming to California and being in the high tech industry is a big transition.

**Myers:** You bet. I know you said the Midwest. I was born in Kansas. And so we came from similar backgrounds--my home town was bigger than yours. But it was about, oh, I'd say 1,500 people.

**Morgan:** Yeah.

**Myers:** So going back to the beginning, you grew up in that town, then?

**Morgan:** Right, I grew up on a farm and family factory in food processing of vegetables. And so that gave me a good chance to learn a lot of things about supervision, doing maintenance, and fixing electronics and things like that. So it was a great place to grow up.

**Myers:** A little hands-on there.

**Morgan:** A little hands-on.

**Myers:** Maybe a little packaging experience, which stood you good, didn't it?

**Morgan:** That's right.

**Myers:** So what did you like to do for fun when you were a kid?

**Morgan:** Well, when you're in Indiana you play basketball.

**Myers:** Oh, a Hoosier.

**Morgan:** So I started in fifth grade, and we played 23 regulation competitive games around the area, and did that for all through grade school and early high school. I was active in the Boy Scouts, and I spent a lot of time outdoors. It was a great place to grow up.

**Myers:** You bet. Did you attend public school?

**Morgan:** I attended public school till high school. In high school, our town was so small that my dad and I felt I would get better opportunities if I went to a private school during high school. And that worked out really well.

**Myers:** Was there one in your hometown?

**Morgan:** No, it was back in Pennsylvania.

**Myers:** Okay, you were heading East then at that time.

**Morgan:** Yeah.

**Myers:** Do you remember your first teacher? Or do you remember a teacher?

**Morgan:** Well, actually, I do. I remember all my teachers. But the people I looked up to was more my dad and my granddad because I worked with them. Also a lot of other people that worked in the factory, because they were good hands-on, reliable kind of people. And that gave me a good perspective on people.

**Myers:** Was your granddad a farmer, too?

**Morgan:** Yeah,

**Myers:** Did he start the farm?

**Morgan:** Well, no, he didn't homestead. He actually was in the lumber business and shifted into canning vegetables.

**Myers:** From lumber and vegetables to semiconductors. Long trip.

**Morgan:** Long trip.

**Myers:** What were your best and worst subjects in school?

**Morgan:** You know, I wasn't skewed to one area. I liked most of my subjects, and I did pretty well in most of them. I liked, in addition technical things, I liked history, and things like that. So it was a pretty broad education.

**Myers:** Let me ask you just an off-the-wall question. When and how was your first exposure to something called computers?

**Morgan:** Well, fortunately when I was in the army, I was at Aberdeen Proving Ground where the ENIAC was. So I saw the first ENIAC with the Ballistics Research Lab. And of course, that took up most of a big building. But also in college, I was exposed to the card punch, and the computer. The [IBM] 360 computer was coming in then. I went to IBM near Cornell University, near Ithaca, New York where I was in college and actually saw some of their applications of computers to food distribution and other types of businesses.

**Myers:** Great. When, how and where was your first exposure then to computers? At that time?

**Morgan:** At that time, in college.

**Myers:** Did you always want to work with computers, or something to do with computers?

**Morgan:** No, I wanted to work with something technical. It didn't have to be computers. And I really kind of-- from the time I was 16, wanted to run some kind of a business. And I was exposed to a book, probably in late high school, called, "Ideas that Became Big Business." And it was the early days of things like General Foods and Birdseye and IBM and Xerox. And it was just two-page stories. And that really gave me an inspiration about new things and what they might become in a holistic sense.

**Myers:** That's great. What did your parents want you to do?

**Morgan:** Run the factory.

**Myers:** Basically stay on the farm and run the factory. How did they feel about you becoming an engineer?

**Morgan:** Well, I don't think they had a particular opinion about that one way or another.

**Myers:** They just wanted you to get an education.

**Morgan:** Get an education.

**Myers:** Was there a particular teacher in that high school, college level that inspired you? And how did she/he do that?

