Oral History of James (Jim) C. Morgan

Interviewed by:
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Craig Addison: Thanks very much Jim for joining us. Could you talk about your early days, where you grew up, family background and so forth?

James (Jim) C. Morgan: I grew up in Indiana, on a farm, on a cannery. So in the early days I worked with equipment and production lines in the family factory. That was good background for me. I was fortunate enough to get an engineering degree from Cornell and I was also able to double register and get an MBA so when I left to go in the U.S. Army to do my reserve officer training obligation for two years I had finished a BME in what was called the Army Material Command Board. And that actually turned out to be pretty good experience for the military. There were people with advanced degrees and they were doing studies for General Bessen who headed the Army Material Command, kind of long range studies. One was logistics for the Russian military, but a couple that were a little more useful was a study of new production techniques, a study of new management techniques, and a study on decentralization.

The decentralization took me to study Textron, which was one of the early successful conglomerates in the 60s. Fortunately I was able to work in their corporate office based in Washington for a couple of years … they were in the aerospace business, they made Bell helicopters and various types of aerospace systems … and I transferred around and ended up in Northern California with one of their divisions, Dalmo Victor, making radar early warning systems. That was a good exposure to really sophisticated, high technology systems. Then I decided I really wanted to stay in California and they were wanting to move me back East. I was fortunate to find an opportunity with one of the early institutional venture capital funds, WestVen Management, which was just being started. That got me into the Valley, exposed to some of the high technology and other industries for about four years. And I kind of wanted to get back to running something. I'm an operating … kind of person, so I was fortunate that Applied [Materials] was looking for a president. The company was having some financial trouble. The downturn was pretty tough at that particular point in time, but it turned out that was only part of Applied's problems. They tried to get into too many businesses and had their resources stretched to the point where they were about to go bankrupt. The chairman and founder [Michael McNeilly] and the board asked me to come in as president, and he agreed to transition out. And he did that. I became the CEO in about three months and started the Applied turnaround.

Addison: Let's fill in some of the details. When you were young, in college or a teenager, did you have something in mind as a career?

Morgan: When I was 16, I kind of felt I really wanted to be president of something. I wasn't too particular about the products … the family had managed businesses, so it was something I was exposed to.

Addison: How did you end up getting involved in the Army?

Morgan: Because I was interested in equipment, I wanted to get into mechanical engineering. I was fortunate to be accepted to Cornell's five year engineering program. As a result of that I also had a choice of taking ROTC at Cornell. So I took reserve officer training during college years so I had a two-year active duty obligation after that.

Addison: Is there anything you learned in the Army that was useful later in your career?

Morgan: The studies were very useful. The new management techniques [study] got us involved with companies like GE and Chrysler and General Motors and Textron. New production techniques got us into computers, and new management techniques got us into program management and group executive theory, a lot of different things that were really helpful in trying to build a large-scale global company.

Addison: Did you have any business heroes back then? Any heads of companies you really admired?

Morgan: The fellow I worked for at Textron, Harvey Gaylord, was really a great leader. He built Bell Helicopter from scratch and had merged it into Textron. And a fellow named Carol Martinson was the head of one of the divisions, and he asked me to come out and work for him and I did that. And General Bessen was a great leader. He was the youngest logistics General, and he was just a very sharp, strategic person. So I learned a lot working in his organization.

Addison: So Textron was nothing to do with the Army, you had left the Army by then?

Morgan: I had left the Army. I finished my two years obligation. I had run across Textron in the decentralization study that I did at the Army. Because it was a company that was made up of buying a large number of really well-known names … so I felt that they would go through a period where a young fellow with an engineering degree and an MBA would get some opportunity. It was mostly smaller companies that they'd purchased. They had engineers in most of them, but not the combination [of engineer and MBA].

Addison: During your time at Textron, was there anything in your mind about semiconductors or high tech?

Morgan: No. When I was at Dalmo Victor… [they] made the LEM and Apollo antennas for the moon shot [that] brought back all the TV pictures. And they made radar homing warning systems and things like that. And we bought semiconductors. I used to visit Fairchild to try to get parts to keep our program on schedule. So that got me exposed to the semiconductor industry. We made large electronic systems for aircraft. The Dalmo Victor experience and also the military experience gave me a real appreciation for systems, complex systems, and also logistics and service, and managing large complex programs. That was very applicable to a company like Applied as we got it straightened out and began to build a global company.

