Oral History of Toshio Maruyama

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Sakamoto: Hello. My name is Paul Sakamoto and I'm interviewing Mr. Toshio Maruyama, current Chairman of the Board and past Chief Executive Officer of Advantest Corporation of Japan today. So, today is August 1, 2013 and Maruyama-san, thank you very much for participating in this oral history of you for the Computer History Museum today. First off, I'd like to start off with can you please tell us a little bit about your background; where you grew up and your work history?

Maruyama: Yes. I was born in northern Japan, not Tokyo area; that's why I'm a very local boy. But after the graduation from the university in that area I joined the company, the Advantest. At that time, the company name was not Advantest; it was Takeda Riken. So I've been working with this company for a long time, since I joined this company, almost 40 years— truly speaking, it's been 41 years. So because of the Japanese working style, everybody from my generation likes to work in one company for their entire life therefore I follow the Japanese style of working but of course I—imagine young generation guys may like to take a different approach, like a job-hopping type of approach, you know, they are looking for now everybody's career path but because of my age, my generation still, you know, that's kind of the value issues for the people. Well, I was the design engineer at the first stage when I joined the company and then I was asked by the boss, to move from design engineering to application engineering. At that time I was asked to move from Japan to the United States to develop the office and the business, and trying to sell our products to potential customers in the East Coast. So I stayed in the United States for almost 12 years and then came back to Japan and, I was named as the company president. And then company chairman; that is the current position that I am keeping. This is also my history, company history, that is.

Sakamoto: Okay, thank you very much for that. When you initially started out at Advantest over 40 years ago was the company already doing automatic test equipment for semiconductors or was it in another business instead?

Maruyama: Yes, just three years later; just after Advantest developed the first product, so-called ATE, I joined the company. Therefore from my era. But just three years later I joined the company and I touched on those business since that for a long time. [Interviewer's Note: What is intended here, was to communicate that he joined the company just three years after the ATE business was started. From his viewpoint, it has always been focused on ATE. In point of fact, Advantest had been involved in discrete electronic instrumentation (much as Tektronix in the USA) prior to that time. This early effort eventually shrank to irrelevance as a business element in the company and was eventually shut down, with the resources re-allocated to the ATE business.]

Sakamoto: So it's been ATE the whole time more or less?

Maruyama: I am ATE full-time, yes, even though it's a different kind of product and different kind of customer business and so on but yes, you are right.

Sakamoto: You were a designer you said when you started out.

Maruyama: Yes.

Sakamoto: What kind of circuits were you working on?

Maruyama: Basically not pattern timing generation but kind of the formatters to generate the final waveform signal as the data to be given to the device and the test. [Interviewer's Note: He is alluding to the fact that he was not creating the slightly more glamorous (to designers) sub-nanosecond timing system references but that he was working on the circuits that enable the ATE to simulate various inputs and test for outputs using these signals.]

Sakamoto: A quick explanation to those who might be viewing this video. The test systems that we're talking about duplicate the entire function of the system that the integrated circuit is to be inserted in and guarantee operating performance. So it's a very complex task to create the formatters, which duplicate all the possible signals. And from that point, you said you eventually moved into applications; but before we get to that what kind of technology was used to construct ATE at the time?

Maruyama: At that time the ECL (emitter coupled logic) device was very popular; that's why the process line was almost all for the ECL. I touched on the ECL design, you know, for formatting timing circuits..

Sakamoto: At the time did you think that ECL would continue to be the technology or did you view that sometime it would have to change?

Maruyama: Yes, that was changes, drastically, from the ECL to CMOS. Of course, you know, CMOS became available to utilize for implementation inside of the testers for the purpose of integration of many circuits into the CMOS as well as to reduce the power consumption and reduce the heating. Those are very positive issues if we are using the CMOS for circuit design, you know, we could do that; that's why it drastically changed from the ECL or TTL or whatever that bipolar to the CMOS.

Sakamoto: Okay. When that was possible to do, when it was able to move from bipolar technology to CMOS, so I think that was a big impact for the whole industry.

Maruyama: Yes.