**Morgan:** I think it was-- I mean, I had inspiration from a lot of them, but it really the biggest focus at that time was really from my dad and granddad in terms of-- they worked right in the factory, and made things happen. And so that was more my orientation than a particular professor.

**Myers:** You didn't have any professor in college that laid the hammer down on you a few times?

**Morgan:** No, no.

**Myers:** Well, you were lucky! I did.

**Myers:** General.

**Morgan:** General. I was more interested in the general. I went to Cornell 'because it was a University and it had many, many different courses of work that you could take. Engineering was five years in those days and my perspective was to broaden my technical education.

**Myers:** Did you have any particular heroes when you grew up?

**Morgan:** Well, Stan Musial. And I noticed on TV this morning that ... he was in baseball, and one that hit a lot of runs for the St. Louis Cardinals. I notice he got the Presidential Award just a couple days ago. That was sort of interesting to see.

**Myers:** Yes, I heard about that. And when we lived in St. Louis my son was little, and I took him to all the Cardinal games.

**Morgan:** Sure, sure!

**Myers:** He got to go meet Stan Musial.

**Morgan:** Oh, really, that's great.

**Myers:** But he was too little to remember it. He remembered it in later years. But he didn't remember that.

**Morgan:** Yeah

**Myers:** When did you first meet your wife, Becky?

**Morgan:** We met freshman year in college

**Myers:** And was it love at first sight?

**Morgan:** Yeah, probably. Cornell had three guys for every gal, so it was hard getting dates as a freshman. So it took me...

**Myers:** How long did it take you?

**Morgan:** Took me-- well, I had to take her to church one morning. That was the only time she wasn't busy for a couple weeks.

**Myers:** Good for you!

**Morgan:** But fortunately, that sealed it, and we've been together since then.

**Myers:** Yeah, when did you get married?

**Morgan:** we met in '56, and got married in '60. And so we've been married over 50 years.

**Myers:** Now you just went to Japan to celebrate your 50<sup>th</sup>?

**Morgan:** Right, right, we spent a couple weeks in Japan celebrating our 50<sup>th</sup> Anniversary. And it was a great trip. We got out of the mainstream and that was fun.

**Myers:** Great! Well, after writing that book you wrote on Japan, that must have been a good experience.

**Morgan:** Well, that was my 34<sup>th</sup> trip. <laughs>

**Myers:** I hate to look at mine anymore.

**Morgan:** You've probably been there more than I have now. <laughter>

**Myers:** I'm going to repeat myself, 'cause you mentioned it earlier. Where did you go to college?

**Morgan:** I went to Cornell University in Ithaca, New York. And took mechanical engineering and that was a five-year program, which enabled me to take additional electrical engineering courses, which was great. And then I double-registered in my fifth year, and after my sixth year, I got a Master's in Business Administration.

**Myers:** Great, well, that came true with growing the business of Applied like you did. So what was it like at school? What degree did you get? Did you use a slide rule?

**Morgan:** Yeah, we had a slide-- of course, you used slide rules then. We didn't have computers. And so you had that. And it was just a very good basic professional engineering course. And between that and ROTC and a few other courses I could take, I really had a full schedule.

**Morgan:** I used to call it an engineer's six-shooter.

**Myers:** And I still got mine.

**Morgan:** I don't think I have mine. I haven't seen it for a long time. Don't know that I could even use it now.

**Myers:** So you said you studied mechanical engineering?

**Morgan:** Right.

**Myers:** As a primary major?

**Morgan:** Right.

**Myers:** And had opportunity to take electrical engineering courses.

**Morgan:** Right. Transistors were of interest then. And so I got some early work on transistors. So, I saw what eventually evolved to be semiconductors right there in the early '50s.

**Myers:** And after you went to college and graduated, where did you go from there?

**Morgan:** I had an obligation from my Reserve Officer Training for two years in the army. And so I went in as an officer to Aberdeen Proving Ground, Maryland. And fortunately I was selected to work for General [Frank S.] Besson who ran the Army Material Command, which did all the development and logistics and purchasing and so forth for the army. He had a long-range planning staff at Aberdeen Proving Ground. And I worked on that for a couple years, and really learned a lot of things about applying systems and management and use of computers. It was really a lucky break.

