Taiwanese IT Pioneers:
K.Y. (Kun-Yao) Lee

Interviewed by: Ling-Fei Lin

Recorded: March 8, 2011
Taiwan, R.O.C.

Sponsored by:
National Security Council, Taiwan, R.O.C.

CHM Reference number: X6025.2011

Ling-Fei Lin: This is Ling-Fei Lin. Today is March 8th, 2011. This is part of the US Computer History Museum's project on the oral account of Taiwan's history, interviewing the forerunners of semiconductors and computers in Taiwan. Our guest today is K.Y. Lee. Mr. Lee, please state your name in Chinese and English.

K.Y. Lee: My English name is K.Y. Lee. I was going to call myself "Kun-Yao Lee" in English, but a lot of people had difficulty pronouncing it, so that I simplified it to K.Y. Lee. My Chinese name is "Lee Kun-Yao."

Ling-Fei Lin: Please tell us about your background, including the place you were born, the date and the place you grew up, your family, childhood and so on.

K.Y. Lee: I was born in Houlong, Miaoli in 1952. It's a small town by the beach. My father owned a small rice milling factory, a rice milling contract/"OEM" factory.

Ling-Fei Lin: OEM?

K.Y. Lee: My family was in the OEM business too, <laughter>. It was OEM in the sense that we helped people mill the paddy rice to brown rice, then from brown rice to white rice. When I was little, I had to help my parents during holidays. It wasn't an easy task. The factory was dusty, dirty, and very humid. It was very hot, too. I spent nearly all winter and summer breaks helping my father. I also helped with the delivery. Because of that, I was of a sturdy build. After graduating from elementary school, my teacher suggested that I not continue my studies at local schools. Instead, he suggested that I take the entrance exam for a middle school in Hsinchu. Back then we had to take middle school entrance exams. So I passed the exam and entered the Hsinchu Secondary High School. Every morning I took the 6:08 am train from home to Hsinchu, and got home around 5pm. I commuted back and forth for three years. After middle school, my teacher suggested that I take the senior high school entrance exam in Taipei. So I got into Taipei's Jianguo Senior High, followed by the National Taiwan University. I stayed at the university's dormitory for four years. NTU was very different back then. Hsin Sheng South Road was just a gutter. We used to call it Heilongjiang.

When I was at home, even though I only lived there until I finished elementary school. I spent nearly all my holidays helping my father at his factory. So before I started working, I helped my father whenever I had time. During my school years, I didn't spend much time at home, only six years. I spent most of the time in Taipei and Hsinchu. I came to Taipei after middle school. I've been living here since I was 16, which has been over 40 years. I've spent more time here than at home.

Ling-Fei Lin: Was your father's rice milling factory big?

K.Y. Lee: It was a small one. My father was on a tight budget and he didn't have enough money to buy his own rice, so we helped retailers mill. We let the retailers store their rice at our place. We milled and delivered for them.

Ling-Fei Lin: Okay. What was your best subject in school?

K.Y. Lee: I can't remember. I was probably doing better in physics and chemistry.

Ling-Fei Lin: Were you specifically interested in anything when you were little?

K.Y. Lee: Not really. I recall that while attending Jianguo High School, my school was close to the used bookstore on Guling Street. That was probably the first place I found interesting since I moved to Taipei. So on Saturdays, I'd go to school in the morning and spend the rest of the day at the bookstores. I was like, having lunch there, then reading books and checking out used goodies from one bookstore to

another. It was quite fun. Too bad that the place is gone now.

Ling-Fei Lin: Were you a hardworking student? What made your studies successful?

K.Y. Lee: I wasn't a hardworking student when I was little. I grew up in the countryside and when I had free time, I had to help my family. I didn't have much time for studying. It was very different from what it's like nowadays. In the past, parents didn't arrange tutoring classes outside school curriculum. We didn't have many reading materials, either. I didn't start reading for fun until I moved to Taipei…from the bookstores on Guling Street, I found a lot of great books, but before then, I either spent my holidays playing or helping out at my father's factory.

Ling-Fei Lin: Were you the only child?

K.Y. Lee: My family had eight children, I'm the sixth child amongst the eight. I have a younger brother and a younger sister.

Ling-Fei Lin: Did you have any idols when you were little?

K.Y. Lee: I didn't have any idols at that time. Most people were busy seeking improvement in their financial circumstances and living standards, so we didn't have the chance to know about celebrities. I remember when we were little, my favorite thing was going to the movies with my father. The most interesting movies we saw could be categorized to two types, one of them being Japanese movies, like samurai movies, military movies, or movies about Nogi Maresuke, 203 Kōchi, and Russo-Japanese War. We were familiar with such movies, because it wasn't long since Taiwan's independence from Japan, and there were a lot of Japanese-related things in the society. Another type of movie was the Huangmei opera films that were popular, such as "The Butterfly Lovers." Also, televisions arrived in Taiwan around that time. TV series like "We Were Soldiers" were very popular in the countryside.

Ling-Fei Lin: Why did you want to study in the Department of Electrical Engineering? Was it your most-desired major?

K.Y. Lee: Not really. I was first admitted to the Department of Civil Engineering. There were four programs, but all students started out the same. I did a good job in the first year so I had the opportunity to switch majors. I decided to switch majors because I wanted to study something more versatile and more interesting. Civil engineering involved heavy work, and electrical engineering was more versatile. So I switched majors to electrical engineering with the other top students.

Ling-Fei Lin: Was the Department of Civil Engineering your first choice for university major?

K.Y. Lee: No.

Ling-Fei Lin: Why did everyone want to be in engineering-related majors?

K.Y. Lee: It was just popular. Nothing special.

Ling-Fei Lin: Was it a social trend?

K.Y. Lee: Yes. My father even said to me: "Why did you choose to major in electrical engineering? To climb utility poles?" As you can see, the industry has been changing since then. Even software is part of the electrical engineering industry now. That is what makes the industry special. With its fast changing pace, we can see that the industry is highly innovative and provides plenty of opportunities.

Ling-Fei Lin: So in what year in the 1970's did you enter NTU?

K.Y. Lee: 1970.

Ling-Fei Lin: You entered NTU in 1970....

K.Y. Lee: And graduated in 1974.

Ling-Fei Lin: After graduation, why didn't you continue your studies in the USA like everyone else did?

K.Y. Lee: To be honest, during my stay in NTU, it felt like my Jianguo years. I studied at Jianguo High School for three years before I entered NTU, but it was not much different from high school. The professors used to lecture in Japanese, Taiwanese, and Mandarin, I doubt he even knew what he was lecturing about. I realized that I wasn't getting much from school, and I should figure out what I really wanted to do before I continued my studies. I decided to gain some work experience before making the decision. When I was in school, in fact, the friends that inspired me were not my classmates but people from extracurricular clubs.

Ling-Fei Lin: Best friends? What kind of club was it?

K.Y. Lee: I met them at a hiking club. I was very active in the hiking club. I enjoyed hiking during the holidays. I remember spending nearly every weekend up in the mountains during my second year.

Ling-Fei Lin: Didn't you go home for rice delivery?

K.Y. Lee: I only went home when I had long holidays. For short holidays, I didn't go home and stayed in the mountains. It was very interesting. One reason was that I enjoyed nature. I also felt very relaxed in such an environment. Many of the people I hung out with remain close friends of mine [today]. We were close to nature in the mountains. Some of them were from different fields of study, it was a great learning experience as they introduced me to other areas of professional knowledge. I've met people from College of Science, Department of Biology, Economics, Agriculture, and many other fields. I believe that was the greatest experience one could get from universities. That's why I suggest young people to attend universities instead of technical schools that focus on certain fields, like schools that only have engineering institutes or bio-tech, [because] it limits your perspective.

Ling-Fei Lin: You mean for university studies?

K.Y. Lee: Yes.

Ling-Fei Lin: When was the first time you came into contact with computers?

K.Y. Lee: In my first year of university.

Ling-Fei Lin: The first year?

K.Y. Lee: Yes, in my first year. We were using punch cards; it was a real hassle. After we finished writing programs, we needed to punch them onto cards and give the cards to the lab. The lab would execute the program, and give the results back to us.

Ling-Fei Lin: What did you think about computers back then?

K.Y. Lee: Very interesting, because people's logic could be shown in the result of their programming. It was very interesting. I liked to put different things into the programs. The different results I got from trying out different arguments allowed me to compare which of my ideas were better. I was very into that. Sometimes when I was short of paper for calculating, I'd purposely write a couple of programs and have a bunch of paper printed out. It was fun to me. Although I couldn't personally operate the computer, it allowed me to test my own ideas and through experiments, get an idea of what the virtual world was, and some ideas on *humanity. With the help of machines, men's ideas could be simulated and then realized. That's why it was interesting to me.

Ling-Fei Lin: So, when you transferred to the Department of Electrical Engineering, were you already interested in computers?

K.Y. Lee: Yes, I was really into computers. NTU back then, it was a liberal school, so there were all kinds of classes available for selection. I tried to learn as much as I could by taking various courses. But frankly speaking, academic studies were far from the real world. There weren't many good teachers. And not all of them had a solid background. And if they did, whether they could effectively teach was another problem. Also, it was questionable whether they were qualified to be students' mentors, to be a lifetime influence…that was another problem.

Ling-Fei Lin: So, did you have any self-study plans?

K.Y. Lee: I spent a lot of time reading books and learning things outside the school curriculum. For a while I was studying astronomy, and also literature, and I studied a lot of literature-related things. Meanwhile, the Diaoyutai political movement just started at that time. In my freshmen year, to claim national sovereignty over the Diaoyutai islands, the protests started in NTU.

It was a great shock to me. There were many students from Hong Kong and Malaysia staying in the dormitory, and I was perplexed why things the Taiwanese students avoided, they would have the guts to do. It was because we still had military drill sergeants working as dorm wardens back then. So one time, those Hong Kong students started a protest at the American Embassy. Many students were recruited to join, but not the Taiwanese students. Most were overseas Chinese students. I remember that night, all the Hong Kong students were out hiding as they knew the drill sergeants would try to intervene. I don't know where they went that night. There were a lot of them, especially in my class. So the second day they gathered; it was like the recent "Jasmine Revolution." We Taiwanese students were surprised how people like our dorm mates had the courage speak up. Taiwan was very conservative back then, 40 years ago; what they did was really unusual. But for those overseas students, they didn't have much pressure. Their families were not in Taiwan, so the government had little control over them. At worst, they would get expelled. So to have all that happen around me, it was a great lesson for me.

The Diaoyutai movement got stronger, NTU invited people like Taiwan's ambassador to the United States, Fredrick Chien, to give a speech on campus. A lot of the political taboos were discussed, and soon things got more liberal, and it was another learning experience. What I learned from those years was not limited to the technical courses and liberal arts courses, but also in many other aspects. My university years were very important, gave me a lot of things; they are an important asset in my life.

Ling-Fei Lin: Let's talk about your first job. What was your first job?

K.Y. Lee: I had my first job after I completed my military service. I went back to NTU and asked those who were still in school what they were studying. Many of them told me the newest course was about microprocessors.

Ling-Fei Lin: Didn't you take that course before?

K.Y. Lee: That course didn't exist when I was still in school. Things were changing fast after my graduation. I borrowed some books on the topic and liked it. So I decided to dive into this field. When I was looking for a job, I specifically looked for vacancies in this field, and I got a job from Rongtai Electronics. Rongtai was the biggest calculator manufacturer in Taiwan; Stan Shih was the deputy manager of the company back then. I didn't know the background of the company, I was simply hoping to find a job related to this field. Right after I completed military service in 1976, the best jobs for electrical engineering majors were engineering jobs in international companies, as testing engineers, quality control engineers, or production engineers. I had interviews with a couple of companies, but I didn't want to work for any of them.

Ling-Fei Lin: Why not?

K.Y. Lee: Those jobs had nothing innovative. No room for development, it was just manufacturing for other companies. Back then, the best jobs in Taiwan were in companies like GI, TI, and RCA. I didn't want to work for any of them, so I focused on jobs related to microprocessors. At that time, Rongtai happened to be importing an American microprocessor called 6502. Mr. Shih started a team specializing in it, with an attempt to design products for the microprocessor. I liked the idea and I accepted the job offer from Rongtai.

However, I didn't know that Rongtai was facing a financial crisis. I remember clearly, that when I started working there, the company was on the fifth section of Nanking East Road. It was near the building where the China Development Building is now, just right off MacArthur Bridge. Forty years ago, the area was undeveloped, it had rice paddies nearby. When my job started, I wondered why my friends weren't doing anything but listening to music all day. Everyone was listening to music in the production area because there was no work to do. Then I asked around and found out that the company failed to get any orders.

I didn't think much about it, and focused on the microprocessors. So I started learning about micro-processors, the circuits and the programming. I really enjoyed working on the project. There were a dozen people working in the team; we were probably the leading company in the field in Taiwan. After about two months, Mr. Shih told me the company was having financial problems, and this department was to be shut down. It was an expensive department, so we couldn't continue.

Ling-Fei Lin: You mean the department working on microprocessors?

K.Y. Lee: Yes, the whole department was shut down. He said that as most team members graduated from NCTU, and they were going to start a company. But the new company couldn't afford to hire that many people, so he asked me to stay in Rongtai to design calculators for the time being. I told him that there wasn't much to design, because they were IC models provided by other companies. We designers were of little use at that job. So I told him that I would quit if there were no microprocessor jobs to do, and I left the company.

After I left, I learned that Mr. Shih and the other old coworkers started Acer. He was still working for Rongtai when Acer first started. He let George Huang, Fred Lin, and other NCTU graduates from the team start the company together. I told him it was okay for me to find another job. Under such sudden circumstances, it was a little difficult for me to quickly find a new job. Tatung College happened to have an opening for research assistant for microprocessor projects, so I went to work there, helping professors work on microprocessor projects for teaching purposes. During work hours I could write some software programs and do some design jobs too. So my first job only lasted for three months, then I became a research assistant at Tatung College.

Ling-Fei Lin: So you were a research assistant for three months?

K.Y. Lee: Yes, only for three months as well, ha ha. It was really interesting. I remember back then, the

Tatung Corporation and its technical college were not separate. Even their offices were together. The company's research department and the technical school were in the same building. It was really interesting. Tatung was an ideal company for university graduates back then, and surprisingly, ten of my classmates were working there.

Ling-Fei Lin: Were they all working as research assistants?

K.Y. Lee: They were mostly doing research and development, or being lecturers. One of the classmates didn't do his military service, so he spent the two years in graduate studies and became a lecturer at Tatung. Lunchtime was like a reunion for us. We would exchange opinions regarding machinery.

I had a problem adapting to the system though. The administrative system was rigid and bureaucratic; very inefficient. So after a while, Mr. Shih told me the new company had been operating for three months, and could afford to hire more people, and asked me to join, so I went. I joined three months after the first group of founders joined Acer, but I was the first engineer they hired outside of the field. But of course we already knew each other; my Acer employee number was 007.