Sakamoto: One of the other impacts though, was the ability to move from the older architectures for tester design to the new ones. So, I think Advantest; correct me if I'm wrong, they have been one of the last manufacturers to move from shared resource architecture to tester-per-pin. Can you describe maybe each one just a little bit and why you changed?

[Interviewer's Note: In the following section, he is referring to the fact that ECL was abandoned because it had too poor of a speed/power product to enable movement from shared resource to tester per pin architecture. The TPP was adopted because customer circuits needed the flexibility it provided. Advantest's entry was delayed because their engineers were just focused on making the shared resource testers go faster. This is why the Americans developed both the necessary temperature stable CMOS circuitry and the resultant products first.]

Maruyama: Yes, the shared resource, the tester is basically to save the R&D cost as well as the cost of this independent test system. We utilized the ECL to realize high speed operation. But no gain and no and reduction of the power consumption. CMOS was well accepted technology for realizing the next step architecture; that is the per-pin architecture. Before that we called it the shared resources architecture but the per-pin architecture means every channel that is connected to the DUT (device under test); the channel has its own dedicated resources by pin basis. So the much bigger circuitry should be implementing inside of the tester but CMOS is the perfectly good technology I mean, the device to realize that because CMOS is not having the big power consumption and according to the implement of the CMOS at the first stage CMOS was not acceptable because it's very weak by the power consumption; that means the heating. So the tester is the measurement tool., That type of the timing error is not acceptable therefore at the first stage utilizing the CMOS was not acceptable but it's getting better and better and better. So, the other companies, as you say that we were behind the American company; they invented or they used the first CMOS technology was because our engineers were too concentrated to develop the high speed circuitry and complicated circuitry for shared resource tester. This is the reason why we are delaying to enter into that design and all the technology there.

Sakamoto: How is the final decision made to move from the shared resources to the tester-per-pin architecture?

Maruyama: Yeah, we did a big argue among the people inside of the company but the biggest trigger to change our technology from the ECL to CMOS were the customer requirements. Customers requested very strongly that tester per pin basis ATE which was much more useful, much more productive approach; that's why we had to follow that. In that case, yes, we were trying to improve that drastically and taking time and spending money on that.

Sakamoto: So, as someone who has also made and sold ATE, customers say many things about why you need to do the things that they ask you to do.

Maruyama: Yes.

Sakamoto: But in your opinion what was the most important benefit that tester-per-pin brought to the architecture?

Maruyama: Yes, the most important point or beneficial point is the easy to make a test program according to the specification of the device, according to the pin assignment, the pin definition; very freely, the customer can make a test program because of the per-pin basis.

Sakamoto: Interesting. Now that seems like it would have had a big impact on software also.

Maruyama: Yes.

Sakamoto: How did you attack the software issue?

Maruyama: Yes, because of the Japanese company. Basically, generally speaking, you know, the Japanese are not so good at developing the excellent updated software like the Americans. Therefore everybody told me the joke, “your software should be developed based on the Japanese language.” But that’s a very big gap and that was the most disadvantage that we were facing at that time. Therefore we began making our software company in the United States, hiring American software engineers and we tried to develop from first stage forgetting all those Japanese-made software and replacing it with the new software which was being developed by the excellent American software guys. That took a long time but finally it’s become very close to the American-developed software.

Sakamoto: That was a great story and of course that’s something we’ve been able to see since. It must have been very hard. How was that decision made to move to a US software development team? How was this possible to do?

Maruyama: The trigger, or our requirement, was very high pressure was from the customers located in the United States, potential customers as well as customers. Yes, they understood clearly the excellence of this hardware; it’s okay but the software it’s still primitive; that was complaint and a requirement to improve that, yes, customers.

Sakamoto: Interesting.

Maruyama: Yes.

Sakamoto: So one of the other interesting stories that actually you had told me involved the legendary reliability of Advantest machines.

Maruyama: Yes.

Sakamoto: And at the time, I think, we could characterize, in general, American-built machines may have had interesting technology but they weren't very reliable. Advantest machines were so reliable that it was probably difficult to sell service contracts.

Maruyama: Oh yes.

Sakamoto: So perhaps you could explain how Advantest machines became so reliable? What was the process?