**Myers:** That's great. I'm going to ask you who were the most important influencers in your life at college, or just after, in the military.

**Morgan:** Well, my wife, of course, obviously. <laughter> And General Besson was a very influential-- he was one of the youngest logistics leaders that ever made a General. And then the Textron executives that I worked for that moved me out to the West Coast, and they were great, and each had a lot of experience. One of them built Bell Helicopter, and one of them built up a company named Hydraulic Research. The latter was one of the young high potentials at Textron, and he took me up to Dalmo Victor. So I ended up in Silicon Valley in 1968.

**Myers:** So they moved you here in '68?

**Morgan:** Yeah.

**Myers:** Do you have brothers, sisters?

**Morgan:** A half-brother.

**Myers:** Do you have any family back in the Midwest?

**Morgan:** No, we're the older generation.

**Myers:** Well, good. So you got your nucleus family here now.

**Morgan:** Right,

**Myers:** In the California area. We were talking about your most important influencers.

**Morgan:** Right.

**Myers:** So I'm going to take you back a little bit. What was your early job history after military?

**Morgan:** After the military?

**Myers:** Yes.

**Morgan:** I was fortunate to get an opportunity to work with Textron and for one of the senior executives that had built Bell Helicopter during the '50s in Washington, DC. So that gave me a good perspective there. And then I went to one of the divisions, and fortunately, the president of that division eventually was made president of a division up in Silicon Valley. And so he brought me up with him, and I stayed. That's how I got here. About in 1968.

**Myers:** So they brought you here to Silicon Valley? Or just to California?

**Morgan:** Both. Southern California, and then Silicon Valley.

**Myers:** As a young engineer, what was your first major project?

**Morgan:** Well, I ran a program for the Central LATO Control System for the 747. And that was when the 747 first was starting by Boeing. It was a well-managed program. It's been a very successful plane. And we had two of those on each 747 since. And it was a very complicated piece of control, hydraulic control system. And it was really interesting.

**Myers:** It must have been. That's a workhorse!

**Morgan:** Yeah,

**Myers:** You still see those.

**Morgan:** Still see them.

**Myers:** It may be burning too much fuel, but they are used a lot.

**Morgan:** Yeah,

**Myers:** But it sounds like you did enjoy the plane.



**Morgan:** It's my favorite airplane.

**Myers:** And you did that work in California?

**Morgan:** In Burbank, California.

**Myers:** Good old Downtown Burbank.

**Morgan:** Downtown Burbank.

**Myers:** Now, let's shift a little to Applied Materials. I know I first met you-- and you probably don't even remember this-- you had just taken over Applied, and you were trying to sell me Galamar Industries.

**Morgan:** Oh, right.

**Myers:** I was still at Monsanto.

**Morgan:** it wasn't long before I tried to sell you Galamar.

**Meyers:** Was Galamar part of Applied?

**Morgan:** Right. When I came to Applied, we had six activities. All the way from Galamar, which was the second largest activity. The largest was the Semiconductor Equipment Systems Business. And then they had a few other things that they tried to get into. And unfortunately, it was a poor strategy, both to have Galamar and to get into these other businesses, because the main business was a better business. And so as I looked at it, they were about bankrupt which is why they were willing to bring me in as a young executive. And so I came in as President once I had the go-ahead from the board that I could make whatever decisions that needed to be made. Fortunately I'd been involved with WestVen Management, which was a venture firm that was a partner with Bank of America. And so they had trust in me and knew me. And I was able to get them to hold off pressing the loans that were outstanding and to work with me to turn it around. I got rid of five of the activities out of six, and kept the main equipment business, and built the company from that.