Addison: Let's talks specifically about being approached by Applied. How did that happen? Did you get a phone call one day?

Morgan: Sandy Robertson, who was a well known investment banker in the Valley and Tom Cable, had recommended me to the board and to the chairman of Applied Materials. I was approached then. In the early part of it the founder [Michael McNeilly] wasn't quite ready to move on, so I turned down the offer. And about a year later they were getting into worse trouble so they came back and at that point I joined the company.

Addison: What was the job that was being offered to you, the one you turned down?

Morgan: I don't remember … It was kind of head of operations, but clearly you really didn't have the cart blanche authority to do what needed to be done in the company.

Addison: So a year later they came back ...

Morgan: … and said I'd be responsible for the company. So once they did that I was fortunately able to get the opportunity.

Addison: Did you have any discussions with Mike McNeilly?

Morgan: Yes. For the whole time. He and I were the major interface.

Addison: I guess it's the classic example of the entrepreneur starting the company and not being able to grow it.

Morgan: Not being able to take it to the next, larger scale. Mike's a great entrepreneur. He did a great job of getting the company started. They had some great technology. We just didn't have a great strategy and diluted our resources too much.

Addison: When joining Applied, did you think the semiconductor industry was a great industry to be involved in, or you just saw it as a company and you wanted to lead it?

Morgan: I thought it was an emerging industry. I thought it would be a good size industry. I think it has surpassed all of our expectations in those days because of the scale of the opportunity that's evolved. I thought they [Applied] had some good solid products, they had some good people, and so it was a better opportunity than it looked to anybody. The investment community didn't have much respect for the [equipment] industry. We were not very visible, whereas a lot of our customers had a brand name. It was a small industry. At that time, the market cap of Applied was probably $5 million to $10 million. It wasn't something you had a lot of enthusiasm about. I tend to look for gems that haven't been quite shined up yet. I knew how to do turnarounds. One of the reasons I was brought to their attention was that I had a reputation for turnarounds. I did a couple of turnarounds at Textron and when I was in the venture business I'd go in and sometimes I acted as president for several months until we could get it straightened out and get a new president and so forth. It was the type of thing that was right up my alley.

Addison: Did you think you were at a disadvantage, not understanding the complexities of the technology?

Morgan: That's never bothered me. I didn't know anything about radar warning homing systems or flight control systems but I did fine. My skill hasn't been the pure technology. It's been the ability to understand the technology enough to link the technology in some way to the market. By linking it to the market I can figure out what was required to capitalize on the product and the market and attract the people that could really implement that, and provide them I guess, the leadership to build whatever it is they were trying to build.

Addison: When you joined Applied—and I've read some of your comments in the Applied history book—you came home the first day and told your wife it was worse than you thought. Did you have second thoughts?

Morgan: No. I understood well enough that it was a good opportunity for me … it was just, every place you looked it was worse than what they thought it was. They weren't trying to mislead you. They just believed it was different. You had to go through every piece of it. Basically, except for the chief financial officer and the founder, the rest of the team really settled in and did a good job. I never believed in doing wholesale house cleaning of organizations. I tend to seed in talent to change them, but there was a lot of experience with the core group usually. So I got people like Herb Henderson, Walt Benzing, and Bob Graham, they were the core of the early part of the industry. They added a lot of value once we got them all back into a building to work. So we closed an office … unfortunately I made one big mistake, I closed the office up in Page Mill and Foothill Expressway because that's only five minutes from my house now. I put everybody in a different building and we got back into running the company.

Addison: Do you recall what you said in your first meeting with the staff? Was it a pep talk?

Morgan: I don't remember exactly … in essence it was related to … we were in early stages of a developing industry. We are going to have to get focused on some of the things we really do well. I needed them to really pitch in to work together. And we had to come up with a strategy to satisfy the bank so they wouldn't take us into bankruptcy within about 30 days. And so I gave everybody a set of assignments and we all went to work. It worked out great. They were a great group to work with. We brought in a new controller and everybody else took either different jobs than they had when I got there, or expanded roles. In the case of Bob I gave him a few other things—and we went after each of our pieces. Each week we'd meet and see the progress we were making. The first year was really getting the priorities set, getting the equipment business moving, Herb took that. Then we got out of five or six other business activities, they weren't necessarily companies, and focused on the equipment business.