Maruyama: The technical point is that how to manage the heat generating from the devices; how to manage and how to control the huge amount of heat. You know, even though it's CMOS technology that becomes a very key issue for keeping the high lifetime and those of the higher reliability of the machine. It's very simple. The heating issue is the key issue is to be managed that; to develop a high reliable machine.

Sakamoto: Did you have to develop any different company processes to understand the data? I think that there's one thing to design something that's designed to be reliable but it's another thing to actually, in practice, have the system be reliable.

Maruyama: Yes, for making the device itself, it's not so difficult to manage the heat but as a system, the various kind of the boards which are located here and there so theair flows and the characterization of the temperature inside of the boxes — I mean, inside of the tester; that's kind of accumulated know-how; it's becoming a very key issue. Therefore because of the requirement from the customer's need to have a very big number of channels in that case heating up so much therefore how to control those heating, control the temperature, you know, that is the key. It's really know-how; not easy.

Sakamoto: Another area that Advantest was legendary in developing was the automatic handling for mass parallel testing.

Maruyama: Yes.

Sakamoto: Now, I think that today we know that there's no other company that does a better job but when was the first time that Advantest decided that it needed to go and create its own handling equipment and about what time was that and how did you come to that decision?

Maruyama: Sometime in the 1990s; because of the memory tester was booming at that time based on the Japanese customers who are all memory makers. Therefore to test the huge amount of the devices, of course, the handler type of the robot, you know, it's necessary to that. Therefore the trigger, or the requirement, was the Japanese customer who are producing the memory device. In case of the, you know, logic device, the various kind of the packaged shape and shape of the package and density— no, no the package, the height or pin number, various kind of the SoC [system on chip] devices to be tested but on the other hand the memory devices almost common, the geometrical size, pin and everything that are therefore to make a robot to handle those devices feeding it to the tester. [Interviewer's Note: He is stating that logic devices had a lot of differing package shapes and sizes as well as pin counts. Therefore, it was hard to find a common outline for a handler. On the other hand, memory package design was relatively consistent and the volumes per type are very high, which lends itself to robotic handling on a mass basis.] That's a very strong requirement as well as rather easy to develop. So that was the, as far as I remember, that was first stage that we made the decision to enter into the handler business. After that we have been developing various kinds of the handlers, which will be connected to the tester. So, as a total solution, you know, after docking all testers and handlers to say right to the customers for customer's solution is; that's easy that background.

Sakamoto: I think that's one of the things that is very interesting, I was telling you the whole work-cell concept at Advantest ended up being a key marketing concept or is this all part of the work-cell concept or did the work-cell concept come after developing handlers?

Maruyama: After that, yes.

Sakamoto: When you look at that, at some point Advantest had to make a change, as you had showed in another presentation, it had to make a change from being memory-focused for much of its revenue to being logic-focused. How did you make that transition?

Maruyama: First of all, what we did was change from the memory company to the logic, SoC tester company. Of course this was based on experience we developed the successful product in the 1980s which was based on those technological know-how we developed [for memory test]; the shared resources SoC tester but that was not well accepted by the customer. Therefore we, again, according to the economy or according to the thought to reduce the design costs as well as accepting customer's requirements, what we took was, was the new architecture concept that is the open-architecture. [Editor's note: In this case, "open-architecture" refers to the "OpenStar" initiative that Advantest undertook to create an industry standard platform along the lines of the previously successful personal computer (PC) business model]. So based on the common platform we are developing several kinds of the— various

kinds of the board to be mounted inside of the common platform and interface was open, you know, interface was open to the suppliers or makers or other customers who are interested [in] connecting their board or their measuring machine. What you asked me was that I guess the, you know, truly speaking, you know, our product name is T2000 with so-called open architecture designed tester was one of the, you know, just an epoch-making shift from the memory tester company to logic tester company.

Sakamoto: Okay. And that was primarily customer driven or was that a marketing initiative from…?