**Myers:** Was one of those six called Great Western Silicon?

**Morgan:** Yeah, it was.

**Myers:** A partner in that or something?

**Morgan:** We were a partner with Fairchild Semiconductor in the polysilicon business, which we had a take-or-pay contract for 25 percent of the poly to support Galamar, which made wafers.

**Myers:** The "mar" part of Galamar was Dan Martin.

**Morgan:** Yeah, right.

**Myers:** And Dan actually worked for me. He just retired.

**Morgan:** Oh, really.

**Myers:** This year. So did you go looking for Applied, or did they come looking for you?

**Morgan:** Well, kind of both. I was at WestVen [Western States Ventures Inc.] Management, which was a venture firm from 1972 to '76. And in the latter part of the third year, in '75, I decided I wanted to get back to running something. It was my skill set that I liked most. I'd been able to do both in the venture business, which was interesting. I helped with turnarounds, and did coaching about operations and technical things, as well as doing investment deals. But I really wanted to get back to running something fulltime. Westven agreed to back me, and I looked for companies to run. I really wanted one between San Francisco and San Jose, and fortunately, I got it. Sandy Robertson, who's a well-known investment banker had brought Applied Materials public in '72. Applied was started in 1967. It was '76 and the industry was beginning to come out of a downturn, but Applied wasn't. The previous year the board-- and really the Chairman, Mike McNealy, who founded the company, had asked me to come in. But it wasn't clear that I was going to be able to do the things that needed to be done. A year later he came back and once it was clear he was going to transition out, and then I'd have full authority with the company, I came in.

**Myers:** It took some guts to move into a company that really was hurting.

**Morgan:** Well, as most people said, because they thought the semiconductor equipment business was a very tough business, "that's a really tough business!" And I said, "Compared to what? Because when you're farming and you're on the Wabash River, you can take on tough assignments.

**Myers:** With the venture company you came from, who else was involved in that move with you? Anybody?

**Morgan:** No.

**Myers:** Just the venture firm?

**Morgan:** Well, no, the venture firm wasn't involved with the move at all. They didn't finance Applied. I came in strictly as a manager.

**Myers:** Yeah, somewhere in there, you happened to get some GE money?

**Morgan:** That came in '81.

**Myers:** In '81.

**Morgan:** Yeah, and we finished turning the company-- getting the company from going bankrupt by about the end of 76. We looked around the industry. And, we set up as a mission to be "The Leading Semiconductor Equipment, and Services Business Worldwide. Now, granted, we were about \$20 million in sales, and there were a lot of other pretenders that were bigger and putting companies together and all kind of stuff. But that was our mission which we agreed to. And we started out to achieve that. Then in 1981, we had a pretty serious downturn in the industry. And so we took out all our weak products and really honed the company up. It had grown, so we had a good base that was growing but we needed additional funding to grow faster. Particularly during the downturn. Fortunately, GE, who'd been an investor from the beginning, and originally had about 20 percent of the company's equity, was down to about 11, wanted to come back up to 20 percent. So they provided us a long-term note, plus bought some common at a premium price, and came in-- continued as a partner. And as a result of that, we were able to really accelerate out of that downturn and the rest is history.

**Myers:** Interesting history. You know, semi's three biggest companies in the '70s are not there anymore.

**Morgan:** Right, right.

**Myers:** You took over a fledgling company, and it's the biggest in the world today.

**Morgan:** Yes. We were able to attract really outstanding people. We had a good strategy. We implemented it effectively, and fortunately the opportunity just kept growing.

**Myers:** Yeah, you brought in some super talent from Bell Labs. And some of those have become somewhat personal friends of mine, so my congratulations. What do you think was the most challenging problem you faced at Applied over the whole 20 years?

**Morgan:** Well, probably just the beginning. Because once we got our, had our balance sheets straightened out to some degree, every decision we made, I think, was long term. In other words, we didn't have to-- we never were forced, particularly with the GE money, we never were forced to make short-term decisions. Now that gets a little challenging with Wall Street. But generally they stuck with us, and the ones that did, did pretty well.

