Oral History of Arjun Malhotra

Interviewed by:
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Kapoor: This is Uday Kapoor. I'm a volunteer at the Computer History Museum here to welcome Mr. Arjun Malhotra. He's a pioneer of the Indian IT industry. Welcome, Arjun.

Malhotra: Thank you.

Fairbairn: So we want to start with your early life and take it from there.

Malhotra: Well, I was born in Calcutta. My maternal grandfather was a well-known scientist. He was president of the Indian Science Congress in 1954, and I grew up with him. In fact, he used to go for a walk in the morning around Victoria Memorial. I used to hold his little finger and go walking with him. While he was walking and talking to his scientific colleagues, he'd ask me two plus five, three plus eight, etc. And so, when I went to school, I was ahead of the math class because when the teacher used to write the problem on the blackboard, I would give her the answer. So, I was thrown out of the math class as a disruptive influence and was sent to learn Bible Knowledge. That's how I grew up.

Fairbairn: So, let's go back. That's an interesting story. What type of scientist was your grandfather and--

Malhotra: So, he was a zoologist, basically, but expert on fishes. An ichthyologist, I think, is the word they use.

Fairbairn: Oh, yeah.

Malhotra: Probably India's best-known ichthyologist, even till today. He had lots of awards and was a Fellow of the Indian National Science Academy etc.. Also, he was President of Indian National Science Congress in 1954.

Fairbairn: And what about your parents? What were they doing?

Malhotra: So, my dad was in the army. He joined in the British army. He was a King's Commission. He was living in Burma. He came from Burma when the army retreated to India during the Second World War. And he met my mother in Calcutta. My mother was a medical doctor and they met in Calcutta and decided to get married. They got married in 1946.

Fairbairn: So, this was not an arranged marriage. This was-- your parents were--

Malhotra: Yes, it wasn't. What happened during the war, civilians had volunteered to house some of the troops. And my dad got allocated to my maternal grandfather's house.

Fairbairn: I see. <laughs>

Malhotra: That's how they met.

Fairbairn: <laughs> So you grew up in a very highly educated-- education-oriented family?

Malhotra: Yes. It was very clear and I grew up with that thinking that as long as you're studying, the family will support you. But the minute you finished your studies, then you have to stand on your own feet. And the whole idea was to study. I never thought I would not get my doctorate. I mean, that was the thinking. Because my grandfather had got his DSc, in those days, from Edinburgh, in 1924. And so, that was supposedly the family tradition.

Fairbairn: Your mother was a doctor?

Malhotra: Yes.

Fairbairn: So, what about siblings?

Malhotra: Yeah. I have a younger sister. She's three years younger and she showed no interest in the sciences. She did a master's in English literature. And then, did lots of things after that, but basically, she wanted to stay in the liberal arts. And I wish we had encouraged her more because I remember, in those days, she said that people like Dylan Thomas and all will become famous over time. They were unknowns and it was the pop culture, so to say, at that time. And I think she was right. Leonard Cohen, Dylan Thomas. You know, she had identified all of them as potential kind of people who will become famous.

Fairbairn: Great.

Kapoor: So, I understand you studied at Doon School, which was a very prestigious school. When did you leave Calcutta to go to Doon School?

Malhotra: My dad got transferred to Delhi. He left the army in the early fifties. He felt that the Indian army was not disciplined enough because the British army was probably much more disciplined than the Indian army at that time. He left and since he was with the EME, the Corps of Electrical and Mechanical Engineers, he joined Dunlop, the tire company, as an executive. Dunlop transferred him to Delhi when I was seven years old. So, we moved to Delhi. It was easy for my mother. Doctors get jobs in government hospitals easily. Her field was Preventative and Social Medicine. She wasn't a practicing doctor. She was a teaching doctor in the area of family planning and public health. We came to Delhi when I was seven. I joined. St. Columbus School. In the early sixties, my dad got called up-- all the army reserves got called up, especially with the threat of the Chinese aggression on the eastern border. And so, he got called to the front and at the same time, my mother got a Ford Foundation Fellowship to come to the Harvard School of Public Health for a year-- I think 13 months, it was. So, both the kids had to go to residential schools.

Fairbairn: What age were you at that time?

Malhotra: I was 12 and my sister was 9. I was sent to The Doon School and she went to a school called Tara Hall in Shimla. My mother came back a year and a bit later and at that time they couldn't afford two kids in residential school and since I was close to my senior year at high school, my sister got pulled to a day school in Delhi, Mater Dei, and I continued at Doon. I graduated from there in December1964.

Kapoor: How was your experience at Doon?

Malhotra: Oh, it was fantastic. You make friends that last you a lifetime. I have no regrets at all. I loved my four years at Doon.

Fairbairn: So, was there any debate in terms of sending you off to-- two kids off to school and the parents gone, out of the country? Was that something that--

Malhotra: You know, my grandmother was there. We had some other family there. So, I don't think we ever thought about it that way. I mean, there was no option. My parents felt there was no option and-- so off we went.