Maruyama: The story is that I was pressured. You know, at that time I was working in the United States for a long time but two American friends, the customers told me or insisted to me you have to develop something conceptual ideas in this industry. Just trying to sell the excellent machine to the customers located in the United States and you're getting a bigger profit from those businesses; it's not acceptable. You have to contribute something with them making that many papers and issuing to the American conferences as well as introducing something new idea, you know, conceptual idea, the business ideas and that is one of the contributions to the industry. So I've been keeping— after being back to Japan of one of the approach I did was the new conceptual, you know, the architecture that is open architecture; that's not a complete success story but that's well accepted by the merged company Verigy, too.

Sakamoto: Okay. If I remember correctly, going back to the roots of Advantest there is a tie-in with Fujitsu Corporation; at one point a strong corporate tie.

Maruyama: Yes.

Sakamoto: Could you talk a little about the relationship between Fujitsu and Advantest?

Maruyama: Yes. A long, long time ago when we had trouble, financial trouble, Fujitsu helped us financially. That's why almost 20 percent of our stock was Fujitsu and we are keeping those kind of relationships not only the financial solution but also Fujitsu is a very technical company; it's similar to the engineer-driven company therefore there are many ideas or technologies they are having and could be shared with us. So, in this case, very nice relationship as well as the potential customers, right? I mean, the customers who are producing the device so they need testers; so mutually we are developing the testers, not dedicated testers, but we have obtained many excellent technology requirements as well as the production requirements. But we have been keeping those relationships, the 20 percent, in that sense a big number therefore the first stage the Fujitsu dispatched their executive to Advantest as their top management of Advantest for a while. And then I was the first proper president. I've been working with this company since I joined the company. I mean, after graduation from the university therefore, in a sense, I was the first experienced president, yes. [Editor's note: Maruyama-san has worked at Advantest and its predecessor, Takeda-Riken, since graduating from college.] So that timeframe, [Editor's note: around the time that Maruyama-san took the President's role] they asked us to make their stock half there

for now almost 10 percent relationship, not the big numbers but still keeping the relationship, you know, technological information to be shared or some advice from the Fujitsu people; that is current status.

Sakamoto: It's interesting, that leads me to another question. One of the guests at our recent panel session was asking about the impact that listing on the New York Stock Exchange as an ADR had to the company, but I think I would change that a little bit and say if you could restate, once again, what was the motivation for issuing your stock as an ADR on the Exchange?

Maruyama: I'd been staying in the United States and being back to Japan, we're talking about globalization. What's the necessary approach to make the company globalized? You know, various kinds of approaches we develop— we thought; one of them is financial— what do you say, transparency; that means we get very visible, you know, the report according to the financial report which is American style; this is one of the very important—; through that job everybody is thinking "Oh this company is global company. We are listing on the New York Stock Exchange." The kind of pride or kind of the not negative but positive pressure to all employees that we have to follow the rule of the Americans, the rule of the worldwide. Therefore their motivation or the pattern of the working style becomes not 100 percent equal to the American, not equal to the European but thinking about those changes, they are very seriously thinking about what we should do in the sense, separate from the Americans, separate from the Europeans thinking about our advantage as a Japanese company. That is, as far as I know, as a top management or executive person. Again we are not willing to collect the money in the field [Editor's note: Maruyama-san is describing the fact that the ADR is not profit motivated, but a vehicle to help insure that his company has more of a global outlook since it has to be compliant with local securities regulations. It is part of the company's globalization initiative]; that means the American, by listing our company on the New York Stock Exchange, yes, that's not money-–driven but kind of to make the, in a sense, the global company, Advantest global company then; that's kind of real reason.

Sakamoto: It's interesting. So if I can just summarize. You were able to align the accounting principles with things that your customers and other participants could understand and you could get your own company to better understand their customers.

Maruyama: Yes.

Sakamoto: That's great. That leads me to another US kind of question which goes back further than that. So one of the things I wanted to explore with you is whenever you start a new sales effort somewhere you usually have a list of customers; the most important one, the next most important one and when you came to the US in the '80s you probably had a list of customers that you were going to go access and I was just wondering what was the first top most important customer to you and who was the actual first customer? Was it the same? Did that line up?