Ling-Fei Lin: Why? Weren't there already seven people when the company first started?

K.Y. Lee: I was number 007 because some people left the company.
Ling-Fei Lin: You mean one of the co-founders left?

K.Y. Lee: Two of them.

Ling-Fei Lin: Two people?

K.Y. Lee: Yes, two people. One specialized in industrial design while the other focused on trade.

Ling-Fei Lin: So you were number 007.

Ling-Fei Lin: When Acer first started, did the company have a clear objective? You were one of the early employees of the company. Did you help shape the company's objective? Could you tell us what it was like for Acer at that time?

K.Y. Lee: It was pretty simple. Mr. Shih thought although Rongtai had financial troubles and couldn't support the microprocessor department, the microprocessor was still a promising industry. So he wanted to be a part of it, and we shared the same ideas. We all thought it had great potential, it was different from anything else before. In those days, we had to punch the programs we wrote onto cards. Nowadays you can write the program and immediately have the CPU show the result, the result is immediate. The process was like turning people's logic into electronic signals, and we could modify it upon seeing the results. It was a very interesting idea, because it was like putting an entire CPU onto a single microchip, it had great potential.

Mr. Shih saw the potential of it, and decided to bring the technology to Taiwan with the hope of using this technology to design our own products. So at first, Acer wanted to start by *being a distributor. It was a good idea because distributing products allowed the company to stay afloat. So we started with international trade, promoting this technology, and accumulating this technology before we started designing products for other companies, and finally making our own products. That was the plan back then. I wasn't that deeply involved, but I knew the right thing to do was to remain in the industry. All I knew was the potential of it, and wondered how we could get the best out of it, and profit from it. In summary, we started with trade, and once we had the technology, we started doing innovation, then got into production and building on the innovation. That was the basic plan.

Ling-Fei Lin: Was it difficult to keep the company afloat in the beginning? Since it was a money-burning department in Rongtai, was it the same for Acer?

K.Y. Lee: It was very costly, so my salary wasn't so good. My first paycheck was around 5000 New Taiwan Dollars. Mr. Shih knew we were having a hard time, so he allowed us to buy the company's shares. There were no free stock options, we had to pay for the investment. So part of our salary was put into this investment.

Back then, the capital markets' investment was not a popular idea in Taiwan, so none of us knew what it was going to be like in the future, that's why we started with doing trade. It was the time when the microprocessor was still a fairly new technology. Universities had just started teaching it and few companies had the chance to take part in it. So we started to open classes all over the island. The classes were not only making money for the company, but also helped us develop potential clients. It was the first significant job for us. We would spend a lot of time and effort on preparing teaching materials. Many of the clients were the big research institutes, like ITRI and the Chung-Shan Institute of Science and Technology. We were frequently visiting the Hsinchu, Longtan, and Taoyuan areas, teaching in the universities, but we were mainly teaching at research institutes. For other clients, they'd come to Taipei and have classes in our office.

Ling-Fei Lin: How did you learn the technology? Were you self-taught? How did you start before teaching others?

K.Y. Lee: Mostly self-taught. Frankly, what they were teaching in school about microprocessors was very basic. I've read some text books, the ideas presented were very basic. On the contrary, the knowledge we learned from the industry was far more intense. So we were learning on our own and from each other.

Ling-Fei Lin: So were you were a distributor of Zilog? Did you learn anything from them?

K.Y. Lee: Yes, some people had training courses at Zilog; they also sent some engineers over to teach us. So later when we started distributing AMD- their microprogramming- a program inside microprocessors, inside the IC board, a deeper and higher level of programming. The company sent me to a two-month training course in America, and I stayed in America for two months because of that.

Ling-Fei Lin: How was the experience?

K.Y. Lee: It was a pretty good experience. The company didn't have much money, so Mr. Shih arranged for me to stay with his classmate who worked at Hewlett-Packard. His friend had an old Mustang that had a leaking problem, which I drove around in. I planned to visit some famous sightseeing spots, especially the national parks. A friend of mine was doing his PhD studies at Stanford University, so we went on a road trip for a week. We drove a long way to the far west of Texas. Many things happened on the way. The car broke down and we had to change to another car. A lot of my impressions of America were formed during this trip. America is a very big nation, I realized that it must be difficult to govern. Also, the local customs in rural areas and how they treated strangers were all quite impressive.

Ling-Fei Lin: In the technological aspect, did you learn a lot from them?

K.Y. Lee: I learned a lot from them I thought the company spent a lot of money on these two months. Taoyuan International Airport didn't exist back then, so I departed from Songshan Airport. I knew the company invested a lot of money in this trip, so I tried to take in as much as I could. Upon returning, we opened many courses and used the whole set of teaching materials, adjusted them and taught people about microprogramming. We eventually made enough money to cover the expenses of the trip, and our students started to buy products from us. The investment was certainly worth it.

Ling-Fei Lin: Please tell us the major events of Acer's early history, like the orders from customers, or the technology you obtained.

K.Y. Lee: In the early days, because of Mr. Shih, the company had a good relationship with many NCTU alumni, including the CEO of (Continental Engineering Corporation) CEC, Mr. Chi-Hou Ing, and an old man called Chong-Ching Wei. Mr. Wei was a Chinese American who was a very good bridge player. Through the game of bridge, Mr. Shih talked him into investing in a bridge game machine powered by microprocessor. At the time that was the biggest R&D project Acer took on. It was a strong financial support for the company. With the financial help, the team got enough experience to become a better R&D team.

Later on, our distribution business got bigger. It had an advantage, which was after our customers learned the operation, they'd go and design their product, and bought more ICs from us. So our IC business was getting bigger too. Later on, Acer started to distribute ICs for companies like TI, all sort of ICs, and we presented them as a full package to [potential] customers. That was how Acer endured the most difficult time in its early days. When we reached a certain level of experience, we started to do R&D for other companies. The purpose of doing R&D was to prepare ourselves to design our own products and do our own manufacturing. So at the time Mr. Shih wanted to reach a certain level as a distributor, and then switch into manufacturing.

Ling-Fei Lin: When was that?

K.Y. Lee: It might be the time when the [Hsinchu] Science Park opened.

Ling-Fei Lin: In 1980?

K.Y. Lee: I can't remember the exact time, it was probably 30 years ago. Around 30 years ago, in the 1980's. Hsinchu Science Park just opened, and Acer was the first systems company to move in. Our intention was to start doing Original Design Manufacturing (ODM) for microprocessors, and to manufacture it in the Science Park. It was very influential.

Ling-Fei Lin: You mentioned that Acer switched focus to ODM. Did the company move to the Science Park before getting orders?

K.Y. Lee: We didn't have confirmed orders. Mr. Shih thought it was important to build potential customers at the early educational stage, so based on CPUs special characteristics, he designed a microprocessor learning machine. The learning machine consisted of a keyboard and display, which allowed our clients to directly receive results from the punched cards and run the program on screen, you could see the changes and status of input output. It was the first project we wanted to do.

Ling-Fei Lin: Was it MPF I?

K.Y. Lee: Yes, and Mr. Shih proudly named it "Micro Professor." <laughter> The Micro Professor was powered by a microprocessor. He was very proud of this idea, so we put a lot of effort into educating customers all over Taiwan, and we even had a magazine called "The Microprocessor Gardener." We gave lectures everywhere, all over the island.

Ling-Fei Lin: But didn't that happen when the company first started?

K.Y. Lee: We were still doing it after we moved to the Science Park. Certainly there were new employees who became lecturers.

Ling-Fei Lin: So was “Little Professor” produced in the Hsinchu Science Park?

K.Y. Lee: Yes, you mean the “Micro Professor.”

Ling-Fei Lin: Wasn’t it a small quantity?

K.Y. Lee: Yes, small quantity but it brought us considerable profit. Unlike nowadays, back then even niche markets could bring high profits. When the company started manufacturing, we had another team in Hsinchu primarily focused on manufacturing.

Ling-Fei Lin: Didn’t you share orders with Delta Tech?

K.Y. Lee: Delta Tech? I can’t remember. Probably not, or we did it for a short time. I have no idea.

Ling-Fei Lin: After Micro Professor-I, what do you think were the important events that enhanced the Taiwanese ODM industry, or the manufacturing technology and production management?

K.Y. Lee: I wasn’t doing manufacturing at the time, I was in Taipei working in the R&D for products, and sometimes doing repairs. In terms of manufacturing, like I said, the best jobs for electrical engineering majors in Taiwan at that time were in multinational corporations. Many of those who joined Acer had worked for those foreign companies, and they introduced technical know-how and standards to the company. For example, I remember a company called Philco Ford, I think it was a videogame company under Ford Corporation, many of their GI and IC specialists joined Acer. Philips had a big CRT factory in Chubei, so when their employees came to work for Acer, they also brought with them their multinational company know-how. It was an important milestone; without the multinational company-trained professionals, our manufacturing technology wouldn’t have improved so quickly.

Ling-Fei Lin: So the foreign companies played an important role....

K.Y. Lee: Yes. It’s ironic, how Taiwan is playing that same role in mainland China now. Taiwanese companies bring the technology over to mainland China and hire many local employees. When those employees become management level, many of them choose to leave. They would bring the know-how to other Chinese companies or start their own businesses.

Ling-Fei Lin: I heard ITT orders were an important part at that early stage?

K.Y. Lee: You’re right. At the time, after making the MPF-I and MPF II, we learned about IBM’s concept of the PC. After their PC came out, ITRI then assembled a R&D team specializing in PCs, and the team adapted IBM’s PC configuration. They tried to develop Taiwan’s own PC design capabilities. After awhile, Acer came out with our own PC. We wanted to sell it to the international market, but there was a lot to learn. Luckily, a there was a Chinese-American called David Lee. He was an executive at ITT. Back then, ITT had a sub-company in the Science Park, and David Lee was the founder and CEO. It was a successful company before he sold it to ITT, and he became a top executive at ITT’s IT department. ITT designed a line of PC’s in the States, and wanted to enter the PC industry. They realized they could manufacture them in Taiwan. Thus, he looked all over Taiwan. Finally, Acer got the order. It was a big order, a couple thousands units were to be made every month, I think. It was a huge number that time.

Ling-Fei Lin: Was it the first international order you took?

K.Y. Lee: I suppose so.

Ling-Fei Lin: And it was that big?

K.Y. Lee: Yes, it was probably the biggest IT order in Taiwan [at the time]. The Acer factory back then was very small, we only had a two-storey factory, and we couldn't handle such big production. We had to have more factory space. I joined them looking for new factory space. We went around the Yang Mei and Taoyuan region, and looked at many deserted factories. They were all textile factories. Many Taiwanese textile factories had moved to South East Asia, since mainland China was not an option then. So there were empty factories that might be ideal for us to turn into an electronic factory.

Finally we found one in Guishan, Taoyuan, and it was the predecessor of MingJi (BenQ). We wanted to set up a factory outside the Science Park, but the Science Park did not agree to it. They gave companies in the Park favorable discounts, so if you wanted to manufacture outside the Park, your factory needed to be under the separate ownership. So we had to set up another company called Ming Ji (BenQ). But why the name Ming Qi? It's funny, we got the name from an Acer security guard. He said that we'd been mispronouncing Acer's Chinese name; the "Ji" should be "Qi", like the Chinese word for "chess."

Ling-Fei Lin: Didn't you know that before?

K.Y. Lee: We knew, but Acer was purposely pronounced "Hong Ji" to evade political connotations. The correct pronunciation sounded too much like "communist red flag." So we called it Hong Ji. If you typed "Ji", you could still get the Chinese word for "Qi." But it should really be "Qi." Back then it was really a political taboo. So when we started this new company, we wanted to be honest and open, to do business openly and not in the dark. So we named it "Min Qi", which sounded like "honest chess game", kind of a twist on Acer's Chinese name.

Ling-Fei Lin: Whom did he say that to, you or Mr. Shih?

K.Y. Lee: He told Mr. Shih, then Mr. Shih told us the story. He said it was a good idea, so we named BenQ "Ming Qi" and had the name registered. When we expanded to China, I was troubled because they didn't have the character "Qi" in simplified Chinese. So I told Stan Shih that maybe we should register BenQ as Ming Ji. "Ji" as in the Chinese word for "foundation." That's why we changed Ming Qi to Ming Ji, but Acer remained unchanged. Consequently, many people got confused with the names.

Ling-Fei Lin: So did the company change the name when it expanded to China in 1998?

K.Y. Lee: Yes.

Ling-Fei Lin: In 1998?

K.Y. Lee: Well, '98.....

Ling-Fei Lin: Or even earlier?

K.Y. Lee: Yes, earlier than 98'.

Ling-Fei Lin: '93, it was 1993.

K.Y. Lee: Around 1993, 1994. Anyway, we knew the order was too big. Acer's old infrastructure and factories could handle it, so we started another company. We recruited a new group of people, and I was assigned to work in BenQ.

Ling-Fei Lin: Was it in 19.....?

K.Y. Lee: 91, 1980's.

Ling-Fei Lin: Was it 1989? So the IBM PC had already come out?

K.Y. Lee: Yes, IBM's PC came out, so we started BenQ to take the ITT order. I can't remember the exact year, it was probably in the 80's.

Ling-Fei Lin: BenQ was founded in 1984.

K.Y. Lee: 1984?

Ling-Fei Lin: Yes.

K.Y. Lee: Yeah, probably around that time. To take the ITT order; since we didn't have factories overseas then, we had to start BenQ. That's how we started. But to do manufacturing we would need a lot of capital, and Acer was just a trade company with a small factory, Mr. Shih didn't have the money. Therefore we invited Mr. Chi-Hong Ing to invest, and he became a shareholder. The shares that he held in BenQ were probably more than Acer's, as he was the controlling shareholder. It was because of him that our English name at the time was Continental Systems, just like his company Continental Engineering Corporation. Because Mr. Ing was the controlling shareholder, his daughter Nita Ing visited our factory a couple of times. Mr. Ing was getting old, so it was his daughter Nita Ing who made major business decisions. They didn't intervene with the management of the company though. We had some people… we transferred some people from Acer for the founding of the company. We had a plant manager, I was in charge of technical stuff, we also had a buyer and salesperson. There was a general manager...about four or five core people, plus a treasurer. There were five of us who founded BenQ and worked on the ITT order from start to finish.

Ling-Fei Lin: Since the scale of production was different than the projects you worked on before, did you learn to manage large-scale productions from the manufacturing of that ITT order?

K.Y. Lee: Yes, it was indeed a big difference, because prior to that, we had only worked on small-scale productions, and the products we made were not suitable for the bigger market. Now we had taken this big order, we had to meet the American specifications, and ITT had to transfer it entirely over to us. So we sent some people to the head office of ITT PC Department in San Jose to learn all of the specifications, standards, and designs, to bring them all back. And then we tried to manufacture products. It was all about Electronics Management System (EMS) in the beginning.