**Myers:** As you reflect on all of that, and I'm pulling you back quickly on your memory, usually as you get older you have better long term memory than short term memory. Why didn't you do it another way than you did it? Do you ever reflect and say, "I should have done this instead of that?"

**Morgan:** No. I mean, there are a few individual decisions that I would have done differently. Implant, probably wasn't a good decision or it was a good decision implemented poorly. We ended up eventually spending a lot of money and then getting out of that business. But the approaches we used, and the way we managed seemed to work pretty well. So I don't know what I would have really changed that would have realistically made a better outcome.

**Myers:** Looking at some things overall, can you describe the kinds of work that you did? What do you think you did to turn that around?

**Morgan:** Well, I think as CEO you have to do everything. But in those days we had really good technology. And that was true in the Valley. And maybe we had some hot salesmen. But in those days people didn't think about the "Whole Job". And one of the things I learned at Textron is in addition to having good products and good distribution; you really had to manage your financial affairs effectively. You want to spend your time on the future products and markets, not the numbers. I had a philosophy of "On time Within Budget, and Demonstrating Technical Excellence" for technical efforts. And we drive those technical efforts by milestones, so that we were able to hit the market windows pretty well. That really paid off over time. So it was getting the "Whole Job" done-- including service that really differentiated us from a lot of the other players in the business during the early years.

**Myers:** What was the most exciting period?

**Morgan:** Stan, it was-- there wasn't an exciting period. I was there 30 years and there was something exciting all the time. And that's kind of been true since I first started playing basketball, I guess.

**Myers:** Yeah, it just changes.

**Morgan:** It just changed what I did, but it was really exciting, and fun, I learned a lot, and worked with great people.

**Myers:** What accomplishments are you most proud of?

**Morgan:** Well, of course I think building a lasting global company is-- it was a real privilege for me. I think the other thing was, -- it wasn't my objective in the beginning, but one of the things that really I saw drive me, and inspired me was getting people to meet their potential, and organizations to meet their potential. That seemed to be what motivated me about all my decisions. So probably because of that I think people trusted me, and knew that was my only motivation when I was trying to make decisions. And I think that probably really was the most satisfying.

**Myers:** And that's what, thirty years or twenty years?

**Morgan:** Thirty years.

**Myers:** When you really got stuck on a problem who did you go to? What did you do? Because we all get faced with some problems.

**Morgan:** Well, usually when I had difficult problems, and we had them a lot of times, I'd connect with people inside and outside the company that I knew, and friends, and get their thoughts on it. And then usually what I try to do in making a decision is to ascertain what the driving force was to making a decision. And usually if I could get aligned with that, probably it would work out. And then probably the other thing that was important that went with that is that I would have a milestone, I would manage the consequences. So I could make a decision pretty quickly. I'd get the information. But managing the consequences is really more important than making a decision, because you can change your mind if you have to, but if you don't make the decision and get moving, you never know whether you're right or wrong. So that was, I don't know, for whatever reason that was a motivator.

**Myers:** Trying to focus, and speed.

**Morgan:** Right.

**Myers:** Do you ever doubt yourself?

**Morgan:** Well, I probably did, but I grew up with responsibilities pretty early. And you kind of learn that you've just got to make the decisions, and then if it doesn't work, fix it. For some reason I never spent a lot of time doubting. I might have been wrong. I didn't pretend to think I was always right, but I didn't have much trouble making a decision.

**Myers:** Did you ever really fail on an important goal?

**Morgan:** Well, probably we didn't get into lithography, which we had sort of thought was a good opportunity. But the opportunity just never came at the right price and the right circumstances.

**Myers:** Yeah, a missed opportunity. If you could change or redo any events in that period of time, is there any that you would do right now, knowing what you know today, other than not getting into lithography?

**Morgan:** Yeah. I don't spend much time looking back, except at, at the time it happens. And so I really don't have a whole lot of things that I'd try to change. There was so much opportunity we just went forward as fast as we could, and I didn't spend much time trying to think back on what I ought to do differently.