Addison: Keeping the banks happy was an important thing, and I believe you had a relationship with the Bank of America. That must have helped a lot?

Morgan: I did. The head of the loan committee of the worldwide bank was on the investment committee of the venture fund I was on. So [when] we sent up a request to raise our line, even though we never used it, he approved it. He said he thought Jim would pay it back so they signed it. We did never use all of it.

Addison: Were the customers supportive during this period?

Morgan: They were supportive. They wanted us to be successful; they were just disappointed that we were doing such a poor job. If you asked them they'd help us. We had no customers who didn't want to help us. In those days our customers were also our competitors. Motorola has some semiconductor equipment capability. IBM, TI had their equipment groups. So we had to demonstrate a better capability than they had and over time of course they [the device makers] got out of it as the capability of our industry got stronger.

Addison: Initially were you more selling to Fairchilds, the Intels, the start ups?

Morgan: We tried to sell to everybody. IBM was one of our biggest customers. Only a couple of people made epi reactors so IBM was a major customer in that field … it's just that they were in other pieces of it. TI was the same way. TI was a big epi customer because they had bipolar in those days. We didn't have many products. We had a couple of CVD products and an epi reactor product [which] was essentially the core business on which we built the company.

Addison: Pretty early on you decided the silicon side of Applied's business had to go, correct?

Morgan: I tried to turn it around with the idea of selling it, but unfortunately the prices collapsed at the time we got it. Strategically it wasn't a fit. That was a mistake that they had made before, that somehow there was a razor and razor blades strategy there, but that wasn't true. It was really a high capital intensive commodity business that a small company didn't have any reason to be in. The main business that I thought had long term potential was the equipment business.

Addison: Did a lot of the technology leak over to the equipment companies from people who used to work for the device makers?

Morgan: Customers would work with you. One of the other strengths of Applied which I didn't mention earlier, because the epi was a very difficult process, we had process labs. So early on we started the idea of developing the process with the equipment. Most of the other equipment companies didn't do that at that time. The customers would sometimes work with you and partner with you. If you provided the equipment and some basic process, they'd help you finish the process. Or they'd buy the equipment and they'd finish developing the process. I think the capability built up both by experience and some people transferring over … but over time the industry had a strong capability.

Addison: Who was the keeper of the processing secrets in those days, was it the device makers?

Morgan: Over time the equipment companies had to provide the process. We worked with every customer. For us to provide a really good product we had to know enough about the processing in order to develop a product that could satisfy several customers. So we always worked with three to five customers on every new product and process development. So as a result of that we'd get a basic set of processes together for the customer that would prove the product, prove the processes. Then if they wanted to modify them for their own needs, that was the next stage in the industry. And then more recently we provided and guaranteed the processes as well.

Addison: Do you recall any discussions with IBM, Motorola or TI, with them saying we really need to get out of the equipment business, or did that happen very gradually?

Morgan: That happened gradually … they got out of the equipment industry over time. As we got acceptable products they stopped trying to develop the processes. TI worked hard on the etcher area, and there were 50 etch companies when we entered the etch business. It went from 50 to three, plus a couple of other small ones. As our capability built up, that's not where they [TI et al] wanted to put their resources. It takes a big investment. Today we spend a billion dollar a year in RD&E of different types.

Well you can't afford to do that if you don't have a broad customer base. So if you have just an internal customer it really has to be very uniquely an advantage otherwise you can't compete because they have to bring these factories up quickly around the world. One of the things I brought into the company from my past experiences in the logistics and support of sophisticated systems … it became obvious you had to have a global support system. You had to think that way. So early on, both my experience in the canning industry, where we had a few suppliers who provided the technical support to a few of the sophisticated pieces of equipment for service and spare parts, those people were really critical because you ran these factories from seven in the morning till seven at night. And they were one line factories so if something broke down and if you didn't have multiples of them, and you had several places that were bottlenecks, you had several hundred people standing around and the product was deteriorating rapidly. So you tended to move very quickly to get things fixed. In all the years, which was a decade, I never saw the [canning] factory fail to start at seven in the morning. That was a mind set I put into Applied. And the aerospace industry provided the sophisticated thinking about how you go about providing that, so we've been the leader by far in terms of infrastructure for support and logistics and process development and things like that.