Ling-Fei Lin: EMS?

K.Y. Lee: EMS first, then we designed it to reduce cost. I remember the American guy from ITT PC technical department, who used to work on this project with us. It's been over twenty years but we are still friends.

Ling-Fei Lin: Is he American?

K.Y. Lee: Pakistani American. We remain good friends. He even sent us an invitation when his son got married. <laughter>.

Ling-Fei Lin: You mentioned that you had taken training courses at the ITT office in San Jose, so how long were you there? What did you learn?

K.Y. Lee: I can't remember the exact time. I was taking classes on and off. I didn't spend much time there, probably six months for the manufacturing preparation; it was very rushed. The hardest part was to start a new factory and team in Taiwan. The factory site we rented was a deserted electronics factory. It had been vacant for three to four years. When we moved in, our neighbors asked us: "Why did you rent this site? The bad feng-shui of this place caused many factories to shut down." But as we didn't have other options and were in such a rush, we decided to take the place.

It was really difficult to recruit a new team of engineers, because Acer didn't have a technical team that was big enough to support us. Their factory in Hsinchu was very small, so we had to find new operators. I remember the operators we found were girls from nearby military dependents' villages. It was the time period when Taiwan had a lot of laborers, and had plenty of young female workers. Later on the labor population began to shrink. We had a coworker from Ilan. She started to work for us right after high school. Because of her job, she met and married someone in Taoyuan region, and she's still working for us. Her kids are in college now. Every time I see her, I am moved because I see two generations of one family. It's something very special, very nice.

Ling-Fei Lin: So you were in San Jose for half a year. Was ITT open to information sharing?

K.Y. Lee: It wasn't like that at the beginning. At first they were very conservative and were reluctant to release information. They only expected us to be a manufacturer, but for us, we were trying to grasp as much knowledge as we could. I didn't spend the entire six months there. Instead, I went there intermittently for half a year. For nearly six months, we tried to recruit a team through various connections. Also, we hired some Taiwanese engineers working for American companies. We recruited a lot of people. I remember we hired a man from Digital. Digital had a factory in Chungli, and they had many Taiwanese engineers. We hired a person for quality control, he had an interesting name. He was called Liang Bao, last name Bao ("guaranteed"), first name Liang ("good"). I said to him that he was born to be a QC because of his name's Chinese meaning. As the manager of QC Department, Bao Liang hired a young man Deng Chuang who used to work for him. The name Deng Chuang ("remade") was even more interesting. So, our products were "guaranteed to be good", if not, we Deng Chuang ("remade") them.

We had quite a lot of resources back then, many Taiwanese engineers trained by foreign companies came to work for us. Also, we got a lot of technical know-how from ITT. They sent some experienced engineers over to help us, and we sent people over to learn their products. The most difficult part of the process was the localization of materials. After all, those products were designed in America. Many of the materials used were probably not to be found in Taiwan…like the computer casing, for example, or the power supply. The power supply was from Hong Kong, and the factory was based in Malaysia. We thought it was too difficult and too expensive, and it was difficult to communicate, so we asked Delta to reproduce the power supply for us, using their technical know-how. Because of this project, we started to look for local suppliers for casings, plastic parts, power supplies, wires and PC boards. Especially the PC boards, the large PC board was very rare in Taiwan [at that time]. Slowly we rounded up the suppliers, building the supply chain, and shifting the manufacturing to Taiwan. The Americans called it "transplant." The biggest challenge of the "transplant" was to rebuild the whole supply chain in Taiwan, to transplant it.

Ling-Fei Lin: Why didn't you import it from the USA?

K.Y. Lee: First, it was very expensive. They came to us because they wanted to cut the cost. Also, they didn't have enough resources. They were hoping to find local suppliers with the help of Taiwanese engineers to reduce costs further. Meanwhile, it was not possible to do mass production at that speed, because the manufacturing industry was leaving the US. But that was back in the early days, so the most difficult part was to localize the American manufacturing systems, regulations, and to have local suppliers for all different components; that was the most challenging [part of the "transplant"]..

Ling-Fei Lin: It was a new challenge for you guys, and a new challenge for the suppliers too. Didn't it take a long time?

K.Y. Lee: Yes, it was hard work. In the beginning, we used the original components. Later on, we started to change our suppliers to local companies. Many people were realistic about the cost. For example, the PC casing was made of aluminum. How could you ship that to Taiwan from the United States? That was one thing that must be produced in Taiwan. There were many electroplated parts, and they had to be done locally. A system-integrated product, or the cultivation of its technology, had such great impact to not just us, but suppliers of component parts also benefited greatly. If we hired a person, it meant that the suppliers working with us might have to hire two to three more people.

Ling-Fei Lin: So in the supply chain for the PC industry in Taiwan, Acer was an early pioneer, building it from the bottom up.

K.Y. Lee: I think we were the first. After we took the ITT PC order, Taiwan entered the IT manufacturing era. I think that we were the first.

Ling-Fei Lin: I think it was the first. How about MiTAC?

K.Y. Lee: I think they were taking orders for other products. I'm not sure. They got involved in the later phase, when ITT gave them some orders. In the beginning, we were the sole suppliers for ITT. MiTAC might have taken projects from other companies, but not as big. The technology they used was shared within members of the ITRI-assembled PC team.

Ling-Fei Lin: Regarding the ITRI PC team… didn't Acer take the order on its own? You guys considered making a variety of computers, including Apple, IBM; how did you settle on IBM?

K.Y. Lee: It was natural to work with IBM. Basically, IBM was an open platform. Apple was a closed platform. IBM was the only open platform that allowed third party involvement. So we made our hardware, and for software, we got an authorization from Microsoft, and we had a complete computer system. It was made possible because of the open platform.

Ling-Fei Lin: You just mentioned that you helped cultivate the local component manufacturers. How did you have the ability? Or did they grow because foreign companies set up factories in Taiwan? How did Acer help them?

K.Y. Lee: OK, the industry in Taiwan was very special. Taiwanese businesses worked very fast, foreign companies were too slow in comparison. We would find companies originally making other products to help us. Let's assume there was a company that made scooter casings. They'd be asked to make computer cases, because they already had stamping equipment. They'd be asked to adapt their equipment to make computer cases. Or companies that made wires---not computer wires but motor wires---would be asked to manufacture for us. We had to give them the new specifications, and of course, the ITT documentation helped a lot. Our men also learned a lot from the US regarding the specifications.

And verifying the component's usability was also important. Quality control and verification involved a lot of tests and know-how, especially with those metallic components. To be used in a computer, those components had to go through a low temperature test, high temperature test, humidity test, heat test, insulation test, its static electricity resistance, and many other tests. Also, the thickness of coating on the metallic surface, those were all factors that might affect the products in the long run. How did we ensure the components would not break within three years to five years? So there were many specifications.

In fact, Taiwan at that time had prior related experiences: those TV and stereo manufacturers adapted their skills to make computers and IT products. It was taking pre-existing skills and adapting them. Back

then in Taiwan, manufacturers of digital products were mostly manufacturing videogames, and those small desktop computers… something between a game machine and a computer. Like Philco Ford, they were experienced and had a certain production capacity, so they joined us, and we adapted them to this new environment.

Ling-Fei Lin: Did they learn to make components by themselves, such as learning to switch from motorcycle casing to computer casings… did they learn on their own?

K.Y. Lee: Yes.

Ling-Fei Lin: Were you only supervising?

K.Y. Lee: We gave them the specifications and told them the differences between what they used to make and what they were about to make. In their prior projects, a lot of specifications were also from foreign companies. So sometimes they would even tell us what we should be careful with. It was through such a mutual learning process that we built the know-how.

Ling-Fei Lin: For Taiwan, I think the local supply chain model is very important.

K.Y. Lee: Yes.

Ling-Fei Lin: That's why I want to know about their learning process. Did they learn from the original suppliers?

K.Y. Lee: Yes, their old customers would help, too. But our needs and specifications were different. In fact, we ultimately realized that each company had a different emphasis, but it didn't mean they couldn't be shared. My understanding was that these companies deliberately set very strict regulations, many things were unacceptable to them, but then at the end, everything became acceptable. So this was a process of compromise. How do you take the Americans' strict specifications, and replace them with something more reasonable? It was a long process of communication. ITT had some people stationed at our factory. We brought them to the suppliers, and asked them to share their experience, so we could teach our suppliers how to reach the specifications.

I think this whole process contributed to Taiwan's industry; it wasn't just about us getting the order, but because we probably cultivated fifty factories. They had to produce products that met our customer's specifications. Those specifications and components helped shape a very strong team. We were like an aircraft carrier, we needed supply ships, torpedo vessels, and various support to make things run smoothly. So in this entire process, the hardest part was building a localized supply chain.

Ling-Fei Lin: Was Acer passive in getting the ITT order? Or were you active in the bargaining?

K.Y. Lee: Active.

Ling-Fei Lin: So the company was seeking OEM orders.

K.Y. Lee: No, we were trying to get whatever we could get. The personal computer was the most desired project. For us, manufacturing PC's would bring high profit, and also it was complex. It involved software incorporation. Thus, in about a year, our factory became the biggest electronics factory at that time, or one of the biggest. The quantity of our products and money was huge.

Ling-Fei Lin: How was the profit?

K.Y. Lee: It was good at first, in the beginning.

Ling-Fei Lin: So in other words, you were just looking for anything with a high volume, as opposed to specifically looking to do OEM work or self-branding?

K.Y. Lee: Right. Back then I wasn't the one making decisions. It was up to Mr. Shih to make decisions. But for Acer, we wanted to have the ability to do mass production, to increase our business volume and profit, in order to support the development of our production line. The situation then was quite interesting. Our major shareholder was Continental Engineering Corporation, and Acer was only re-investing. Later on, the company became bigger.

Ling-Fei Lin: You mean BenQ?

K.Y. Lee: Yes, BenQ. The company grew bigger and had higher business volume than Acer.

Ling-Fei Lin: When did you surpass Acer? In 1984?

K.Y. Lee: From 1984 to 1988. The company was growing rapidly, and it needed a lot of capital, so we asked Mr. Ing to invest more money. Acer couldn't invest too much money on its own. Eventually, being two companies meant that the management was getting difficult. So prior to becoming publicly traded, Mr. Shih and Mr. Ing decided to merge Acer and BenQ. Many people are unfamiliar with that history. So we became one company, and Mr. Ing became Acer's biggest shareholder. Because it involved the flow and integration of employees from both sides, it was complicated. At the end BenQ became a factory of Acer.

Ling-Fei Lin: When did the two companies merge?

K.Y. Lee: Before we became a publicly traded company. Around 1986. I can't remember the exact year.

Ling-Fei Lin: Were you working at BenQ full-time when it happened?

K.Y. Lee: I was at BenQ full-time. After I transferred to BenQ, I worked at BenQ until I returned to Acer in 1988, around 1988. Later on, BenQ felt pressure, because as an OEM manufacturer, we did not have control over the product's sales, we had no control in that. So we were concerned. In the US and worldwide, was the ITT computer selling a lot of units? After a while, we realized their sales weren't good. It cost too much to make and to design. So we told ITT that we could help them reduce costs if they allowed us to design for them. We could reduce costs by taking away some circuits and unnecessary components. That's when we switched from EMS mode to ODM. It all happened within a few years. Back then, ITT was still a very large company. Its business was focused on telecommunications, and for them computers was a new venture. Their corporate culture had their own issues, and they decided to give up on the new PC industry, and they ended the contract. So the pressure was on BenQ, as we had to find other orders to take.

Ling-Fei Lin: When was that? 19...?

K.Y. Lee: After three to four years. I'm not sure about the exact time. Since we couldn't carry on with our [ITT] order, we had to find new orders. We were facing a lot of pressure. Like how should BenQ find new orders, and how do we split the orders with Acer? There was a lot of talk and discussions.

Ling-Fei Lin: Weren't the two companies already merged to one?

K.Y. Lee: No, the merger took place afterwards. At that time, BenQ was doing OEM manufacturing for other companies, and we went to a lot of companies, offering to manufacture PC boards and other IT

products. I remember we manufactured hard disc controllers, and we also made modem cards. It was before the wireless Internet existed, so it was all modem cards. We also made power-related PC boards. So I told Mr. Shih that we should stop being simply a OEM manufacturing company without our own technical team. It was not a long-term solution, we needed to do something unique. So after spending a couple of years in BenQ, I went back to Acer in 1988.

Ling-Fei Lin: You said that BenQ didn't have its own technical team. But weren't you working on ODM for others?

K.Y. Lee: ODM was very simple, we only had to revise the existing design. Taking someone's design and simplifying it. But to design your own product, it was completely different.

Ling-Fei Lin: So your suggestion was to build your own technical team.

K.Y. Lee: Yes.

Ling-Fei Lin: Was the general manager opposed to it?

K.Y. Lee: He was more from a manufacturing background. He used to work for the Philco Ford. But for me, I wanted to focus on designs. That's why we didn't have a common consensus, so I returned to Acer. After my return, I started to help with strategic planning. It was 1988, or 1987, probably earlier than 1988. At that time, Acer acquired an American company called Counterpoint. The company used to make minicomputers. Mr. Shih had always wanted to venture into the field of computer systems. He believed it wasn't enough to stick to microcomputers and PCs. So there was that mini computer system company in the US, I don't know how much we spent on it, but we eventually bought it. I was assigned to the management job. So I'd spend one month in Taipei and another in America, back and forth. It was 1989, a spent a lot of time traveling between the two. So, when I was doing strategic planning, IBM personal computers started to switch CPUs from [Intel's] 286, 186 to 386. It was an opportunity for us. Within the company, we pushed for designing our own 386 system. The earlier ITT project back then was to make low-end PCs.

Ling-Fei Lin: 386?

K.Y. Lee: When we started working for ITT, the regulation was for 8.86. When Intel planned on releasing the 386, we decided to become the world-leading company in the realm of 386. So Mr. Shih sent a team to America to do the designs, working with many American companies. Many people went to work at Intel because they wanted to get an early grasp on the technology. So when the IBM 386 PC came out, Acer was probably the first company in the world to present a compatible PC.

Ling-Fei Lin: Was it under the Acer brand?

K.Y. Lee: Yes. We were quick to master the technology. After the 386 PC, the status of Acer rose extremely fast in the industry.

Ling-Fei Lin: Worldwide?

K.Y. Lee: Worldwide, very few people started that early. Of course, the team Mr. Shih led was doing well; the team members are all over the world now. So, the first thing I did after returning to Acer was to do strategic planning for the 386 product. We were really successful, because the product allowed Acer to be one of the most prominent companies in the field worldwide. Then in 1989, when I started working on the Counterpoint project, I stopped doing Acer's strategic planning. I focused on high-end businesses and started running back and forth from Taipei to America. The general manager in Counterpoint was a Cantonese. She and her team were very strong in the technical aspects. However, it was not easy to sell

minicomputers with Unix OS. The Unix OS standards were not unified, so for companies adapting to the system, it would take a lot of time to make the software more usable and reliable.