**Myers:** What I'm going to do now, Jim, is move into the future, because I know you're doing some exciting things, and I'd like to just get your fix on advice and direction to youth, and to the future, and that kind of thing. Do you want to think about some things you missed?

**Morgan:** Nope, I think I'm all set. I don't know, does it seem like anything should have done better, or are you going to be able to find most of it?

**Myers:** So now, Jim, let's look at the future, which is in line for all of us. What are you working on now?

**Morgan:** Well, I have been working on issues that "Sustain the Planet. I do that through the Nature Conservancy, and particularly through the Northern Sierra Partnership [NSP], which my wife and I helped get started. This put together six partners in the environmental conservation field up in the Sierras. We're trying to preserve the watersheds, and restore the watersheds of the five rivers in the region. Three of them serve about 60 percent of the people in California: the American, the Yuba, and the Feather, and also the Truckee and the Carson for Northern Nevada. Water is a critical issue as we look ahead. Serious water problems are occurring all over the world, and particularly here in California. We thought that that's something that we could have a real impact on.

**Myers:** How do you preserve the watersheds?

**Morgan:** Well, one is you pick the ones where you can either get the private owners or the public owners to take care of it so that they make sure that the banks don't deteriorate, that the flood plains work so that you can store water, and filter water, and-- so it purifies naturally and it is able to last longer in the season. Healthy forests let you protect the snow to some degree longer. You can get a lot of ranchers and a lot of people to really take care of their land in a good way. It makes a big impact.

**Myers:** Does that involve planting trees and stuff?

**Morgan:** Some, yeah. It mainly involves getting either an easement or a purchase of the core watersheds that aren't already protected.

**Myers:** It sounds to me like you're kind of excited about that.

**Morgan:** Yeah. As I learn more about it, I didn't have any idea that the Sierras were kind of equal to the rainforest as far as preserving atmosphere and-- or the watersheds were really as important as they turn out to be, and that there's so much of it comes out of this reason.

**Myers:** Moving a little bit away from the greenness now, what do you think the next big challenge is for the technology industry?

**Morgan:** Well, I think coming up with technology will help us to have a more Sustainable Planet and-- through better efficiencies, though large system thinking-- these issues are very complicated and require large computing capacity. Think about-- think about the grid. There's just so many things that we need to work on to improve our use of what resources we have on the planet. And so I think that's going to end up being one of the major issues, because they're going to have to get water from the ocean, or going to have to preserve or conserve the water that comes down on the plant and get it into the right places. And so there's a lot of technology that's going to be required there.

**Myers:** My feeling is, and I take it your feeling is, water probably is the most precious resource.

**Morgan:** Yeah, it really is.

**Myers:** What problems do you think the technology industry can solve for society in the future?

**Morgan:** Well, I think that by methodologies to conserve, methodologies for efficiencies, large system applications, and then of course all the technologies like thin films, and smaller chips. And if we can get more powerful, and cheaper, and faster chips that's going to enable us to have more impact around the world so that the equipment side of the business and the chip side of the business is really a key to making these things possible. And solar, it's such an exciting time, I wish I was 55. The technologies are coming, the social change is coming. When that happens there's always a lot of inventions.

**Myers:** I agree with you. I don't know if you've realized, I've really tried to morph SEMI into LEDs, and MEMS, flexible electronics for the future. And I think society will need them. How do you think high tech industry will change in the future?

**Morgan:** Well, I think the industry, it'll be more global. I think it'll be more dispersed as far as the applications. I mean, a small group can provide applications that tie into the larger system, whatever that is, whether it's a grid, or an Internet, or a lot of the things that people are developing. And all those will really pay off, I think, in the decades ahead. But you have to have a system's thinking to it. What I think is one of the weaknesses in thinking, in technology, is the lack of systems focus. There's a lot of individual technology focus, but getting systems programs in engineering schools or in schools in general, and also to realize that a sustainable planet requires not only technology, but political decisions, business decisions, a lot of other group decisions. So being aware of the needs of-- I think are going to be important for, say, if you're starting your career nowadays.