Addison: So you were actually hands on in the canning factory?

Morgan: It was a summer operation so I ran different pieces of it starting from 15 [years of age].

Addison: Let's talk about your international focus. Japan was one of your early forays. Can you tell me about your thinking there? Why you thought you had to get over to Japan and crack that market, so to speak.

Morgan: I went to Japan in 1977, to the SEMICON® show there. It was my first trip outside the United States. It was clear to me that they were going to become a factor in semiconductors and it was clear to me we had to go direct to support that business there because a trading company just didn't provide the support for that. So I made the decision on the plane coming back that we were going to go direct some way. At that time no one did that. And all the advice you got was not to do it, not to go direct. It just seemed to me we didn't have a choice. So the question was how do you do it? We spent a couple of years trying to figure that out … fortunately Iwasaki-san, who was at our trading company as a salesman, had decided to leave the trading company. He told us ahead of time he was going to do that and we said, what are you going to do? And he said he was thinking about two or three things. And we said, why don't you think about starting up Applied over there? So we launched Applied Materials Japan in 1979. That was a pretty small operation. We rented a small office in Tokyo. We set up an office in a tea house down in the southern part of Japan in Osaka [laughs]. So we'd have our meetings in the morning, then they'd have the tea house, then we'd have our meetings after the tea house closed in the early evening. That's kind of how we got started. The team did a great job, and today we lead the market in Japan in terms of total sales.

The other thing we did, kind of related to that … I believed we had to support the global market, so there were two aspects to that. One was to make sure we were strong in Europe and the U.S., then we would have a chance of competing in Japan because that was going to be a tough market. So when a lot of people in our industry cut back their support in Europe in the early 80s, we actually went more aggressively into Europe. Lost money for a couple or three years, but as they [the competitors] came

back, then we had high market share in Europe. And so we had good market share in the U.S., high market share in Europe, so as we started competing in Japan we had a critical mass of capability to support that effort to build up our own activity there. That worked out well. We were the first company that was given a specialized loan to develop our technology center in Japan. That was in the early 80s, '84 probably. That was a real milestone for us. Then we kept building our capability over time.

Addison: You must have met resistance from the Japanese IDMs at the start. How did you over come that?

Morgan: Just by providing excellent technology and excellent equipment. Their problem with U.S suppliers is 1) every time the business slowed down they cut back their capability and support, and 2) their products weren't reliable relative to Japanese products. So we worked on both of those issues. We made a major commitment to Japan, built the technology center, made that investment, put strong people there. In '84 I took 20 executives from around the world to Japan and with six Japanese executives we had a 10 day Japan program. We visited trade shows, we visited some customers … we did an offsite for three days where half the group tried to represent a Japanese company competing against Applied, the other half represented Applied competing against a Japanese company. We did a lot of things together. And most of the team stayed together pretty much over the next decade. It was a great program.

Addison: Any special customer visits in Japan that stand out?

Morgan: I'd go and see all of them, and all of them are a little different. In Japan some of [the customers] had subsidiaries that were competitors so you had a problem of internal IP protection between their internal competitors but we worked each of those, and we never did end up in a law suit there. We were pretty satisfied with how that went. I went to visit Kawanishi-san when he was a senior engineering supervisor. He eventually became head of Toshiba and very famous in the industry. He also joined the board of Applied Materials. He was really a great contributor. He was our second [Japanese board member]. We set out to get a Japanese board member in the early 80s and Dr. Toda, who was at NTT, joined our board and influenced us in getting into the flat panel display business which of course now is turning out to be a very important business. We just learned a lot about quality, management and about partnerships in Japan. Japanese companies make good partners in most cases for us. They were better than companies elsewhere in those days.

Addison: Were you one of the first U.S. equipment companies to have Japanese board members?

Morgan: We were one of the early companies in the world to have Japanese board members in any field (laughs). Some of them had some in advisory capacity, but to have somebody on your primary board, not many companies did that.