Ling-Fei Lin: We know that around 1989 a group of people left Acer to start ASUS and ECS. Mr. Shih himself left too. Would you tell us what problems were facing Acer, and the reason on why they left? From your experience working with Mr. Shih, what is your understanding?

K.Y. Lee: Mr. Shih was a very ambitious man, that's all I can say. He didn't want to simply be a.... Look at how he started from microprocessors then to personal computers, he hoped to raise the bar for the world of computers. The mainstream back then was dominated by microcomputers; it had the biggest market share. So he felt that Acer should make bigger computers. But to do that, we had to acquire many new technologies and new people. It was like a fantasy for Mr. Shih. He was hiring people from IBM and HP; if he thought they were good, he would hire them. Even those who worked for giant corporations, he had a way to get them working for Acer. I think it was part of his dream to do so, because he was very young when he started Acer. He never had the chance to work in big companies and he did not know how big American and global companies functioned.

From the company's management to operations, he was eager to learn, but he forgot that small companies were of a more entrepreneurial management. Employees had to be very versatile. For big companies like IBM and HP, all work was distributed and employees only needed to do their assigned jobs. Mr. Shih hired many people from those big companies to be top executives, such as Tong Hu. He was working at the IBM billing department, and later he became the deputy director of the Science Park. Mr. Shih hired him after his retirement. He also hired a former general manager of HP Taiwan, Chuan-Cheng Wu. He also hired Yun-Chung Yin, the brother of Tian Xia magazine publisher Yun-Peng Yin. Mr. Shih was hoping those who had worked at big American companies could help to enhance Acer's overall capabilities. I think the intention was right, but he might have overlooked the fact that Acer didn't have enough resources to allow these people to make precise work distribution. In entrepreneurial companies, employees have to multi-task, and have to do a lot of things. I can't simply demand something and expect it to be done by someone else, I'd need enough people to share the work, to put it into action. Frankly speaking, many people who started working with Mr. Shih from the early years were not used to the new management.

Ling-Fei Lin: So those new people became the senior employees' superiors?

K.Y. Lee: Yes, they became supervisors. The other thing was their new management style, and they brought over with them the IBM-way. Their understanding of us was quite different from our own expectation. However, Acer's company resources were different than what they knew from other companies. It created a lot of conflicts, and many people left Acer.

Ling-Fei Lin: Do you mean that Mr. Liu was trying desperately to change Acer?

K.Y. Lee: Yes, and it caused a lot of conflicts. A major conflict was over the company's business direction. When Acer started making PC's, many people were debating if motherboards were worth investing in. Mr. (Stan) Shih wanted to work on systems instead of components, so a group of engineers left Acer to work on motherboards. Some of them started ECS and ASUS. This caused numerous conflicts within the company's structure. Mr. Shih was hoping to produce minicomputers, so many of those who didn't agree with him left the company. Plus, more conflicts were caused from the newly recruited executives. So a lot of people chose to leave.

Ling-Fei Lin: Would you like to talk about Jonney Shih?

K.Y. Lee: Although I used to work for Acer, I didn't spend much time with Jonney Shih as I was partly working on the product designs, and also tech support. I was in charge of tech support before I

transferred to the factory. Therefore I didn't have much interaction with Jonney. Shih. We spent more time together when we began to work on the 386 system. Back then, we needed him to work in the team to help design the 386 system. So we asked Mr. (Stan) Shih to ask Jonney Shih to be the leader of the team and to be in charge of design. He (Jonney Shih) loved to think, and he used to be lost in his thoughts. I didn't know what he was thinking, but he never stopped thinking.

We decided it was necessary to send him to America, so he took a group of people to learn design at Intel and to have the first-hand knowledge of their technology. It was because of this that we could finish the design of the 386 system so quickly. Also, he liked to know things thoroughly. He was a nice person. I remember one popular inside joke: while in America, Jonney Shih would drive around, and then he would stop in the middle of the road to think about things, not realizing that was there was no stoplight. I think we were all good friends; we had smooth communications. That was the time period when we were the closest. Later I was mostly in charge of planning, marketing and strategy, so had less interaction with him.

Ling-Fei Lin: So were you two classmates in the university, were you close friends?

K.Y. Lee: Not really. There were over 100 people in my class. I couldn't even name many of them upon graduation.

Ling-Fei Lin: So he was probably not in your class?

K.Y. Lee: I didn't spend much time at the dorm. We'd meet on campus from time to time, but we weren't close. At school I also spent a lot of time in extracurricular clubs.

Ling-Fei Lin: Why did you leave Acer for BenQ?

K.Y. Lee: I left because I wasn't used to the new management brought on by the new executives. Some of my subordinates left first, then more people found it hard to stay, so they left too. Then I happened to have the chance to study at International Institute for Management Development (IMD) for a year. So I decided to take leave for a year to stay away from the chaos.

Ling-Fei Lin: Was it leave without pay?

K.Y. Lee: Yes. I wanted to quit then, but Mr. Shih told me not to. He said it was okay to go to IMD first. So I left to study at IMD in 1990. After a month, I moved my family to Lausanne, Switzerland. We stayed for eleven months, almost a year. It was great to get away from the chaos and to spend some quality time with my family; it was a wonderful year. Although the IMD courses were hard, we all had a good time there. At IMD, we even had classes on Saturday mornings. After class, I had a used car and a Michelin Guidebook, we'd decide where we wanted to go that week, and drive around. The whole family would dine out and then we'd go home for the upcoming week's preparation on Sunday. It was a fulfilling and an interesting year.

Ling-Fei Lin: Did the business administration training have great impact on you?

K.Y. Lee: It wasn't the training that influenced me, but the vision. One has to remove obstacles that block the ability to think freely. Only then could you see more things and get new ideas. To get more influences-- that's what important. My experience at IMD let me experience the way Europeans seek balance between work and life. The way people of different cultures analyzed problems was also very different. I remember having classmates from Venezuela, Argentina, and France; they were always debating. Their perspectives were always different from ours, and it was a great lesson for me. One thing about IMD courses is that the school puts people from different countries in one group. No more than five people from the same country were in a group. If there were five Americans, they would stick in some guy from Australia or other country. Even amongst English speakers, they had different ways of thinking.

There were also Germans and people from Scandinavia. It was a chance for me to get exposed to different perspectives and broaden my horizons.

When I was at IMD, I met with Mr. Shih and Ying-Wu Liu. It was during my summer break that Mr. Liu wanted me to go to the United States. At that time, Acer had just bought Altos. He thought the purchase of Counterpoint didn't work out well, so he decided to purchase a bigger company, Altos. I didn't know about this until Mr. Liu came to seek advice from me. I wasn't a part of the process.

Later on, I can't remember the exact time, Mr. Shih came to Europe for a meeting and he came to see me at Lausanne, asking me what I wanted to do after graduation. Then Mr. Liu called me, I had no idea about what was going on. That was about one or two months before my courses were to finish. He said that there were two options for me; I could either go back to Acer's Notebook Department or be in charge of BenQ. BenQ was a subsidiary of Acer, it was basically a factory back then. I thought it was too much hassle to go back to Acer, plus I didn't want to work with those new executives again. So I told him that I'd work for the smaller company, as it was fine for me to stay at a small department. I thought, if I were to go back, I'd go to BenQ.

At that time, my mind was refreshed, and was open to all options. I thought perhaps I could leave, and do something totally new. Maybe it was fate, but it was also great to work with my old coworkers. So after I came back, I reported to BenQ. On the first day back, I found out Acer's head office had moved to Longtan. Why did we buy a factory there? Don't know. It was an old textile factory, he bought it and it became the new Acer headquarters. All the personnel from Taipei were transferred there. They should have bought some land in Neihu then, that would have been better. After the company's move, more people left. The first day I got back, the atmosphere in the office was strange. It turned out that the biggest layoff in Acer's company history happened that day.

Ling-Fei Lin: Who were the people laid off? Operators or engineers?

K.Y. Lee: Everyone, from operators to engineers, there were also administrative assistants and sales staff.

Ling-Fei Lin: Did it influence the factory?

K.Y. Lee: The factory was in Hsinchu, so it wasn't influenced much.

Ling-Fei Lin: Would you tell us what it was like at BenQ back then? And how did you start to lead the company?

K.Y. Lee: When I started, I found BenQ was just one of the Acer factories. The employees were all of factory background, and they had no plan for future development. Many of them were happy to be part of Acer. Later, I realized that a company couldn't survive in the market like this, because a healthy company should have its own technical, marketing and operational abilities to be able to control its own future. So I told Mr. Shih, if the company stayed its current course, it wouldn't survive long, because the orders we had were all from Acer. Only after Acer had enough orders, BenQ could get some orders too.

Ling-Fei Lin: Had it been like that for long?

K.Y. Lee: It was always like that.

Ling-Fei Lin: So Acer used to distribute their orders, didn't it?

K.Y. Lee: Yes, but when Acer was short of orders, they'd take all the orders back. It would be impossible

to survive in the long-term. I told Mr. Shih that if Acer was mainly working on systems, why not let BenQ make peripherals? Mr. Shih agreed, and then BenQ gradually stopped making PC system products. For example we used to make PC boards for Acer, and they took all the orders back. BenQ started to focus on making monitors, power supplies, and keyboards. That's how BenQ found a new direction and detached itself from Acer.

After the separation, we started looking for new talents [personnel]. Many people had worked for me, so I tried to round up all my old subordinates from Acer. I think I managed to hire a dozen people back, especially those I was close with. They returned one by one, like Xi-Hua Li and Zhon-Yao Hong. Xi-Hua Li was sent to America by Ying-Wu Liu. Acer was handling ODM orders, so I told Li that he should start working for BenQ once he's back from America. As for Hong, he left the company when I went to IMD. One after another, I found those who had left and hired them again. The team was thus formed. It took about a year to reorganize. Frankly, there certainly were difficulties.

When I first came back to work at BenQ, many people were content with being a simple manufacturer. But I said the company should change its direction, and we couldn't keep so many production personnel. So I told them they could go back to Acer if they wanted, and they did. Some remaining personnel were unsuitable, and were let go. From low-level executives, half of the company employees were gone and we became a competitive company. We defined ourselves as a company specializing in computer peripherals.

I had a discussion with Mr. Shih back then. Acer was having a hard time and it was a burden to look after the subsidiary. He agreed to let BenQ become independent from its parent company. So we got some shareholders, employee stockholders, and started looking for investors on our own. So for about two years the employees could buy our shares, and we had outside investors too. The percentage of shares held by Acer thus decreased. After five or six years, it was 1996, that BenQ was able to IPO and became a public company. Before we became publicly traded, the products making the most profit were monitors, especially CRT monitors. I knew the most valuable [products] were the picture tubes, so we were trying to work on the tubes. But then we found out they were about to be replaced by LCD's, so we raised money to work on LCD's. We went to many Japanese companies to talk about technical exchange, we went door to door, but none of them wanted to release their technology.

Ling-Fei Lin: Have you decided to work on Thin Film Transistor LCDs then?

K.Y. Lee: Yes, it was in 1993 to 1994. We felt the company had to go this direction, so we were looking everywhere to find the source of this technology. Having done our research, we found that the technology had already been around for a while. The technology itself wasn't difficult to master, but the challenge was in mass production. We had to find a company that had the ability to meet mass production capacity. I'd say we looked all over the world, including Philips, Fujitsu, Sharp, Casio, and Hitachi. None were willing to license the technology to us. And then suddenly, Mitsubishi was willing to license the technology to Chunghwa Picture Tubes, Ltd.. I knew it was our opportunity. When we started working on LCD's, we had ITRI help us, as we didn't have specialists in that field. The manufacturing of LCD monitors required the technologies of semiconductors, system assemblies, optics, and material sciences. To make the product, we needed specialists from many different fields. So we posted ads in American newspapers, hoping to recruit Taiwanese students graduating from American universities.

Ling-Fei Lin: Why those American students? Weren't there many semiconductor specialists in Taiwan?

K.Y. Lee: Yes, there were, but they were limited in certain fields as there weren't many people studying materials science. We were hoping to have materials science specialists, so we hired Hsiung Hui and his classmate, who graduated from NTU Department of Physics and worked at the DuPont lab in America. We posted ads in American newspapers looking for students like that.

Ling-Fei Lin: Hadn't you talked to IBM?

K.Y. Lee: Not yet, but I knew we couldn't wait any longer because if we accepted an order, we didn't have a team to work on it. So we decided to assemble our own team. After I posted ads in American newspapers, we went to ITRI. ITRI happened to have a project on Plasma Display Panel (PDP) technology transfer with the Japanese company, Oki. We thought, if we couldn't start on LCD, we could try PDP as well. Thus, we went to the American East Coast and Detroit to talk with companies working on PDP.

We were lucky, because a company was trying to find a buyer. The company used to be part of IBM. IBM sold it, then the company became independent from IBM. The company had many important PDP patents that might be of use. We thought perhaps we could use this as a chance to acquire the technology in this area. We went to New York to negotiate with them, but halfway through, when we were about to sign a contract, Panasonic bought the company, because they didn't want us to have the technology.

After that didn't work out, we returned to ITRI for discussions. ITRI happened to be negotiating a technology exchange with Oki, so we suggested that ITRI transfer the technology to us, and we would use this chance to cultivate a specialist team. I believed that our PDP and LCD plans would not be simply about getting the orders, but about having the specialists. So I recruited specialists from the American DuPont Labs, and arranged the PDP project with ITRI. The expenses they spent for the technology exchange was recognized as the stake they held in company. That's how we started ADT (Acer Display Technology), it was about cultivating the know-how. So ADT, which is now AU Optronics started out by making PDP's….

Ling-Fei Lin: Do you mean that the expenses spent on the technology transfer became the shares ITRI held?

K.Y. Lee: No, the technology was transferred from Oki. The licensing fee and other expenses were paid by us. The money was then seen as their stake in the company. It was like we started the company together. I didn't know if PDP had a market, but if I didn't do it as a start, I might not have enough time cultivate my team. I was also concerned that even if I got an order from IBM, I might not have the team to work on it. That's why we started the team with the help of ITRI, and we had up to fifty team members. We had an open lab in ITRI while we worked with AU Optronics, it was called ADT then. We didn't even have an office yet....

Ling-Fei Lin: Was the project done in ITRI?

K.Y. Lee: Yes, we were using their facilities in ITRI. Later on, when our research had reached a certain level, we decided to apply for a piece of land in the Science Park. It was very important for us. If the Science Park didn't give us the land, we couldn't expand. A project for TI's Taiwan factory was called off, so we went and got that land. Once we got it, we built our PDP lab in the Science Park. We assumed there would be a LCD factory in the future, it would be right next door. So we made plans for it, and we built a small LCD lab first.