**Myers:** The regional superiority that probably U.S. and Japan later had is changing, and I don't know exactly how technology jobs in this country will change vis-à-vis technology jobs in China, Taiwan, Korea.

**Morgan:** Well, I think, when I first came into the industry to Applied from the venture capital business, I probably knew essentially every top venture capitalist, and probably almost every executive in the high tech companies in Silicon Valley. In fact, as I remember this, that I think that if you took HP and Varian out of the price of the public companies in Silicon Valley, the total value of the rest was less than a billion dollars, all of them. And you think about how that's changed. Well today it's not just Silicon Valley, it's other places in the United States. But more significantly going ahead, it's other places in the world. And if the U.S. wants to compete, they're going to have to get education, get the people-- make it attractive for the people to be here.-- I say "Companies go Where they're Wanted and Stay where they're Appreciated". And so we're going to need to do that in the U.S.

**Myers:** Are we the only country that doesn't have an industrial policy, strategy?

**Morgan:** Well, I think we probably have an industrial policy.

**Myers:** We don't have a METI today.

**Morgan:** Right. And I'm not so sure, we ought to-- I think if you could make it more attractive-- a company needs to be able to do things faster, that's the problem. We're getting too slow in the U.S. Not that we don't have the ideas and not that we do not have resources-- it's having focus.

[**David Richardson:** Could you sum that up?]

[**Morgan:** Yeah, it was kind of a long statement, wasn't it?]

[**Richardson:** Start with your answer to the question about policy.]

**Morgan:** Yeah. I think probably government policies, at least so they do not interfere. I think if they would-- focus making the markets available, like solar, so it's not so much a development of the technology. I think that can get done with something like tax credits or something of that nature. But I think the real opportunity in the U.S., you do have to develop the markets. So getting the Internet dispersed all over the country, or getting the grid put together, things that will cause the companies to invest and to make commitments are really important. Probably that's what is putting us behind-- because the other countries are moving faster.

**Myers:** Very fast.

**Morgan:** Very fast.

**Myers:** What's the next big thing?

**Morgan:** You never know. I always remember Bob Noyce, who everybody knows didn't think there was much need for personal computers, but sort of built the company on it. <laughs>

**Myers:** Yeah, he sure did, didn't he?

**Morgan:** Well, this was when Applied was being formed.

**Myers:** And of course Watson said you only need four computers.

**Morgan:** Four computers, right. I mean, who would have guessed the Internet? I think what you need to do is develop the skill sets, and the fundamentals, and the implementation. And what's going to eventually evolve out of that, I think it's pretty hard to know.

**Myers:** What advice would you give a young person just starting a new technical career?

**Morgan:** Well, I think get as much training and experience as you can and "To Start", in other words, pick the three things you're most interested in, prioritize those, and start on one of them. Then after two or three years that doesn't make sense, then do something else. But I think the most important thing is to get into applying yourself to whatever field you're interested in. And I think today's youth need to think about what they can do for society either through a business, or technical. Because we really need to have a sustainable planet and we just need to focus on that.

**Myers:** Right. And then basically would that be what you would say is the call to action for young people?

**Morgan:** Sure it could be, yeah.

**Myers:** I think as we get older we need to play a role for the future, because we played a role in maybe screwing things up, come back and try to help put it together. What call to action would you give young people today?

**Morgan:** Well, I think that we have such great capabilities, and these people are so smart, that if we could get that applied to assuring we get a sustainable planet, that's-- that really takes in most technologies, and it gives people a real purpose for being.

**Myers:** And it's our gift to them to help them.

**Morgan:** Right.



**Myers:** Okay. Well, Jim, thank you very much. It's a great interview.

**Morgan:** Well, Stan, thanks a lot. It's nice to be here.

**Myers:** I think your story is very, very important to the young people coming up, and I'm glad you joined us. Thank you.

**Morgan:** Good. Me, too.

END OF INTERVIEW