Addison: What about the trade friction in the mid 80s, how did that impact what you were doing in Japan?

Morgan: It was both positive and negative. At that time I was also co-chair of a thing called the Japan Western Association, of which Akio Morita, who was founder and chairman of Sony Corp., was the co-chair for the Japanese side. He and I got along really well. I did that for about five years and that was during that trade friction time. What I tried to do was to help SEMI and our company and the industry to

weather through this friction issue because we had our customers in the U.S. that were having a strong aggressive position towards Japanese suppliers of chips and we had the governments trying to work things out. At that time we set up the international SEMI, made SEMI the first international trade organization. I felt that was really critical for us to do, and pushed that hard with the other members. That put us in a neutral position with customers all over the world, and with the government all over the world. For a small industry that wasn't too visible in those days, we ended up having a disproportionate amount of influence because we were kind of the neutral party. A lot of customers and a lot of government organizations would look to us for advice and work with us to help resolve some of these issues. We were fortunate to make SEMI an international organization.

I might tell one more story relevant to the point about intellectual properties and some of those issues in Japan. I was at a conference with Morita and we were on a bus one day and I was talking about a problem I was having with one of my customers. One of their subsidiaries was making an exact copy of our product. That was a problem. I didn't particularly want to try and deal with it in the court and that was during the peak of the trade friction issues. So I asked him (Morita) if he had some advice. So he got off the bus at the next stop … and he called the chairman of this company, who was above these guys. The next day when I got back to Tokyo, we had three of their top executives in our office and we resolved that in about two and a half days, the whole thing. They carried their side of the bargain and we carried ours. We eventually became a leading supplier and it worked out great. But you just have to work these issues.

Addison: How did they get the copy of your product? Did they buy one and take it apart?

Morgan: Yeah, they had it … actually, what was the biggest surprise, we learned about it because some of the engineers in our customer brought us the drawings and showed how they were the same. They thought that their sister company was treating us unfairly. I never made assumptions … things will work out some way.

Addison: I wanted to ask about your move into plasma etch. It was through the guys that you hired from Bell Labs. Can you talk about how you found those guys?

Morgan: We'd made a decision in '78 to get into the plasma etch business. We'd set up a development program in a separate building with a team. There were probably 50 etch companies at that point in time, all trying to do a similar thing. So we knew what we were trying to do. And I had a call one day from someone that knew Dan [Mayden]. A friend of mine in the venture capital business who I hadn't seen for years had talked to Dan, and Dan wanted to get involved in the [semiconductor] equipment business. As a result of that call I arranged for Bob Graham to meet him on a Saturday and talk to him, and then I invited Dan out to California. I talked to Dan about what he really wanted to do. We hit it off. We really had confidence in his ability to get the product, and the product performance … even though it wasn't a single wafer configuration at the time. It was a real opportunity to change the dynamics and provide some better process capability to the industry. Dan decided that if he joined us, we could make a major company. So we came to that conclusion and we started working together and that turned into a great multi-decade partnership.

Addison: David Wang also joined from Bell Labs?

Morgan: David came. He was working for Dan in Bell. Sass [Somekh] came from Intel. Dan came, then the other people came.

Addison: So you had already started the equipment development in a separate building before you hired Dan?

Morgan: Yes. We knew what we wanted, knew what we needed but we weren't getting that from what we were doing. It did give us a lot of experience in how to evaluate the product Dan was trying to build.

Addison: Did you purchase intellectual property from Bell Labs?

Morgan: We partnered with Bell on some of the later process developments. We worked with them as an early partner, not directly from the equipment viewpoint, but a partnership in terms of developing future products.

Addison: So the initial meeting was between Bob Graham and Dan Mayden?

Morgan: Bob happened to be on the East Coast; he was up at IBM in Burlington so I tracked him down and asked him if he could stop by on his way back. So he did the first kind of screen. Then I invited [Dan] out and I worked with him until we got it done. Dan came on in September of 1980.

Addison: What was the original idea of having that equipment group operate separately ... was it a kind of skunk works?

Morgan: Yes, it was a focus on new development.

Addison: How long was it from the time you hired the Bell Labs guys until the first product came out?

Morgan: It was close to two years, about 18 months.