It was very interesting because the lab was built underground. We could shut it down anytime, it was designed to be temporary. We already had a technical team, so I went to Japan to find companies for the technological details. We had a good grasp of things, and after a while, some companies were willing to have further discussions. The first one was Philips. They were doing it themselves, but they couldn't sustain it, so they wanted to work with Taiwan. They found two companies. One was us while the other one was Winbond. They were hoping to have the three companies form one company and work on the PDP project together. Then we found problems with their technology. The technology they had was Thin Film Diode (TFD) instead of Thin Film Transistor (TFT). It was an older technology. So we called off the

project. Then Fujitsu was willing to transfer the technology to us. I think it was because Mitsubishi had started transferring their technology to Chunghwa Picture Tubes. Japanese people are like that, they wouldn't dare to do anything unless someone else started first, and it was always the most difficult to be the first one. So they were having frequent talks with us.

We were very careful because the company was on a tight budget because TI and Acer just invested in Deli. So Acer and TI were tied up. TI had veto rights, we needed their help for many technologies. They could even decide what products we were going to manufacture. I said that we couldn't afford to open another company, that we shouldn't do it. But as negotiations went on, Fujitsu offered a similar model. It was taking a long time to negotiate with them.

During that time, Acer and IBM were doing personal computer ODM [business], and IBM gave the PC orders to Acer. Mr. Shih knew the IBM executives well, so he asked them if they wanted to collaborate on LCDs. Through them, we started talking with IBM Japan, and they agreed on a technological collaboration with us. There were many reasons why we chose to work with IBM. First, their technology was based in Japan. IBM's technology in Japan basically had the same infrastructure as what the whole Japanese industry had. Also, the factory they built with Toshiba shared the same technology as Toshiba. The Japanese people working at IBM spoke great English and secondly, Japanese people working for IBM were more open-minded. Those were the reasons why we chose to work with them.

Ling-Fei Lin: But you said that it was a joint venture between IBM and Toshiba?

K.Y. Lee: Yes, they built the factory together. Back then it was very difficult to do mass production for LCDs, and many companies weren't sure if they could do it by themselves, so they decided to work with other companies. Their factory was located in Yasu, a place near Kyoto. We went to see the factory. It was recognized as the best factory in the world for their mass production technology. We felt relieved having them work with us. So we decided to have a technological alliance with them. IBM agreed too, which was good. We negotiated three times, and finally found the best partner. It later proved to be a very good decision.

Ling-Fei Lin: Why would IBM say yes?

K.Y. Lee: IBM was ready to sell all of its component departments. Before working with us, they already sold many departments, like the IC department. Some of the IC related departments were closed, but not all. They also stopped making LCDs and hard discs, nearly all of its component departments were gone. IBM was going through a transformation to become a system design company, or maybe a solution consultant company, so one by one, they were letting go of all the component departments. So we went and licensed their technology, buying it.

However, their factory's technology was third generation. We were worried that if we applied the third generation technology, our company would be soon fall behind. So we asked them to upgrade to the 3.5 generation. The Japanese people in IBM were relatively conservative, but they were willing to take on the challenge. When we were talking to Fujitsu, they didn't even want to try [to do it]. They wanted us to follow the Japanese specifications. I think that was a very important experience for us. We saw how the technology was evolving, and we didn't settle for or purchase pre-existing technology. We demanded that they give us the next generation, technology that would keep us ahead, to keep us informed.

By then, we already had over one hundred engineers. ADT was actively recruiting engineers, and many of the engineers we hired were from ITRI. We were working at ITRI for a while, so we knew many people in there. I think everyone knew everyone in Hsinchu. Anyway, we sent over one hundred engineers to Japan for training. Upon returning, our engineers told us many of the engineers in Japan were old craftsmen with only high school diplomas. IBM even told us that our engineers were over qualified, because many of them had masters and PhD degrees <laughter>.

Ling-Fei Lin: Are you referring to the engineers in the factory?

K.Y. Lee: Yeah. Some of the technological processes were very complicated. I think those with higher education levels knew a lot about theory. So for technology that couldn't easily be taught through manuals, it was easier for them to comprehend. Also, they were better at theorizing and standardizing the technology for further adaptation. And BenQ had just became a publicly traded company then, and I felt that the expansion of our company was dependent on these following factors: first, I knew personnel matters were very important. Looking at Acer, a lot of those top level or experienced executives, would leave after a period of time. It was partially because of conflicts within the company, and also because there was limited growth potential within the company. They would have no positions to get promoted to, not enough positions to go around. So that was a problem. Also, Acer sent many people overseas for management positions or to start new factories, or sales. When they returned, there were no positions for them. So they chose leave. I knew it was necessary for the company to set up a system that allowed those specialists to stay. From my observations, I had to start a conglomerate, and I needed to establish a new company. Without a new company, these senior executives had nowhere to go. No matter how fast we expanded, we would have no room for so many senior executives. So our decision was, we decided to let BenQ go public. I think it was in 1996 or 1997. After IPO, I decided to establish a conglomerate, and producing TFT LCD's was the first step of the company's transformation.

Ling-Fei Lin: Was it to be big enough to employ so many people?

K.Y. Lee: The bigger a company is, the more talent the company needs. Those experienced executives helped solve personnel management problems. Without their experience, people would either fight against each other or work on meaningless tasks. So I decided to focus on LCD's.

Meanwhile, we founded two companies. One was called Darfon [Electronic Corporation] and the other was Daxon [Technology Incorporated]. These two companies had different missions. For Darfon, BenQ had some small departments that made components, making keyboards and flyback transformers (FBTs). They were too small, might as well split them off into an independent company, and let them grow on their own. Darfon was such a company. Even now, its role in our conglomerate is to focus on producing components. Last year they earned twenty-eight billion New Taiwan Dollars for us, it was amazing.

For Daxon, we were making CD-ROM drives. We found the quality of the CD-ROMs to be really bad, because our supplier didn't do a good job. So we started Daxon, allowing a group of people to go out to establish a company to manufacture CD-ROMs. The CD-ROM market later on wasn't great. Once AUO was founded, Daxon started to make polarizers. Now, they are starting to make polymer thin film materials, and polymer thin film products. For example, they are working on lithium batteries, the most important part of an electric car. And the key material of lithium batteries, is the thin film separator. They have the ability to do that too. They generated 18 billion New Taiwan Dollars of income last year, and will reach more than 20 billion New Taiwan Dollars this year. It was a great move to start these two companies.

But for LCD's it was different. The main issues were company size and finances. I wanted to do LCD's, but Stan Shih opposed the idea. He said it was hard enough to work on semiconductors, he doubted that I could do a better job. He said it would cost a lot, and this industry was constantly fluctuating, so he asked me to be careful. If I failed, I'd become a burden for the parent company. So he asked me not to let BenQ hold too many shares in the LCD company, and let it be supported by external financial backers. If the company lost money, it wouldn't affect the parent company. That's what Mr. Shih thought.

K.Y. Lee: So he agreed to let you start ADT, as long as BenQ wouldn't be a major shareholder?

Ling-Fei Lin: He couldn't stop me from doing what I wanted to do, but his words were still valuable. The LCD industry was too crucial, was too influential, it was too important. We had to do it. I was confident in my team's ability. I was sure we could stand out in the industry. He was only reminding us not to let the company become a burden to the parent company, or create a negative impact on the parent company. So when we were looking for investors, BenQ didn't buy too many shares. Anyway, the company was founded, with the help of IBM, we successfully launched it. I remember vividly how it was to go looking for investors.... It was indeed hard work.

Ling-Fei Lin: Mr. Chairman, you mentioned panels, would you like to continue to talk about that? Did this business start to bloom after collaborating with IBM?

K.Y. Lee: Yes. After this business launched, we started looking around ITRI and the Hsinchu area for people with semiconductor backgrounds as well as other related backgrounds, such as science and automation, to jumpstart the company. At that time, there was a vital decision. While we were negotiating with IBM, we decided to go ahead and build the plant, instead of waiting for results from the technology licensing negotiations. It was crucial that we earned ourselves an extra six months. As soon as the contract was signed with IBM, our plant was able to carry out mass production within just one year. It was because our plant was almost completely built when we had the negotiations. Of course, we referred to some of the concepts the IBM people gave us on how the plant should be built. So we seized this opportunity and became one of the first companies worldwide---after the Koreans---to mass produce the 3.5 generation products. LG and Samsung had started production already, we stepped into manufacturing about 6 months to a year later, but ahead of other Taiwanese manufacturers.

It was profitable to invest in the 3.5 generation line, and we mastered the technologies very well, so we generated profit in a short time. We did not make profit the first year, but made profit the second year onwards, up until the worldwide financial crisis. During the worldwide financial crisis three years ago, we reported our first loss. But we recovered last year. We were probably the only panel manufacturer in Taiwan that made a profit last year, and overall the income had been good all along.

Ling-Fei Lin: When you were having negotiations regarding technology licensing, were the fees exorbitant? Did you have the ability to jointly develop 3.5 generation technology with IBM?

K.Y. Lee: Yes, with our LCD technology, the generational difference was purely a magnification of glass substrates. The magnification involved two issues: one was the equipment to support panels of such a size. The other was with such a large area, the exposure, extension and so forth had to be uniformly covered. There was also the issue of automation management. As far as I am concerned, these technologies do not happen overnight, but constant improvements, big and small.

Ling-Fei Lin: But we did not even have prior….

K.Y. Lee: Right, we did not prior experience. But IBM had third generation experience. IBM engineers were also eager and enthusiastic to take on this challenge. So we offered them money to lead our engineers to jointly develop this project. So their engineers were really happy. It was pleasant working with IBM. To me, the biggest difference working with IBM was…. If we cooperated with Fujitsu or Philips at that time, we would not have this opportunity now. These companies preferred clients to follow exactly their rules regarding technology transfers. Their technology transfer also imposed other rules, like guaranteed yield rates and *production scale-up. These were related to the amount of money we paid, but we did not pay more.

Ling-Fei Lin: So later, did Chimei obtain this technology from Japan without paying any licensing fees? I mean a lot of newly established companies in Taiwan producing TFT-LCD paid so much money to the Japanese just to learn the technology, but not AD?

K.Y. Lee: Yes... To me, Chimei merely had a different way of doing it. Initially Chimei thought about embarking on this business on their own by collecting information from their suppliers and attracting professionals from other Taiwanese manufacturers. However, halfway through, Chimei ran into problems due to many factors. They were out of options. Their collaboration with IBM had already ended. Therefore, they were forced to buy the IBM plant in Japan.

Ling-Fei Lin: Why did you end your collaboration with IBM?

K.Y. Lee: Our contract expired. We did not want to pay anymore.

Ling-Fei Lin: You already acquired the know-how?

K.Y. Lee: We could do it ourselves.

Ling-Fei Lin: Did you manufacture the fourth generation on your own?

K.Y. Lee: We've been on our own since then; we did not require support from IBM. But Chimei had no option but to buy the old IBM plant, and made those IBM engineers work for Chimei to assist on improving their production process. So, it was just a different method of payment.

Ling-Fei Lin: So do you think this part was fine?

K.Y. Lee: I think it is important; like I said, the difficulty of LCD technology is not the technology itself, but rather in its mass production and speed of production. If I could shorten my learning stage by paying some money to IBM, it would be the best in terms of economic interest.

Ling-Fei Lin: Would you like to talk about BenQ? What were its significant phases of development? Including its mobile phone department?

K.Y. Lee: At that time, I remembered lessons learned from Acer, which was the keeping of talented employees. How to have them stay and grow within the corporation. So I had to start new ventures, to give senior executives new places to go. Then, young employees could have a chance to rise. This opened up positions and decreased career-related conflicts.

On the other hand as a key company, BenQ could not solely depend on LCD products, and had to challenge itself with more sophisticated technologies. Thus, we decided to break into the mobile phone market. Mobile phone was a rather luxurious product at that time, which cost about twenty to thirty thousand NT Dollars to purchase, and its size was as big as a brick. It was difficult to manufacture, and few would dare to venture into this business. I said there was nothing to fear and we found a man who worked in the telecommunications industry. I asked him to find a group of fresh university graduates, and to train them from the bottom up.

K.Y. Lee: We got a young group formed of graduates from National Taiwan University (NTU), National Tsing Ha University (NTHU) and National Chiao Tung University (NCTU) building the business from scratch.

Ling-Fei Lin: Independently?...

K.Y. Lee: It was on our own. We spent almost four years to complete our first mobile phone. We were quite ambitious at that time, and for the design of our first phone, I went to Italy and asked Giugiaro Design to design it for us.

Ling-Fei Lin: Was it the white one? That one was beautiful.

K.Y. Lee: I don't remember. I went to Giugiaro Design's studio for our mobile phone and was impressed by this experience. Giugiaro Design was mainly a design firm for automobiles and they showed me a gigantic object when I visited that was a compartment of Italy's highspeed railway and they were designing the interior. I have a vivid memory that inside the compartment there was the kind of light transmission aperture design on the ceiling that shined like stars. Italians had a knack for these strange designs. They also showed us automobile designs for other clients which were also very interesting. Giugiaro Design was recently acquired by Volkswagen. But what I learned was how the top designers and industries specialized their labors, and knew how to create their own unique value. It made a big impact on me. I remember I visited them twice.

Ling-Fei Lin: So did you spend a lot on the first mobile phone?

K.Y. Lee: Yes.

Ling-Fei Lin: Was it because of the four-year cooperation with Giugiaro Design?...

K.Y. Lee: Yes. The challenging part was the software and communication quality of the mobile phone. The quality of wireless communication is a must; but the hardest part was the communication within corporate departments. Our other departments complained about the mobile phone department and questioned its performance and its value. Settling internal conflicts within the company was the hardest, so I decided to relocate this department to Taipei. Once they were out of sight, people stopped complaining. Back then our headquarters was in Taoyuan, but I established a R&D department in Taipei. At that time our mobile phone group was huge, probably the biggest in Taiwan.

Ling-Fei Lin: When did this happen?

K.Y. Lee: I can't remember...

Ling-Fei Lin: Was it before establishing ADT？

K.Y. Lee: It was about the same time.

Ling-Fei Lin: Almost the same time? Was it around1996?

K.Y. Lee: Yes, it was around that time. I can't remember the exact time. However, the internal conflict between departments must be mediated. I told those departments, the mobile phone department may depend on you today, but someday you might have to depend on them. It was meaningless to bicker, as long as we shared the same interest and profit.

Ling-Fei Lin: Were monitors the most profitable sector then?

K.Y. Lee: Yes.

Ling-Fei Lin: What about CD-ROMs?

K.Y. Lee: CD-ROMs were also profitable. There were several main profitable product lines supporting the company. Though people felt they were getting fewer shares, there were more people helping out. Notably, when the mobile phone department got started in Taipei, their employees got higher salaries. But I had no option, I had to develop this new team.

As far as I was concerned, in any industry, in startups you faced the same issues. In the beginning, you need talented people who connect with each other, in order for the enterprise to survive. We were lucky

that we had people with these qualities such as entrepreneurship; people were willing to take on challenges, to face hardships and take on tasks that no one else dared to do. This was the key to success and constant breakthroughs.