Maruyama: The real reason why we thought we have to try to sell first to the potential customer such as AT&T or IBM, these so-called established company at that time in east coast was kind of the challenge mindset. You know, our product seems to us, our product is excellent; the reliability-wise and the functional-wise or specification-wise compared to the competitors like that. So what we discussed among the four or five people [Editor's note: on the Advantest USA team] was let's go; the kind of challenge to introduce this product to the AT&T or IBM first instead of the start-up companies at that time in west coast. And, thinking about it again, the efficiency of the sales or what they say, productivity of the sales job because of the few number of people; I mean, the total at that time was around five or six people, to try to sell the product. The very high confidence that this is an excellent machine compared to the competitor, to for example AT&T is the maybe right approach if we are getting success, we are getting success, that you know, could impact to the other potential customer, you know, for example located in Dallas area, located in the west coast area. So we got success fortunately because the, again, basically number one reason is reliability. At that time the competition was in the United States was not having any good reliability. So we could give the very nice positive impression to the customer; first customer was AT&T therefore AT&T introduced the excellence of their product not only specification high speed but also the reliability to the other customers through the networking such as the test conference or any of those networking. So it helped us so much without spending huge amount of resources to try to sell that many customers at once, yes.

Sakamoto: Oh interesting. So if I can summarize. You wanted to focus. You needed to focus.

Maruyama: Yes.

Sakamoto: And you also needed to have customers that were aligned with your value system which included quality and reliability and you didn't believe at the time that maybe some of the other customers were quite the same and I think that really makes a lot of sense.

Maruyama: Yes, it was that the American potential customers as well as our customers helped us so much. You know, because the customer was very fair and they are evaluating our machine without having any potential buy American type of the mindset therefore our customer, AT&T and IBM, they said to me a hundred times "Good products are good." I was very impressed knowing that because I did not know it before. Japanese, we like to purchase Japanese-made products as much as possible if that is the similar or the similar function and the similar specifications, similar reliability. [Editor's note: more fair in their evaluation. In this section, he is saying he was impressed that the US customers would purchase based on merit and not lean as heavily on country of origin as a customer in Japan might do.]— I was very impressed with this thing that's helped me so much.

Sakamoto: Yes, interesting. One of the interesting points to me is that at the time Japan had become the quality leader in the world, in both ICs and then in testers, so that is a big difference. So, at the time also,

you had your initial successes and then you moved on from there to IBM, I think was another early customer.

Maruyama: Yes.

Sakamoto: And that must have been a really good time. Was there a time that was disappointing during the early days?

Maruyama: Yes, one of the disappointing things, not to me but to the customer, was the software at that time.

Sakamoto: Okay.

Maruyama: Software was very primitive so for the American people. The American software has advantages; much higher quality as well as the functionality therefore we could not follow their quality or functionality of the software that the Americans were developing at the time; so that is one of the disappointments but customer side was, yes, this one our side, lack of the resources to expand our business including west coast and kind of the lack of the skill of managing those people; the American residents. Therefore what I did was the all subsidiaries' top management should be a resident. American top management is American. European top management— a subsidiary of Advantest of course in Europe top management should be a resident. At the first stage, it was very tough to manage those people. I gave good aid, call by phone in the day and the night andbeing patient for little bit or long time and sharing the information as much as possible and then becoming their understanding of our approach, or the personality or company nature, so whatever, you know, and then getting better needed to take a long time. But that is one of the biggest difficult things that based on that we could, you know, acquired Verigy, an American company. Without having those background or history, historical approach, you know, we couldn't do that.

Sakamoto: Interesting. I think just as a comment for people who are reviewing this transcript someday, at the time you were doing this there was no Internet and there was no easy ability to communicate around the world.

Maruyama: Yes, right.

Sakamoto: A lot of the communication was done with faxes and letters? The mail?

Maruyama: Or tape.

Sakamoto: Tape? Yes.

Sakamoto: Yes. So, along the lines of trying to make the company more western-friendly, I think you made the transition from the name Takeda Riken whereas you said during your presentation some people thought it said “Take da Riken.”

Maruyama: Take da Riken, yes. I told that’s not my company.

Sakamoto: Yes. So, how did you decide to make the transition and how was it received in Japan?