Addison: When your etcher came out there were 50 competitors. That must have been a daunting task.

Morgan: We figured if we can get the right product and the right product performance, we have the capability to be successful. With that product … the process was different. It was a batch system as opposed to a single wafer system. So it was a different approach than everybody in the industry was trying to do. But we felt it gave the best product performance, best process performance, and that proved to be true.

Addison: We know Applied today is a big company, but back then it wasn't necessarily a slam dunk that your plasma etcher would be a success.

Morgan: There were a lot of people who didn't think it would [succeed] because it wasn't a single wafer machine. We didn't have to sell the market; the market for etching was there. But the configuration and process results we had to sell. Fortunately that provided the best results. Single wafer, until much later,

couldn't duplicate that. The batch system was the best for a period of time, then as processing got better for single wafer you began to get those as a solution.

Addison: What did you learn from the plasma etch project?

Morgan: That became our model for developing products. We'd put teams together and build products. I had a couple of objectives in the 80s once we got the company stabilized financially and got our basic business moving and could fund our people and fund some R&D and take care of our customers and start our service organization. Those were our key goals in the early days. Then my goal was to build, get new products as fast as I could. I felt that whoever got new products out the fastest would be the leader in the industry. The second phase was, whoever got the strongest global position the fastest would be the other leg for the long term success. We really lucked out. We got a lot of good products out and we got our global operations out before anybody else. So as the industry took off we were able to move over time into a leadership position. Back in the early 80s there were some major companies like Perkin Elmer, Varian, Eaton, Culter Hammer … that were big companies who kind of thought they were going to take over this business. We kind of worked at it from the inside building our products so that we had a really powerful capability both in terms of technology and global capability. Then that eventually led us to become the leading company in '92.

Addison: We've talked about Bob Graham. Was he with Applied when you joined?

Morgan: He was a consultant when I joined Applied, or may have just joined full time. I quickly got him headed so he had a piece of the marketing sales activities. He was one of the key executives.

Addison: Bob Graham ended up going to Novellus.

Morgan: That was a long time later. That was when we had a discussion about buying Novellus as an interim product. I kind of felt we couldn't ride two horses. I really bet on the [Precision] 5000 because I saw the technology of the multi-chamber, single wafer tool as a wave of the future. So I turned down the acquisition. Bob had liked it. It was a good product. But for us, with the size we were, we needed to make a choice. I didn't want them competing for resources. So we worked it out, and he went with [Novellus]. He and I were good friends carrying through these periods. That wasn't a problem.

Addison: Talking about acquisitions in general; that has not been the Applied way, you have preferred to grow internally. Can you talk about your thinking there?

Morgan: When you look at product development, one of our key strategies was to get the most products up, products customers wanted, as fast as we could. So we would look at all approaches to do that, including acquisitions. But the challenge with acquisitions in the equipment business is usually, if the company is available for sale it doesn't have the next generation of product. So you have to develop the next generation of product, and you end up with all the baggage of the company that you bought, plus you still have to develop a product. So it's been better to take a small key team, and develop the product using the Applied way as preferable to acquisitions. It doesn't mean we don't want to do acquisitions, we've done several. What we look for is to enter new markets or to fill in product lines. But unless you have the right product in our market you really don't make it.

Addison: What about lithography as an acquisition? There was ETEC. Any others you have considered?

Morgan: We have looked at lithography quite a few times. Way back we almost had a deal a couple of times with GCA when they were the leader in the stepper business. They were pursuing what I thought was a dumb strategy in the way they were managing their company. I really felt that we should focus on the equipment business, the front end equipment. They wanted to diversify so front end equipment was only a small piece of their business. So when that didn't happen and the Japanese developed a strong [lithography] supplier base, and ASM developed its capability, we didn't see a role for us where we could add some significant value to the market place.

Addison: Was that when GCA was in its death spiral?

Morgan: No, before that. This was back in the early 80s.

Addison: Who approached whom?

Morgan: They approached us and wanted to talk. I talked to them quite a bit, but we just had a different philosophical management approach to the industry.

Addison: This was about a merger of the two companies?