After the mobile phone team matured, I wanted to shift the focus of our company to mobile phones. But we were not successful. However, we did find an opportunity at that time, which was to sell Siemens' mobile phones. I was really enthusiastic about selling mobile phones; but it was a pity, the result was undesirable. We made some mistakes. Basically, we tried to merge the German Siemens department without thorough consideration.

The problem was when Siemens talked to us about spinning off their mobile phone department. We negotiated for about one year. We ignored a crucial point. We expected the management of such a multinational corporation to be good. However, it was not the case. Its mobile phone department was under their infrastructure, which was its telecommunications department, and so a lot of things were mixed together. Back then, if we could spin off the mobile phone department for independent operation for at least one year, separating financial, accounting, personnel and merchandise from Siemens' telecommunications department or even from the entire Siemens Corporation---and then merge--this business could have been successful.

But we were too impatient, as we had the momentum going for us, we hoped to rush to the top immediately, and we overlooked this problem. Later, after merging with the Siemens' mobile phone department, they gave me thirty-seven branch offices and its complex management systems all at once. It was way too difficult, and had a very complex management system. This included a R&D department in Beijing with 300 employees, and a huge plant in Manaus, Brazil. We visited them all, and we had to take them all in. We didn't have a clean spin off from Siemens. It was complicated.

To be honest, Siemens as an organization with more than a hundred-year history, was far more complicated than what we imagined, with deep-rooted complexity in their management system. We had gone through a difficult phase spinning off this department. We should have asked them to hand us the department after a clean spin off, instead of having us do the cutting. But we also learned lessons from this spin off matter. It dawned on us that the first six months after the spinoff, a lot financial issues were still mixed up, and we were unable to handle it any longer.

When we were merging with Siemens, we realized that it was losing money. Thus, we asked Siemens how much money they expected to lose in the next two years, and [we told them] that we needed a list before we were willing to take over. So it was part of the basic negotiations. But we felt it wasn't enough, I may have to put some money in, in order to turn things around. The advantage of taking over Siemens' mobile phone department was this type of multinational company had outlets in more than sixty countries worldwide, and it would have taken us much more time establishing our own sales network. It would quickly take us to a new level. This process of merger was slower than we expected. We expected to take charge and spin it off, to cleanly break it off from the parent company. But it was difficult, and slower than expected.

And there was pressure from Germany. The first thing was [that we had] to [do was] shut down the plant and lay off those two thousand employees in Munich. In a nearby suburb of Düsseldorf, there were about one thousand employees. To me, Germans think with logic and are perfectionists. For example, from automation to control, everything was being monitored. Yet, things were always changing, the monitoring became a burden for management. But it was good thinking, we thought they were really good employees. We had experience in running a multinational brand, and I know finding good employees was the biggest problem. It was good to have outstanding people working for you.

The Germans were extremely good at analysis and explanations. Sometimes our logic and abstract thinking were not as strong as theirs. In a way they served as role models for us. We hoped they could

help us reach a higher level, it was a pity that Siemens finally faced a severe financial loss which was beyond our expectation. Therefore, sadly, we had no choice but to shut down the company.

Ling-Fei Lin: Was it 2005 that BenQ merged with Siemens' [Mobile Devices Division]?

K.Y. Lee: We merged with Siemens' [Mobile Devices Division] in 2005 and shut it down in 2006 due to its huge financial loss. BenQ launched the IPO in 1996 and became conglomerated. We started to ponder the future of BenQ and realized we must start our own brand in the market. At that time, BenQ shared the same brand name with Acer. Mr. Shih, president of Acer, also realized this organization was too huge and too complex to manage, called for a meeting on Christmas, Dec. 25, 2000. We had a long discussion and he finally allowed the company to become separate, with each minding its own business, <laughter>.

Ling-Fei Lin: He didn't tell you beforehand?

K.Y. Lee: There were some rumors. The final decision was made on that day, then we went our own ways. He wanted to separate the OEM manufacturing and brand products. Wistron was the company doing OEM manufacturing and Acer was to develop the brand products. As for BenQ, it was either to be merged as an OEM manufacturer or be an independent company.

We later talked with our team members, and thought it was simpler to go our own way. We were already operating in a conglomerate mode, and were manufacturing LCDs. We had component companies such as Darfon and BenQ Materials, it would be too complicated if we were merged into Acer, so we decided to set up our own company.

Ling-Fei Lin: Were there any chances for BenQ to be merged?

K.Y. Lee: Yes… but I don't know. The discussion didn't go that far. So we all decided to go our own paths and create our own brands. So we sought help from an American advertisement company, Landor Design, located in New York, to position our brand. This was a good learning process; Landor Design sent a team to interview every executive in our company. Everyone wanted to build one's own brand and what did we want the brand to be like? What was the culture of our company? What did we anticipate the brand to be like? Anything unique? Landor Design collected all the information and ideas. Their conclusion was that we wanted to shape the future lifestyle with technology. With such a vision, our slogan was: to convey the truth, the good and the beauty of a technological lifestyle. This slogan brought us an idea to combine knowledge and life, to combine the best, the most realistic and the most gracious part of human life with the products.

Based on this idea, Landor Design offered a couple options for our English name. I remembered it gave me a headache each time I looked at the long list of names. Dozens of names on the list, most of them were rejected. Finally, there were only a few names left for us to choose. We felt that BenQ only had four letters, it was a great name. We told the design company that we only wanted four letters.

Ling-Fei Lin: Why?

K.Y. Lee: The simpler the name was, the easier it was to remember. Next were five-letter words and no more than six letters, and it was best to be four letters. So they went and said BenQ stood for: Bringing Enjoyment and Quality to Life. It was almost a perfect match to our slogan. Everyone was pleased with this name; but how to pronounce it was another problem. Compaq is quite popular at that time. So some said we should follow Compaq and pronounced BenQ as "Benq." It did not work out due to the pronunciation of "Benq America" sounding too similar to "Bank of America." We recognized the awkward pronunciation and corrected it as BenQ. A month or two after our launch, we changed the pronunciation and the name as the way you see it today.

BenQ had its existing product line such as displays, peripheral products, and then later mobile phones, slowly building our reputation. A lot of money was spent on sponsoring activities such as the European Cup football games and various other events. This type of promotional campaign gave us mass exposure within a very short time and we thought it was wonderful that people remembered our brand. It was great for a Taiwanese tech company to build its own brand and reputation. It is a pity that we lost the battle in merging with Siemens, which hindered the brand from growing. However, all the problems are about to be solved. After we shut down Siemens, problems like legal proceedings and handling of local creditors were all taken care of last year. Legal follow-ups with Siemens have all reached settlements. There are no more legal problems. Currently, we are actively rebuilding and recreating our brand, the second stage of promoting BenQ.

Ling-Fei Lin: Why do most Taiwanese mobile phone companies fail as they try to do OEM manufacturing, except HTC? ...

K.Y. Lee: They have now established their own brand.

Ling-Fei Lin: Yes. Could you explain why did [Taiwanese companies] succeed in OEM manufacturing computers and notebook computers, but not in OEM manufacturing mobile phones ?

K.Y. Lee: Mobile phones are a different product line. First, for mobile phones you need to create your own hardware and software platform. As for OEM computer manufacturers in Taiwan, we didn't have to be responsible for the software, as there was a standard Windows operating environment. We only needed to concentrate on hardware, making things smaller, neater, lighter and with a longer battery-life and so forth, that's it. But mobile phones are different. There are too much software involved, and there is no standard software. HTC was successful because it acquired standard Japanese software, Windows mobile and Android, which solved the biggest problem for Taiwanese manufacturers. Another important issue was that mobile phones connected with service providers' base stations and system equipment. Unfortunately, service providers' systems are all slightly different, so software testing is difficult and complicated. Therefore, mobile phone manufacturers must conduct testing and control every detail. The know-how of manufacturing mobile phones were exclusive to manufacturers themselves.

Ling-Fei Lin: What about the phones given out to OEM manufacturers? Do they usually only involve the things the companies can't do themselves, or maybe they are just cheap, low cost phones?

K.Y. Lee: They wouldn't release the technology for phones with a higher added value. That was also our reason for merging with Siemens. We considered its added-value, and the frequent changes of cell phone models. What's the difficult thing with cell phones? Short product cycles. A phone usually lasted only six months in the market, after six months it is ready to be retired. So the rate of change and updates are faster than what we're used to. And now with smart phones, they are equipped with different circuits and are more similar personal computers. Yet, its mobile phone function still involves various service providers, you still need to conduct tests. Then in addition you have the computer standardization aspect.

Ling-Fei Lin: Wouldn't you like to try it again?

K.Y. Lee: Yes, we are still doing it.

Ling-Fei Lin: Still doing it?

K.Y. Lee: Yes, we have no fear.

Ling-Fei Lin: Next question is that BenQ seems to lack an iconic product. Although its projectors and LCD monitors have good sales, it still lacks an iconic product. Have you been thinking about that?

K.Y. Lee: Yes, a blockbuster product. We need to find a new product category to create breakthroughs. So we have plans, which I can't reveal right now. When it is time to release the news, everyone will see. However, we realize that scale and profit are two concerns when testing a new commodity. To profit from establishing a brand name, you cannot have the same mindset of a OEM manufacturer.

As an OEM manufacturer, quantity is the only concern. You only need 2 to 4 percent of profit margin. 3 to 4 percent is acceptable. Quantity offsets the cost. However, with brand management you need to consider how much extra gross margin can be created. So management becomes important. As for our projectors, they've been making a steady profit so far, and the brand ranks second in the world. It is crucial that we utilize this product line to cultivate our team, to establish sales outlets, to build a relationship with our customers, and to connect technology with consumers. Finding a right business model which is the most important. We used to have these capabilities, and I think they still exist. We just have to awaken them, so to speak. I don't think it is hard, I think we still have the opportunity.

Ling-Fei Lin: Is it related to cloud computing?

K.Y. Lee: We have been preparing for too.

Ling-Fei Lin: All right. We mentioned before that those components manufacturers in Taiwan are interdependent with system integration companies, what about peripheral industries? Do you think they have any unique connections with system integration industry?

K.Y. Lee: They are all the same. Generally speaking, upstream component manufacturers and suppliers all support the same system integrators, notebook manufacturers, and other peripheral products. Because upstream companies are mainly precision-machinery industries, so SMT's, plastics, molds, even wiring or PC boards, are all from the same suppliers. The only difference is how they are used.

However, the biggest crisis in Taiwan happened during mid 1990s, when a lot of companies shifted their business focus to mainland China. As a result, Taiwan's industry supply chain had a decline in the labor-intensive components sector. In other words, there was loss of blue-collar jobs. But Taiwan's industry needs to shift to more technology-oriented and capital-oriented products in order to improve the entire industry. That was why the computer panel industry became one of the more influential industries in Taiwan.

Ling-Fei Lin: You mentioned that peripheral products shared some components with the system integration industry, do you think these two industries complement each other?

K.Y. Lee: Comparatively, peripheral products have a higher proportion of mechanical parts. The electronic parts of system integrator's products make them more costly. Let's take a printer for example: the case, mechanical parts, transmission shafts, gear wheels and other parts make them costlier.

Ling-Fei Lin: In 2007, BenQ was split into BenQ and Qisda, would you like to talk about this? You've experienced the split of Acer into OEM manufacturing and brand divisions, why did BenQ split itself so recently?

K.Y. Lee: I had no choice, and it wasn't my original plan. My original plan was that the success of Siemens would enable us to gradually decrease our OEM [business]. That was the plan…. to let BenQ transform into a brand-oriented company, or to focus on brand promotion. OEM manufacturing would be a minor part of the company. Nevertheless, after we lost Siemens, we had no profit from mobile phones. So OEM manufacturing became our main business operation. Actually, when we merged with Siemens, OEM manufacturing accounted for less than thirty percent of the total business.

Ling-Fei Lin: Less than thirty percent?

K.Y. Lee: Yes, my goal was to lower the percentage of OEM manufacturing to between ten and twenty percent. If the client had concerns of our BenQ brand being a competitor, I wouldn't take the order. If they had no concerns, then I'd take it. But brand products were my main focus. However, after losing the mobile phone sales, OEM manufacturing became a major part of our business. We had no choice but to face reality and make adjustments. But I firmly believe that this won't be our final business model, because we are always thinking about how to readjust our company's direction.

Ling-Fei Lin: Was the OEM manufacturing division pressured into becoming independent?

K.Y. Lee: They felt customers constantly have a lot of pressure and demands. To me, this is a dreadful trend in Taiwan's industry. We have many intelligent people working for foreign companies doing vertical integration and being suppliers of the vertical value chain. It is harmful to our environment in the long term, obviously. The reason is that our destiny is being controlled by others, the customers decide what we are going to do. These customers are all foreign brand-name companies. Nowadays, a lot of these customers may even be from mainland China, and they decide what Taiwanese companies are to do. This is a huge issue as more and more Chinese brands are emerging. They have control of China's market. They'd establish a sizable brand, then look for outsourcing in Taiwan. What can Taiwan's enterprises do? They stay forever at the end of the value chain. Not the end, but the bottom. This is an issue [for Taiwan], and its not just China.

If you think of this in terms of a client-supplier relationship, the brand name holder will always be the client. Is this really the way things should be? The whole industry has developed into a deformed state and I think the biggest problem is the connection with the capital market. That is all they talk about everyday; the stockholders and the public lack strategic thinking. They only talk about the iPad's supply chain, who's doing business with whom, but they overlook the reality of the industry. For Taiwan's long-term development, this is meaningless.

Ling-Fei Lin: So OEM manufacturing is not a good idea?

K.Y. Lee: It is not so.

Ling-Fei Lin: You mean you can't just focus on OEM manufacturing?

K.Y. Lee: Correct. OEM manufacturing is just a stage for enterprise growth instead of a long term destination.

Ling-Fei Lin: So the goal of Qisda is not doing OEM manufacturing??

K.Y. Lee: We are still considering its next move.

Ling-Fei Lin: Let's go back to the topic of panels. You mentioned that fund-raising was a challenge, would you like to elaborate?

K.Y. Lee: Fund raising was a big task. As a sizable corporation, AUO demanded a large amount of capital. A corporation consists of shareholders and how do you persuade shareholders to increase their investment? I remember that there were two mergers in the history AUO. The first acquisition was the merger of Acer Display Technology and Unipac Optoelectronics Corp. The second one was the merger with Quanta Display, which we took over and eliminated. The first one happened, was it in 2000?

Ling-Fei Lin: In 2001.