Kapoor: So, you developed a liking for certain subjects, science or--

Malhotra: Yes. You know, I've always felt comfortable with science. I never felt comfortable with the liberal arts. I guess it has to do with the way your brain is structured. My logic was-- whenever I walked into a math test, I assumed that I had the right to get 100 out of 100 and that if I didn't, then I obviously made some careless mistake. But I always walked in thinking that I'll max this. That's how I looked at math all the time. Math and Chemistry. Those are the two subjects I liked.

Kapoor: So, after graduating from Doon School, then what was your next intention?

Malhotra: Because of an incident earlier in my life, where I had opened a tape recorder and couldn't put it back, I decided I'd become an electronics engineer. And that the IITs were-- and I could have-- in those days, if your parents knew someone, you could get into a college. That's how the structure was. But the IITs were on merit and I decided that is what I wanted to do-- if I wanted to do engineering, I wanted to do it on merit. That I better be good enough to do it. So, I decided to sit for the IIT joint entrance exam. All the five IITs at that time had electrical engineering and four of them had light current and power systems options. IIT Kharagpur had two departments. They had one for electrical engineering and they had an electronics and electrical communication engineering department. So, I figured they obviously had something different. And that's why I opted for Kharagpur to do my engineering

Kapoor: I see. So, you had an option to select which IIT?

Malhotra: I did. I studied hard for that exam. There were 30 seats in electronics and electrical communication. I told myself that if I could get a rank of 30 or less, then no one can take my first choice away from me. I was a little nervous when I went for the interview, because I got a thirty-second rank. But people in front of me were taking mechanical and other courses, so I was--

Kapoor: Yes. Those days, mechanical was the first choice.

Malhotra: Yes.

Kapoor: I also had a choice to go to mechanical at IIT Delhi, but I opted to go to electronics.

Malhotra: Okay. I've never studied that hard for an exam in my life. Because I said I had to make it in the top 30 to get my choice. I didn't want it taken away from me.

Fairbairn: So is this a multiday exam, these IIT--

Malhotra: It's a two-day exam. In our time there were four papers. You did math and English on the first day and you did physics and chemistry on the second day. And I think an estimated half a million people sat for the exam and they were going to take 1,400 students.

Fairbairn: So, were there particular professors or other people at the institute that were significant influencers for you going forward?

Malhotra: Oh, absolutely there were. In electronics itself, we had two professors, both of whom had a major influence on me. We also had some of the assistant professors too who influenced me. We worked closely with them. I was General Secretary sports of the Technology Students Gymkhana in my final year, there were two General Secretaries social-cultural, and two General Secretaries sports. There was also one student who was vice-president of the Gymkhana. The president of the Gymkhana was our head of department in electronics, Prof. G S Sanyal. So often a lot of work got done in the department itself. We didn't have to go to the Gymkhana building. . Professor G S Sanyal played such an important influencer role in my life that I endowed a school of telecommunication named after him at IIT Kharagpur. So now there is a Professor G S Sanyal School of Telecommunications on campus. The other professor who had a major influence was an assistant professor, Prof. M N Faruqui. And again, I've endowed a center for innovation at IIT Kharagpur. It's called the M N Faruqui Center for Innovation.

Fairbairn: Wonderful. Were there-- did you find anything particularly fascinating or interesting? Did you get into computers? Or what was your-- what were the topics that drew your interest at that time?

Malhotra: So, you know, it's strange. When I did electronics, computers were an option, which I did not take. I took control systems. My thinking at that time was that I was going to come here to either Stanford or Berkeley, do my Ph.D., and work for NASA, working on how to control satellites. We had to do a thesis as part of our undergraduate Bachelor of Technology (Honors) degree, My thesis was on Sample Data Control Systems. That was my plan when I was in college. We had some basic courses in computers, which I did-- I took the advanced courses on control systems, the Nyquist plots, and all that. Because that's what I thought I would do when I came here. What changed for me was I'd also decided on the girl I wanted to get married to. When I talked to her father, he said, "Are you crazy? I can't get my daughter married to someone who doesn't have a job." A confirmed job.

Kapoor: This is before you graduated?

Malhotra: After I graduated.

Kapoor: After. Yeah.

Malhotra: Yeah. Before graduation, you don't have any time to think about this.

Kapoor: Exactly. Right.

Malhotra: She's the sister of a very good friend of mine, who studied with me at IIT. And so, I decided to stay back, take a job, get confirmed within a year. It takes a year to get confirmed in India. Then, get married. And then, come to the U.S. Because once you're married, then no one says anything. What happened is I worked with a company called DCM, The Delhi Cloth & General Mills Company Limited. They were probably the fourth largest private sector company in India, based on revenue, at that time. A conglomerate, they made textiles, they made food products, they made rayon tyre cord, they made chemicals, fertilizers. Made a whole lot of things. I joined them as what was called a senior management trainee.

Fairbairn: Why did you choose them? I mean, they didn't-- weren't doing electronics. Right?

Malhotra: Yes. So why did I choose them? I had not even applied for any jobs and I think I remember that my mother had sent me a newspaper cutting for this job when I was at IIT. And there was one line in her letter, I'm a sucker for logic, there was that one line in her letter which said interviews are like exams, the more you do, the better you are at them, and I thought that was sensible. It was logic that I thought was good. And so, just to acknowledge that logic, I filled up that job application form and I sent it to them. I hadn't even applied for any other job.