Maruyama: Yes, the first is, you know, we started the business in the United States; again, I guess five or six people. So, nighttime frame or daytime and then getting together and drinking or whatever we are talking about the Americanized product as well as Americanized product name. So, for example, IBM or AT&T, they are introducing their product with kind of nickname; so we have to give the nickname to our product we try to sell to the American customer, kind of a joke but getting together “Yeah, yeah, Advanced Test Technology or Advantest?” You know, one guy, not me but one guy told me, told us “Oh that’s good idea. Let’s make one of the product nickname.” Utilizing that without introducing so much to headquarter in Japan; so first product name was officially T3340, 3340 but Advantest, they said Advantest in putting the Advantest logo in the corner of the test system so the, I guess, two or three years later, I guess the new company president was named at that time so that new company president at that time his name was Dr. Sasaki. Sasaki-san likes to change the company name.

Sakamoto: Yeah.

Maruyama: Yes, so he was looking for the candidate. So one of the candidate was, you know, our nickname of the product and we didn’t know that and you know suddenly he told us, “I like to make your nickname the company name.” We said, “Oooh what’s happening?” It’s very happy with that.

Sakamoto: Oh that’s great.

Maruyama: That was in 1985, yes.

Sakamoto: Yeah, a lot of great names of companies that happened while you’re having a beer.

Maruyama: Yes.

Sakamoto: Oh that's great. One of the things I think is interesting is the semiconductor industry and the supplier industry is not for the faint of heart because it's very cyclical, as you have mentioned.

Maruyama: Yes, yes.

Sakamoto: And yet your heritage of Advantest and Takeda Riken comes from a non-semiconductor heritage. Was there any trouble getting the established management to understand the cyclicality of semiconductors and how did that get overcome?

Maruyama: No, no, at the first stage our businesses, the success right for a while and then we faced the kind of a crisis, so-called Asian money crisis, right. So that was the first downturn. At that time we thought that's just in the area of the Far East, money crisis, therefore we could wait until that becomes stable; so that was the first experience that we faced that but the next one is the IT bubble and after that drastically almost two-thirds down, not one-third, two thirds down, for the management there was nothing to do to protect against the downturn therefore we thought that this is real problem for this business; I mean, ATE or semiconductor business we understood at that time. So this is one trigger, one of them—not all triggers— one trigger we listed our company on the New York Stock Exchange to know what's happening in the world.

Sakamoto: I see. So you actually got a connection…

Maruyama: Yes, a connection, that information and even that of course because of the economy, general economy in the world, our business fluctuates up and down, up and down, then recently that up and down becomes very short term; it's not two years or something; it's very up and down because they are device, I mean, semiconductor device has been used recently, you know, in the phones or smartphones whatever, the mobile, the product. Therefore it's a big impact from the economical situation in the world so that's transferred to our company in a sense directly, therefore it's very tough to control that but to know the change, a very short time fluctuation, to make company global information-wise it's very, very helpful for me I think.

Sakamoto: So essentially, you decided to just be flexible, understand what's going on and make sure you have adequate reserves to deal with the changes?

Maruyama: Yes, yes, right.

Sakamoto: Okay. Well, let's see, let me get onto the next thing which is, you know, in the memory world we've seen a huge shift; you just mentioned part of it.

Maruyama: Right.

Sakamoto: And in logic we've seen a huge shift from the time when it used to be Wintel ran everything to now, not, right and there's a lot of quick changes today.

Maruyama: Yes.

Sakamoto: Apple is like a big deal; maybe two years from now it's not.

Maruyama: Yes.

Sakamoto: And so, in the future, how do you see the test market changing and what are you planning to do to…?