Morgan: We would merge together. It was an older fellow running [GCA] … we might have been able to make it work. But we had a real difference in where we thought the companies ought to go. I've always had a philosophy that this business was really a tough business in the early days in terms of technology; the cyclicality of the business and the global aspects of it, and the demands of the customers. So I felt that if you focused all your resources and capabilities on this business, that was the way to be successful. In the early days, and how Applied got into trouble in the beginning, was that the investment bankers and financial community were all promoting that you should diversify because of this cyclical business. I just didn't believe that so I went a different way because I felt you could really improve your position in the tough times if you were well managed and you could manage the balance sheet as well as having good technology and having a good relationship with the customer. It's a different view of how you should go forward.

Addison: After the GCA talks were there any other mergers or acquisitions that you looked at?

Morgan: We've looked at different things. We worked with Cobilt for a while. That was because we had the support of Hitachi and Nikon, and we were going to work with Nikon in their expansion into the U.S. Then that didn't work out, so we then decided we'd be better focusing on the other front end equipment for the time being.

Addison: What is your view, Jim, on why those conglomerates—GCA, Eaton, Varian, etc.—are not around any more?

Morgan: I think it's a tough business. I think they just didn't manage them right. Perkin Elmer got its products too tightly aligned with IBM and so they didn't have a broad demand. CGA diversified their

company trying to have three legs; one leg was semiconductors. Not only that but they organized it as a management team so they took their best people and put them up at the top, a little like Applied did, where they weren't engaged in the business. So they were trying to get economies of scale across all of the businesses. That's a dumb strategy for this kind of business. You need to focus on this business if you are going to make a success out of it. They got confused at the front-end and the back-end, [thinking it was] the same business. They had the same customers, but they were different businesses. My belief was that the test business could be a good business, and the assembly business could be a good business, but it wasn't the same as the front end business. I looked at the front end business and defined our work as anytime it's a wafer size, and in wafer form, we had a real opportunity to add value. When it got beyond that you started competing more evenly with other people, or maybe at a disadvantage, so that really drove Applied's strategy.

Addison: So you never considered the back end?

Morgan: I've looked at the back end, but as a separate business. Not as a multi-product business to the same customer. It doesn't mean I don't want to get in those businesses in some form, depending on technology and a lot of other things. It's just that they were a different business and we had more opportunities we could deal with in the businesses we had.

Addison: What about Applied as a training ground. Do you think Applied is like what Fairchild was to the device business?

Morgan: I don't think so because Fairchild isn't here and Applied is the leader.

Addison: A lot of people left Fairchild and started other companies, and people have left Applied to do the same.

Morgan: There's only so much room at the top of these organizations. We fortunately had a good crew of people coming up … most of the people through this whole period have supported Applied until their skill level ran out of gas or it was … in most cases it's been kind of a mutual thing. It's OK to make this transition. In each case, except for a couple of them, I've helped them, been supportive of them.

Addison: If Bob Graham didn't go to Novellus, it might have died. Jim Bagley went to OnTrak [now Lam]. Applied has had a big influence.

Morgan: Well … Novellus really improved Applied a lot. I've always liked having a competitor. We've been paced more by ourselves than our competitors, fortunately. I think Bob helped us be a better competitor. He was trying to do something different than we were doing. So that was fine. It was good to have him in that position. He knew exactly what he was going to do, you could predict exactly everything that he was going to go, and he did that. And I think that improved Applied. You're going to have a competitor. You just have to be sure you do a better job than anybody else.

Addison: When you become the No. 1 chip equipment maker, was that something that was always in your mind, and you had a target year for that?

Morgan: I could see the opportunities in the industry continue to evolve and expand. As we added products and added customers and added capability I sort of raised the vision in the company as to what we could become. So we started out [at] about $14 million after I got rid of the things that weren't very good. Then I set a target of $50 million. Then we did $300, $600, then a billion. Always out a few years, not an exact timetable. We had to get our capability within the house to be able to operate at that level and so we got there that way. We didn't have a timeline. We just had a vision of where we were going and a plan of how to get the foundation built to get there, but not a schedule of when to get there. As a result of that over time we kept growing and eventually we passed Tokyo Electron and the rest is history.

Addison: You were talking before about Novellus and how they improved you. What about TEL (Tokyo Electron), did they help you be a better competitor?