K.Y. Lee: In 2001. When the merger took place in 2001, the whole industry was at a low point. So a

merger during an industry low point, and at the same time we decided to release new stocks, because Unipac was having trouble staying afloat. They needed a lot of equipment, but didn't have money for further investment. It was a pity having the Unipac plant remain empty. So we hoped to raise funds to finish buying equipment and make it a sizable factory. During that period, we went around trying to convince investors to increase capital. We just became an IPO-listed company at that time. I remember that initially we set to make it twenty New Taiwan Dollars per share, and we looked everywhere for investors. Unfortunately, we found very few investors. Thus, the price of the shares sunk to fourteen New Taiwan Dollars of each. I am not sure whether it was fourteen New Taiwan dollars or not, you might need to confirm if, I think it was fourteen.

Ling-Fei Lin: Do you mean ADT?

K.Y. Lee: Yes, it was at the time when the merger of AUO took place. I remember that when we sought investors, many people thought one of our stockholders was going bankrupt. Those financial institutions' sarcastic attitudes---they'd act like bosses because they're rich. We went all over the place looking for investors, such as insurance companies, venture capitalists, other institutions with large amount of capital, and even foreign investors. We worked with an American company called Capital Fund Management and became very good friends with the Director.

Ling-Fei Lin: So did he help AUO out in a great deal? Was it related to the release of American Depositary Receipt (ADR) stocks?

K.Y. Lee: No, it wasn't that difficult when we released the ADR stocks. Before we released the ADR stocks, many private equity investors helped a lot. China Development Industrial Bank invested in us and also provided much assistance. That was a difficult period. The fund-raising in 2001 was a turning point for us. Without it, we wouldn't have been able to expand and would have become a second-tier company. Though the amount raised was high, the stock price was low. But without it, it would be pretty difficult for us to become one of the first-tier companies in Taiwan.

Ling-Fei Lin: Would you like to talk about the merger that Acer Display Technology (ADT) conducted between Unipac and Quanta? Could you explain why mergers in the Taiwanese LCD panel industry are so important?

K.Y. Lee: This is mainly because the mass production of LCD's was first accomplished by Japanese companies. But the Japanese companies encountered an economic crisis right after they figured out the mass production techniques, so they had insufficient financial support for subsequent development.

Ling-Fei Lin: Was it the crisis in 1998? Or 1997, 1998...

K.Y. Lee: The very early financial crisis. After that, the Japanese corporations decided to cease large-scale investment in the LCD industry, the only exception being Sharp. As a result, South Korean corporations seized the opportunity. The development of the Korean LCD industry started two years earlier than ours. They got a two-year head start. I realized that the earlier you got into it, the bigger profit you made. The later you got involved or got ready for mass production, the later you got the large-scale benefits. The timing made a big difference to your profits.

Therefore in Taiwan, the government and the corporations all jumped in at the opportunity. The government supported it with the "Two Trillion and Twin Star" project. Many corporations joined the LCD industry, soon there were six major LCD manufacturers. But think about it, at the time there were only three LCD manufacturers in South Korea and one of them got eliminated, so only two manufacturers remained. Reviewing our situation here in Taiwan, resources were shared between six manufacturers. Our population was half of South Korea's but we had three times the amount of manufacturers. The number of engineers available to you was comparatively less. This is the main problem facing Taiwanese

industries.

Ling-Fei Lin: Weren't there four manufacturers in Korea? Later, only three remained, including Hyundai, LG, Philips and ...

K.Y. Lee: No, LG and Philips were the same company, and then ...

Ling-Fei Lin: Samsung?

K.Y. Lee: Samsung. The last one was HYDIS. HYDIS was bought by a Chinese company. They only had a very small plant that was smaller than any Taiwanese company's. Matter of fact was, there were only two manufacturers left in Korea, while there were six manufacturers in Taiwan. So how could those companies possibly survive well? They weren't large enough, and had insufficient human resources and insufficient technological capacity. They had no chance. Another obvious problem was intellectual property. Because Japan started more than twenty years ahead of us, and they owned many patents. So wherever we went, they accused us of violating their patents. We did not have any bargaining chips. We realized that we needed to expand our company's scale, to have sufficient human resources like engineers to create sufficient patents to rival our competitors. Furthermore, with plenty of capital, we would be able to build plants in minimum amount of time, in order to gain profits from the industry's early phases. Therefore, most people thought it was necessary to merge.

Like Quanta was merged by us later on. When Quanta was established, I went to Barry Lam, who was an older classmate of mine, and told him: why have such a difficult time building your own company instead of being one of my stockholders? I asked him to invest in my company instead of establishing a new company. However, he considered himself being able accomplish it, and said he had already negotiated with Sharp from Japan, and he could not terminate it. He said he'd end up giving it to us anyway.

To me, I considered the whole industry in Taiwan being overtly dispersed and decentralized, which made everyone feel that they had a chance to succeed. Do you notice how nowadays, Taiwan is the country with the most IT and electronics companies? But do we have relatively more human resources? Do we have more material resources? Ultimately, everyone wants to be their own boss and establish their own company. So we are faced with the cruel reality of fierce business competition. Only with sufficient scale, sufficient technological capacity, sufficient ability to maintain clients and sufficient patents could a company stand out in this global industry. Ultimately, the company's scale is created through mergers; and this is the only way out.

Yet, in terms of applying society's resources, it is necessary to do it because in Taiwan most people borrow money from banks. If a corporation does not perform well, it would be a waste of the bank's or society's resources. I think it is natural for our industry to have chosen this path. And there are still too many companies...

Ling-Fei Lin: So ideally how many companies should there be?

K.Y. Lee: Of course it would be best to have only one company. <laughter>

Ling-Fei Lin: So how did these two mergers benefit you?

K.Y. Lee: The benefit is substantial. When we completed fund-raising and merged with Unipac, we immediately became the largest company in Taiwan. We were very careful to control the debt ratio [to keep it] from getting too high, and invested with caution. We controlled the debt ratio in a safe margin; but our competitor in southern Taiwan kept investing and borrowed money from all over. Did you notice that our net debt in the percentage-of-debt ratio was about 40%; while the net debt of Chimei was around 50 to 60%? They have high percentage of net debt and have an even higher percentage of net debt these

days, which is deemed as extremely dangerous. Mr. Stan Shih used to constantly warn us that we should not let a capital-intensive company have too much debt, in case that this industry suffers too much during an industry downturn. Then it would be difficult to cope with this debt and it would be even harder to invest further. We kept this warning at heart and ran this business carefully.

So later on, Chimei surpassed us and became bigger than us. They expanded their plants faster than us, and we felt we did not need to expand to so many plants. At that time, we had actually been negotiating with Quanta for a while. As for chairman Barry Lam, we knew him well and hoped he would hand the operation to us. After the expansion of their plant, the result was below expectations. The yield was low and the cost was uncompetitive. Meanwhile, his health was suffering, so his employees all thought it would be better to hand the operation to us. Mr. Lam was reluctant to hand it over to us. However, the company's performance improved after we took over, and it went on to become the biggest in Taiwan, far ahead of Chimei. Chimei was unable to catch up with us, and we had time to boost our performance. The crucial point here is that it would've taken us one-and-a-half years to two years to be production-ready, had we built a new plant ourselves. However, since it was a merger, we were ready for production as soon as possible. The benefit of merger was very helpful here.

Ling-Fei Lin: And you could eliminate a company that was not a competitor and let the whole production capacity…

K.Y. Lee: Let the whole industry be more orderly.

Ling-Fei Lin: So, the main benefit of these two mergers was to expand your scale, were there any other benefits?

K.Y. Lee: The recruitment of talents [personnel] was of course another key point, to improve our human resources. Through the two mergers, we became very experienced and each merger was smoother [than the previous one]. We spent almost a year on the first merger, organizing and consolidating the team from both sides. But we only spent about half a year to integrate the team in the second merger.

Ling-Fei Lin: Why? Was it because you were experienced?

K.Y. Lee: Yes, and also because of the size of the company. The first time, both sides were big companies. I think it is very important for a corporation in terms of long-term development.

Ling-Fei Lin: You mentioned that mass production is the hardest part in the panel industry, rather than the design. In the semiconductor industry, there is a big division between the design sector and production sector. Is it the same in panel industry? Are there any differences?

K.Y. Lee: It is because panels are just different. In the panel industry, the circuit of the panel is basic and relatively simple. Though the size of a panel is big, its circuits are repetitive. Nowadays, many new technologies have appeared. How do you improve the resolution, such as the Retina Display of the iPhone4, the Retina Display which has a resolution scale of over 300 DPI, we have to manufacture all these. Because of the precision of these products, the yield rate surely declines. Overcoming this mass production challenge---to make products with such minute details, and still get a high yield rate, that is our goal. Furthermore, new technologies such as, Organic light-emitting diodes (OLED) are what we're getting into and will start production shortly. The advantage of this technology is it does not require backlights, which creates high visibility under sunlight. These display technologies will have remarkable breakthroughs and innovations within the coming two or three years, which will elevate the industry into a higher level. In this industry, technical skill has once again become the driving force in the recent years. The ushering in of new technologies will propel our mass production capabilities, which we have to rebuild.

Ling-Fei Lin: But you said the design is simple, right?

K.Y. Lee: It is relatively high in repetition, so...

Ling-Fei Lin: Are they integrated?

K.Y. Lee: Yes. So it has none of the IC design company type of division-of-labor. The design and mass production technique has to be together.

Ling-Fei Lin: So there used to be companies that did it separately?

K.Y. Lee: No. Some companies tried to do business like that; but the companies failed and got sold within two years.

Ling-Fei Lin: The panel industry is quite unstable with big ups-and-downs, but is different from the DRAM industry. Can talk about the different unstable natures between the panel industry and DRAM industry? And why do we still venture into such an industry?

K.Y. Lee: We were indeed quite a successful business in the early stage. For example AUO in Taiwan has probably accumulated and earned nearly two hundred billion [New Taiwan Dollars] over the past few years. I think the returns to stockholders and the profits are impressive, and a very good experience. People remember some of the up-and-downs of the panel industry. In the early stage the industry was supported by small-sized panels, such as game consoles, and then came digital cameras and video cameras, and finally, laptop computers. After the laptop computer, desktop display was the main application and now it is TV monitors. Therefore, whenever a big company like AUO appears, half of our revenue comes from TV monitors. Since televisions make up half the value of our output, we are influenced by the TV monitor industry's cycle. TV monitors are certainly cyclical, dependent on when people move into new homes, and certain holidays such as Chinese New Year; they all affect people's purchase motivation. Therefore, people feel that it has strong periodic nature, which puts pressure on the company's operation.

How do we reduce the LCDs share of our company's total turnover? And that is not reducing the amount of LCD production, but increasing the value of other products, such as touch panels, high-resolution panels, designing brighter products, adding 3D features, which can all enhance the value of my existing panels, while reducing the share of TV panels in my company's turnover. This will allow the development of our company to be healthier, likewise the industry. So in fact, you may not know that we slowed down the pacing of our plant expansions. In the past, we set up a new plant and a new production line almost every year; nowadays, we probably have decreased to once every two years. It's not that we don't think plant expansion is the only way out. I still need to expand the plant because the number of clients is increasing, they demand growth and we grow to meet their needs. Through plant expansion, we can usher in new technologies, but the cost we now spend on the transforming and updating of old plants is expensive, and it is indeed our focus of operation now. The transformation of old plants with technological upgrades, the added value is up and the value of output increased, through this way we can balance this cycle.

Ling-Fei Lin: So don't you think this is an eternal cycle?

K.Y. Lee: I think in the future, the impact of television sets will become increasingly small, because there will more emphasis on touch-screen functions and 3D functions, which will be different than the past.

Ling-Fei Lin: Some people say that this industry resembles the DRAM industry: either you are making a good profit or suffering a great loss. What is the difference of the cyclical nature between these two industries?

K.Y. Lee: Most people have that impression about the DRAM industry because of its fluctuations. The fluctuations in the LCD industry is seasonal, but the fluctuations in the DRAM industry is caused by the imbalance in supply and demand. Because the characteristic of DRAM is its small size, so the smaller and more precise it is, the lower the cost. So when they produced DRAM that was 40 microns, it shrunk to 35, 30, 25, 20 nm, the size just kept on shrinking. While the size shrunk, the output increased and likewise the cost, so they have to increase their production.

And we are the opposite. People wish to have increasingly bigger screens, so the amount of our products is declining. So how do we stay competitive? By adding other functions into our products, to increase our prices. A troubling issue is our competitors are Japanese… no, actually, Korean corporations. The two big Korean corporations (Samsung and LG) have sizable scale and better vertical integration and have more support from downstream manufacturers. Sometimes in Taiwan they outdo us in terms of market supply, which is a different form of pressure.

But I firmly believe that those clients without LCD panel products remain as our main customers, and they have been very supportive to us. I don't think those two Korean companies---with so much conflict between them and their customers---could operate in their current mode for the long term. I think there's got to be a risk limit in the long term. Many people may not understand, but during financial crisis, Taiwan's currency exchange rate policy gave us a lot of pressure, because the depreciation of the Korean yuan on was greater than ours. We had our own internal estimates that during the 2008 financial crisis, comparing the rate of depreciation of the New Taiwan Dollar and Korean yuan, Korean manufacturers had a 6% higher gross profit than us. The Korean yuan was severely devalued. The original depreciation was bought by US dollars and converted to Korean yuan. The yuan was converted back to US dollars after the depreciation, but still had a 6% of higher profit point than us. So this whole competition is very hard to overcome with our management ability. Therefore, if you see what we have done over the past years, we've been publishing our operation performance quarterly, and outdoing the Koreans in EBITDA. Before the economic crisis, we were ahead of them two years to three years, and we were better. So when things get back to normal, we will be definitely beat them; I am confident.

Ling-Fei Lin: You just mentioned that the DRAM industry's fluctuations are mainly due to the imbalance of supply and demand. While you said that LCD panels are seasonal, but don't they also have an imbalance in supply and demand, because they are often...

K.Y. Lee: That's right. There is a problem of imbalance between supply and demand. But then, I mean the output of LCD is in decline because while the panel size is increasing, and the number of units is decreasing. The supply and demand mainly happens during its technological upgrade: the increase of precision, and with nano technology decreasing the size, the quantity of output is increased. And when the output is increased, an imbalance is easily created. But our imbalance mostly comes from seasonal problems.

Ling-Fei Lin: So it is not the problem of supply and demand...

K.Y. Lee: It is not because of the rapid increase of output quantity.

Ling-Fei Lin: So, is South Korea better than us in terms of cost or technology? Because the bigger the scale...

K.Y. Lee: South Korea is not ahead of us. Their scale is currently larger than ours because they continued with their plant expansion during the economic crisis, while we slowed down our plant expansion. And in terms of technology, I don't think we are inferior. They have some *terminal applications that are ahead of us. For instance Samsung, because they are using AMOLED technology on their mobile phone, they invested in it earlier than us, but just one year earlier. We felt it was not our top priority; they needed it for their internal use.

Ling-Fei Lin: To your knowledge, why are there only Taiwanese, Japanese and Korean panel manufacturers?