Maruyama: The tester market, I'm not thinking it's going up rapidly again. The reduction of market size, that is my understanding, whatever the real world, no one knows about what's coming and nobody could predict what's going on for future but generally speaking our base of thought should be no expansion of the market size of the ATE business like that. So based on that I guess the still testing or— yes, testing is needed in any case for example to improve the yield or to guarantee the quality of the device because the device will be used for the social networking or what do you say, the various kind of areas including automotive and housing so that because of safety even with the bank, the safety is very, very important issues. Therefore tests are needed forever but size of the testing business is sometimes up and down and also they were shrinking because of the technology, in a sense. In a sense that one thing is they are improving the design and process because of the reason they don't need the test much. On the other hand because of the shrinking so much and also the very strong kind of pressure from the society, or people—, you know, the final product should be very safe and very reliable; in that case that balances out therefore I guess some amount of testing needs will remain forever. So it would be interesting to know what's going on, I mean, very carefully investigating what's going on is a very key issue, that's marketing issue.

Sakamoto: And maybe this next question you might not be able to comment on very freely but I'll ask and then you can decide what you want to do.

Maruyama: Yes.

Sakamoto: The industry observers, including myself, are very not surprised that the industry continues to consolidate but it was kind of interesting that Verigy was trying to buy LTX-Credence and then all of the

sudden Advantest decided to buy Verigy and the question that always comes up is “What happened first? Was Advantest already planning to buy Verigy or was that a reaction to the possible merger?

Maruyama: Yes, now it’s available to introduce a story even though it’s not complete 100 percent but as a matter of fact we have been among the executive groups, just four or five years before we acquired the Verigy. We talked about this at that time; therefore the timing and also the, what you say, kind of these thoughts, how much the merging gives the impact to the market and getting the market share and getting the profit or revenue with that so I’ve been keeping the discussion inside of the company.

Sakamoto: Okay.

Maruyama: I guess the Verigy and LTX issue that it’s not on purpose, just by accident. I know because we thought the best timing was now, therefore that’s not related to kind of the negotiation between the Verigy and the LTX.

Sakamoto: So it’s almost more coincidence?

Maruyama: Right.

Sakamoto: And you’d already had the plan moving for some time?

Maruyama: Yes.

Sakamoto: Okay. That actually seems to make a lot of sense given the methodological history of your company. And that brings up the last couple of questions which are so it’s always very difficult in at technology company when you’re considering an acquisition to go out and acquire something because your engineers will always tell you, always tell you— I am guessing that your engineers told you too “If you want to do that we could do it too. We know how to actually make everything they make. You just haven’t told us to make it yet. So if you give me a little time and some money then we’ll get this done.” How do you overcome that?

Maruyama: Yes, the basic reason, I mean the additional reason why we acquired the Verigy was of course I introduce once already to increase market shares for making this company or ATE company stay alive because it’s one of the side, right? Oh we are thinking of course other side is that to make the global company we need the kind of resources not only Japanese but all local Americans, Europeans and Far East people which our employee but also the new talented guy to be joined to those Advantest, the groups; that very important issues to make the company globalization then because the speed of

changing the business in the world, even the ATE business or even though the semiconductor business, the speed to innovate or to change is so fast therefore to develop the resource inside of the company, it's not enough taking up more time by educating them this is the American's approach, this is European you have to study that; you know, you stay in the United States for five years to study the— that's too slow. One of the reason is to keep some amount of the or big amount of the talented guy should be located to that area we don't have enough resource internally in our company so far that; this is very important issue that therefore because of the reason that is background in any case; that's two reasons why. So this is important, yes.

Sakamoto: So it's interesting; it's really more of a market size and cultural importance than it was just the capability.

Maruyama: Correct. Yes, based on what we did so far, you know, that's kind of my experience that, you know, we cannot be patient anymore to allocate the necessary resource from the internal people but also from the outside.

Sakamoto: Well, sort of the last couple comments I wanted to make are just so you've been at Advantest, like you said, for 41 years now.

Maruyama: Yes.

Sakamoto: And I think all of us during a long career we have these things we would have done better, things we don't think we could have improved. I guess what I would just like you to comment on is in that time is there anything that you would do over differently? And the second thing is, what is the proudest achievement of your company; that thing that you think it should be remembered for?

Maruyama: Okay. Yes. Thank you very much.

Sakamoto: Oh okay. I guess we're good.

Maruyama: Right.

Sakamoto: Okay, great. Well, thank you very much.

Maruyama: You're welcome.

Sakamoto: And I guess that's this one. So…

END OF INTERVIEW