Morgan: We have tended to have more innovative products. They've done a pretty good job of engineering, so that's one of the thing we keep everybody focused on, that you've got to have outstandingly engineered products.

Addison: Let's talk about China. You were there in the early days planting the seeds. Can you talk about your approach to the China market?

Morgan: I felt that when China began to open up eventually it would become a high tech country. We had a lot of Chinese. David Wang was Chinese. You knew they were going to develop. And we had relationships, we had some mainland Chinese working for the company, and we had some relationships with some of the people there and with the consulate. So when Jiang Zemin, who at that time was Vice Minister of Electronics, visited the United States he visited four companies. A couple on the East Coast … and then on his way back to China he came to Applied. He'd got a notice from the [Chinese] government that he'd been promoted to Minister of Electronics that day. So we took him to Ming's in Palo Alto and celebrated his promotion. And he was my host when I went to China in 1984. Then we set up a joint venture to do service for a while and over time built our own capability there. So we have our own company and have done a good job there. We have good market share, a good team and good capability. We have worked with people for a couple of decades now in China and most of them have moved up into the hierarchy. We never knew Jiang Zemin would be the president [of China]. His vision at that time was right on. He and I were about 6 degrees off of where we thought the world was going in the high tech industry. I was amazed. He's pulled it off.

Addison: Comparing China and Japan and how you approached both markets; were there dramatic differences or was it the same formula?

Morgan: No, it was the same formula. We went direct. Put resources in, long term commitment, never wavered. It was a long, slow slug, but now we are highly respected there and I think as the China market develops we'll be able to capitalize on that.

Addison: Is there any image that stands out from your early visits to China?

Morgan: When I first went to China everybody was in Mao suits, primarily riding bicycles … I actually slept in Nixon's hotel room in Shanghai when I was there once and it wasn't exactly a fancy room. And so

it was pretty Spartan in those days. We set up this service group so we went around and helped with the different equipment servicing in China and as a result most of those engineers as they progressed all knew our people. So we had really strong, broad and deep relationships and trust throughout China.

Addison: When did you start thinking about your retirement?

Morgan: We kind of had an internal goal of changing the management when they are 65 … so about a year and a half ago it was time for the board to get serious about that transition. I told them they had till August 27 [2003], my birthday, so they got serious and we fortunately got a great new CEO [Mike Splinter] and I've focused on helping him make the transition and be successful and supporting the industry where necessary.

Addison: So really you had no choice but to retire?

Morgan: Well, I'm the first one to ever do that, it's a precedent effort.

Addison: If you didn't have a suitable successor you would have continued on?

Morgan: Oh no, the objective was to get a suitable successor. There's nothing like facing the requirement to get people motivated. Deadlines are great.

Addison: The idea of getting somebody from the customer base, was that something considered early on or later on?

Morgan: We'd done quite a bit of strategy work during the two years because I knew this was coming. As to where the industry was going and what we needed to do and gave the board an opportunity to assess all of the key people in the company. And it became clearer and clearer to the board that the industry was changing and that a customer's perspective got increasing value … management scale was an important value, and somebody that knew the industry was important. And we've got a great team of people in the company, so if we could get the right leader we'd have another decade of just awesome opportunities. They [the board] made a pretty easy decision. Fortunately Mike [Splinter] was available.

Addison: How was he approached? Did somebody call him at Intel?

Morgan: We learned that he was very serious about doing something else. So we wouldn't go to a customer, but if for sure he was going to go somewhere it would be better for all us, including our customer, for him to come to us. So I met with him and told him that he had to make the decision that he was going to leave [Intel]. I wasn't going to start a bidding discussion. Once he said he would come I made an offer. We closed it over a weekend. [My wife] Becky and I went up and had dinner with Mike and his wife … I'd talked to him towards the end of the week and said we'd come up on the weekend. We went up and had dinner Saturday. I told him to think about it and let me know on Monday, if he was really ready to walk the plank. He said, you bet, I'm ready, and jumped right in.

Addison: After running the company for so long and now handing over the reins to somebody else, how does that feel?

Morgan: It's great if you have the leadership to take it on. Dan [Mayden] and I were there at the time for what the company needed and now it's time to take the next generation. It's great to not have the responsibility of the whole company.

END OF INTERVIEW