K.Y. Lee: Because the panel industry requires the integration of semiconductors, optics, materials and machinery. At its core is the semiconductor, followed by a complicated assembly process. Only when the industrial standards are met could a country develop its panel industry. And from what we see, Taiwan, Japan and Korea all have this capability. Mainland China has been trying to enter this industry, but they still have a poor operating performance. The reason is they still lack the ability to integrate the management of industry sectors. They still lack such experience, not mature enough.

Ling-Fei Lin: But I think the Americans have the ability to integrate industries, why don't the Americans develop this industry?

K.Y. Lee: In the field of optics applications, the United States in fact far behind the rest of the world. Particularly with the mass production of such a comprehensive integration of technologies, the United States probably can't recruit people at such large-scale.

Ling-Fei Lin: You mentioned that the semiconductor is the core of the panel industry, would you like to explain how Taiwan's semiconductor industry complement with its panel industry?

K.Y. Lee: OK. The first is human resources. Taiwan has trained a lot of personnel in the semiconductor industry, and in panel industry we also use a lot of resources from the semiconductor industry, especially the new driver ICs. Nowadays, Taiwanese manufacturers have almost taken over the business. In the past, we had to purchase from the Japanese, and now our local companies have acquired the technology. So this greatly helps. However, in terms of factory management, people with a semiconductor background also help a lot. Because a plant involves a lot of things, like environmental management, safety, health and other types of management, pollution management, which all need their own experts.

Ling-Fei Lin: So in fact, the entire panel manufacturing process, I heard the first and second stages of the entire process are more like the manufacturing of semiconductors, and the last stage is systematic assembly. So is the last stage mostly done in the mainland?

K.Y. Lee: Yes, in mainland China.

Ling-Fei Lin: So back when you set up Acer or AUO, you basically borrowed many talents [personnel] from Taiwan's semiconductor industry, and the same for plant management. Are they easily adaptable, or...

K.Y. Lee: Of course there is a learning curve. It is different, particularly the optical part. There are many optical parts in the LCD, as well as materials. To me, this is an integrated technology.

Ling-Fei Lin: This is related to what you just mentioned. Can you re-analyze the differences between South Korea, Japan and Taiwan… the development, canon and history of the LCD industry? Why does South Korea appear to be the most competitive and why did Japan withdraw from the competition of large-size panels? And finally what is your opinion of Taiwan's development in this industry?

K.Y. Lee: The reason of Japan's withdrawal is simple, that they lacked the investment capital for fostering a new generation of plants. The new generation of plants was built for large-sized flat-screen TV's and other new applications, so Japan had no choice but to withdraw.

Ling-Fei Lin: Would it be possible that they invest in the next generation?

K.Y. Lee: But they would still need a lot of capital, and they don't want to dish out the money. The only Japanese corporation that still has investment in this generation of large-sized panels is Sharp. No other companies are doing it.

Ling-Fei Lin: So ultimately, the reason isn't the financial crisis? Instead, it is their attitude that's stopping them from investing again…

K.Y. Lee: I think it is the choice of the enterprise, as well as, of course they are now behind. Also, some worry that the investment would not be profitable, so the enterprise does not dare to invest. The situation is different in Korea, as Korean enterprises' investment priority is to obtain the market share. Secondly, they will consider using the market share to promote the market share of their TV sets. The two major Korean companies have their own TV brands, and have retail outlets operating worldwide. *They want to kill two birds with one stone, which means they will export the products if it becomes excessive; their logic is different.

As for our own situation, unfortunately Taiwan's industry does not have powerful support from global television brands. Therefore, even if we have the production capacity, without good customers who can commit to a large-enough order, we will become an "idle capacity." The pressure is really a burden, that we do not have better mechanisms in operation internally (domestically). Thus, we have joint ventures with many Chinese TV brands. Through our joint venture co-operations, we hope to increase usage of our panel products. It proved to be a good move. We have made many similar moves recently. In the past, many famous brands worldwide have come to purchase our products. Such as the Japanese, and those two Korean companies have also bought our products, likewise some small brands from Europe and the US. In terms of scale, we are the biggest independent panel manufacturer worldwide, and we support many brands. But we need to strengthen our relations with independent brand-name companies, so the presence of our products can be increased..

Ling-Fei Lin: So now in the panel industry, some key component materials' production have been mastered locally, and increasingly so. What else do you think we should improve?

K.Y. Lee: Yes. As a matter of fact, Taiwan has overcome the problems regarding optical and precision parts. What needs improvement is the material parts, specifically the "fine chemicals", as the Japanese call them. Our industry still has a lot of obstacles to overcome in mastering those materials, such as the liquid crystal. We still purchase those materials from Japan. Our biggest supplier, Merck, they manufacture in Japan as well, and like those chemical products that require multiple production stages, those type of chemicals also need to be imported from Japan. Another is the production machinery. Taiwan has always been out-of-date in this aspect. Honestly our government hasn't pushed it strongly enough, which is why the production machines---what we depend on for production---the local industry hasn't been of much help to us. We hope to encourage domestic production, but when it comes to high precision and high-value products, Taiwanese companies still lag behind South Korea.

Ling-Fei Lin: So do you mean South Korea is relatively more self-sufficient?

K.Y. Lee: Yes, they are.

Ling-Fei Lin: What's our percentage?

K.Y. Lee: Ours is about 50%-60%; South Korea is about 20% higher than ours. But the percentage is not the issue. The issue should be those core products, the high-valued and high precision products---could Taiwan's panel industry manufacture them? Currently South Korea surpasses us at it. The key point is that these devices and technology are interchangeable with the semiconductor industry; if the semiconductors don't support us, there's nothing we can do.

Ling-Fei Lin: So do most of the semiconductor companies purchase equipment from abroad?

K.Y. Lee: No. But in Taiwan, we purchase the equipment from foreign companies.

Ling-Fei Lin: What is the reason?

K.Y. Lee: You have to ask TSMC for answer.

Ling-Fei Lin: All right, let's enter the last part. These will be more personal opinions: could you analyze the influence of Taiwan's panel industry on related industries or products worldwide?

K.Y. Lee: First, the panel industry has great influence on Taiwan, due to the panel industry's inter-connected nature. In Taiwan, we need to a lot of component parts such as precision components, backlight panels---some of our back light panels are still made in Taiwan. And to make the plants operate, we need the crucial systems, these materials spans across a variety of industry sectors.

On the other hand, we cultivated many upstream and downstream companies making materials, optics, and precision machineries; they are all nearby and growing. And the production equipment companies we cultivated in the Taichung area, because a lot of industrial machines were built in Taichung, it used to be the center of the mechanical industry. Therefore, for every one person we use in our industry, two to three people are required in our peripheral industries.

Second, with such strong support from the panel industry, a lot of Taiwan's industries are getting stronger. Manufacturers of monitors and laptop computers, for example, will have more opportunities to do what they want. So it's helpful. Furthermore, the panel industry drives many other portable products, and makes them more competitive.

Ling-Fei Lin: What about the influence on the whole world? If it were Mr. Stan Shih, he would say the worldwide popularization of the personal computer was because of Taiwan. What is the contribution of Taiwan's panel industry to the whole world?

K.Y. Lee: Oh, it is remarkable. Think about how many products we have on us that come with a screen. We have mobile phones with big screens thanks to cheap panels; and we have smart phones, notebook computers, iPads, or even desktop monitors, television sets, these are very substantial and opening up possibilities for people. Recently there's a viral video on-line that was made by Corning Incorporated, "A Day Made of Glass", you can see the combination of glass with displays inside.

The future will bring so much revolutionary possibilities to people, including cars. They now use at least two panels in cars, one for the navigator and the other by the speedometer. Nowadays, you will find that new cars use LCD displays to replace the speedometer, replacing it with a screen. It is full of possibilities, the LCD is so cheap and user-friendly, with extraordinary optical efficiency, so the designer can have much options when designing, and creating distinctive product lines which were unimaginable in the past. The iPad is the best example. If not for cheap LCD's, how could there be a USD $499 iPad2, which is cheaper than a mobile phone?

Ling-Fei Lin: My point is if Japan and South Korea are also able to produce such a product, if the panel industry didn't exist in Taiwan, how would the global industry be different? Or is there no difference? I just want to know what the unique contribution of Taiwan's panel industry is...

K.Y. Lee: To me, there is no need to highlight the uniqueness of Taiwan's panel industry; because it is hard to say whether the uniqueness is good or bad, really.

Ling-Fei Lin: Does it help decrease the value of product? Or...

K.Y. Lee: Of course... Because there are so many Taiwanese companies, there are many negative influences. I don't think I'll go into the positive ones. But there are indeed many manufacturers in Taiwan, with a lot of negative influences.

Ling-Fei Lin: Up until now, what is the happiest thing, the most rewarding thing, or the proudest moment in your life?

K.Y. Lee: It should be cultivation of so much talents [people] and creating the career opportunity for people to use their talents. Because of such arrangements, we've contributed much to the society and people, I am pleased to say.

Ling-Fei Lin: Would you like to talk about the turning point in your life? What are the significant events that made you venture off the original path and on to a new direction? You mentioned a couple of them, do you have any more to add on to? For example, you went to IMD, and then...

K.Y. Lee: No, the influence is not that substantial. I think I've said it all.

Ling-Fei Lin: Then if you could turn back time and change one thing or one decision, what would that be?

K.Y. Lee: I've never thought about it; I have no regrets. I accept whatever that comes in my life and never to look back.

Ling-Fei Lin: What do you mostly do or plan at present? What is the focus now in your work?

K.Y. Lee: I think I should improve this company and its added value. The focus should be on "soft power." Things closer to our customers, helping them create invisible influences, such as product design capability, the ability to integrate systems. The whole industry is developing "soft power" products, such as software, solution-providing, and services. These are things we need to consider, and now preparing to head this direction.

Ling-Fei Lin: In Taiwan, the past 20-30 years have been dominated by semiconductors, computers and related hardware manufacturing, and became very successful especially in OEM manufacturing. What's your view on our future? What is our direction? More specifically, should we head for more fundamental research and development, materials, or equipments? Or a more general perspective, what are your thoughts?

K.Y. Lee: As I've mentioned, we've reached the maximum capability for hardware manufacturing. Frankly speaking, in terms of hardware manufacturing, Taiwan has done almost everything. What's left undone are in the materials, such as the fine chemicals. In terms of amplifying our value, Taiwanese enterprises should try to pursue the field of the end users, and to manage its brand and service industry, to develop industries that combine technology with daily life. We should develop that instead of merely manufacturing or making component parts. Because I think sooner or later, we will be replaced by countries with lower wages.

Ling-Fei Lin: What would be the next step for those doing manufacturing or making sizable component parts? For example, Foxconn, Quanta or Wistron, will they follow Samsung's strategy to include all kinds of products?

K.Y. Lee: That is impossible for their corporate cultures to transform into something like that. I think a more realistic way is through corporate mergers, and some people can withdraw and start another business.

Ling-Fei Lin: Is this your opinion?

K.Y. Lee: It would be difficult for those companies to transform. Rather, it would be better to slow down. If one day the situation in Taiwan becomes like Japan or South Korea, with only two or three main enterprises, the entire industry's order and value would be improved.

Ling-Fei Lin: Therefore, you think merger is a great solution?

K.Y. Lee: Yes, it's necessary because there are too many companies.

Ling-Fei Lin: But would it become an overtly huge enterprise like Samsung after the mergers? Or...

K.Y. Lee: No. As I said, these companies are not Samsung now and they will not become Samsung in the future. Instead, they are only OEM foundries with excessively short value chains. They must be expanded to reach a certain scale.

Ling-Fei Lin: These days... AUO has also been experiencing this problem: In the past, things were more development-oriented. These days, a lot of things are environmentally-oriented. With these two kinds of ideologies, how would you do to strike a balance?

K.Y. Lee: In Taiwan, there are a lot of non-economic factors causing interference. But if it helps the whole environment, we are willing to adjust. It hasn't affected us. But I am concerned that with our nation's zoning policy, they should be clear with the locations we're allowed build plants, and should clearly stipulate all the rules, give us an infrastructure, instead of opportunities for environmental groups to lobby. We will obey international standards; that is not a problem. If a place is unsuitable to build factories, then don't allow us to come in the first place. We have no problem with that. To those corporate leaders, they realize there are a lot of non-economic factors at play, which influence their willingness to invest. You can see that we adjusted the scale of our investment, because if the old way doesn't work, then we will change. We have other choices. we need to take the stockholders, employees and consumers into consideration, to do what is best for them.

Ling-Fei Lin: Not judging from AUO's perspective, but rather generally speaking, do you think Taiwan needs more factories? Also, considering Taiwan's economic development and environmental protection, what kind of development do you think is better for us?

K.Y. Lee: Whether there should be that many factories in Taiwan depends on the needs of each industry. Frankly speaking, this is a dilemma because we all want to keep the job opportunities in Taiwan. But does Taiwan have that much more space for factories? Are there enough workers? The answer is obviously no, so many factories already moved to mainland China.

As for the future of Taiwan, I think there is only selective manufacturing left. As for how resources should be shared, that is beyond my understanding. You need a broad perspective, on the issue of resource allocation. But AUO or any other enterprise should understand that currently Taiwan is no longer a place for mass production. We also hope that we can minimize the impact on the environment, perhaps even improving the environment. I often talk with those people, the environmental groups and government officials, I'd say that before we built plant here, it was a sweet potato garden or watermelon farm, and Taiwan Sugar Company left it abandoned. After we took over, one third of the land was turned into a park. I have reserved a large proportion of land as green space. In the end, is it good or bad? Perhaps the government did not express this idea clearly with the locals. However, generally speaking, I hope that the government must have clear zoning and resource allocation policies, telling us where we can or cannot build plants. Make it clear, and we will follow the rules.

Ling-Fei Lin: Alright, the last question is what is your advice for those who want to enter high-tech and panel industries?

K.Y. Lee: I think that people need a clear idea for their future. And of course, not everyone may know it clearly. To me, this industry has all kinds of possibilities for creativity and challenges. As you sow, so shall you reap. People have to think through it and make the right choices. Young people now have many options and they don't need to enter this industry. But if they do, there are plenty of possibilities for one to explore. Be sure to choose what you like.

Ling-Fei Lin: I have one question that is similar to that point you mentioned, about how we should stop doing OEM manufacturing. Looking back at 30 years ago, did we make a wrong decision to do it?

K.Y. Lee: There is no right or wrong, but how much resources will be utilized. Presently, with the current stage of development, I think Taiwan is facing some risks. From the way things are now, there will be risks for us to go on like this. The main challenge comes from places with cheaper costs and more resources. They can take away our OEM industry using the same method…let alone our technological know-how; in fact, although there is a learning curve with the know-how, as long as you master the learning curve, you can still catch up to it. We are already starting to see this happen at those other places.

Ling-Fei Lin: So if we all developed our own brand, do you think it is possible?

K.Y. Lee: Yes, it is very likely to happen.

END OF INTERVIEW