Fairbairn: You're just going to interview and practice?

Malhotra: Yeah. I wasn't even going to interview. I just applied to-- just to acknowledge the logic of that line my mother had said in her letter.

Kapoor: Actually, I just wanted to interject a little bit. Since I was in the IIT around the same time, a different IIT, I remember exactly the same things. For example, the topic of control theory was most people wanted to take that. It was very mathematical and people like that. And also, the war, you know, the Pakistan war. And I think I read something about your experience. So that's very interesting. And the selection of the DCM, I remember that, too, as being one of the desirable companies to work for. So it was something interesting that I experienced the same thing.

Malhotra: Yeah. It was considered one of the jobs a lot of people wanted. I think 30,000 people apply. They select 8 to 12 people. So again, it's one of those things that once you get into and you get pass first stage, then it becomes an ego thing. That, hey, can I get to the end?

Fairbairn: Right. And you were only going to be there for a year anyway, so it didn't matter. Right?

Malhotra: That's what I had thought. What happened in December the year I was there is that they decided to get into electronics. I got called by the executive director, Vinay Bharat Ram, who is Dr. Bharat Ram's son. And he told me that, look, we don't have too many electronics engineers in the company. You're one of them. You're a management trainee. Obviously, we trust you, all that stuff. So, you're either going to head our sales and marketing or you're going to head production and R&D, depending on who we can find in the market. Now, they did get a production person from Indian Telephone Industries. And so, I was told they want to head the field operations, which is maintenance, sales, stuff like that. I thought to myself, one year out of college, I'm being given national responsibility for this new product that this big company is doing. Where am I going to get this kind of opportunity? So, I deferred my admission to Stanford by another year.

Fairbairn: You had already applied and had been accepted?

Malhotra: I applied. I got a fellowship and then when I deferred it for one year, they said you'll have to reapply for aid. My GRE numbers were pretty good, so I thought it won't be a problem. I deferred my admission for five years. Then, they said you got to do your GRE again and I said, hey, that's not going to happen. <laughs> But basically, that's what happened. So, I took on this electronics product opportunity. We built a strong development group.

Fairbairn: So what year was this?

Malhotra: 1971. And we launched our electronic calculator in early '72. I remember Munich Olympics, same year. I remember that.

Fairbairn: And were these basic four-function calculators or were these complex math calculators?

Malhotra: No. We had to go through several chip vendors before we decided. What happened was all these chip suppliers were start-ups here in Silicon Valley and they were failing fairly fast. We first used the Varadyne seven-chip set. They went out of business before we could launch. And then, we used the Mostek three-chip set. And they went out of business and we finally used the Electronic Arrays chip set. I still remember those names—because that's why the launch got delayed, since those companies here were failing at a rapid rate, at that time. What we did was initially, we came out with a simple machine that had four functions and a percentage and square root. But subsequently, we added our own EPROMS and programmed in functionality so that we could make machines that were specific to customer needs. Statistical analysis, for example, was a big requirement. So, we put in keys for regression, mean, median. A single key that you could press to do these functions. Where some of the logic was done by the chip and some was done by a EPROM that we integrated with the chip set. By using our own R&D, we were able to actually differentiate our offerings compared to our competition who were using standard chip sets and we could charge a premium on our calculators.

Fairbairn: So as a-- you were in marketing and sales? That was your responsibility?

Malhotra: That's--

Fairbairn: So were you responsible for defining how to differentiate the product and--

Malhotra: Absolutely. I had to give the feedback to the R&D folks and I was also responsible for our maintenance. And so, a lot of things like, use gold plating, don't use single-sided PCBs. Use plated through-hole. You know, double-sided PCBs, stuff like that. Use injection molding key tops. Also, the cabinet, don't have it extruded. Have a mold made and then make the cabinet, so it doesn't crack. You start learning things in lots of areas that you're not familiar with, but you got to read up and say, hey, what do I need? Because we were making enough money, so I could get the company to invest in some of these things that made the product better, more robust, better-looking. Differentiated

Kapoor: So, what was the demand like? Who were the customers?

Malhotra: Everyone needed a calculator. Our competition was the traditional FACIT mechanical calculators. And obviously, compared to that, this was fantastic. You didn't have to manually rotate a lever 10 times when you wanted to add numbers.

Fairbairn: What about imported devices or was that-- were those shut out or--

Malhotra: Yeah. The chips were imported.

Fairbairn: But the-- but finished products, were there any imports from-- I mean, the--

Malhotra: No. India was a closed economy. You couldn't import finished products without specific permission. You could import parts and build something, but you couldn't import a full computer-- full calculator. That changed over time when the pocket calculators came out, and they took a few years to come out. In fact, they took five years. What we had also done, because we had a strong R&D, is we had developed our own computer. So, after calculators, we built programmable calculators. We did a lot of that. Some of our machines in India were like what the HP 9800 series here, if you remember the HP 9800, which was a desktop programmable calculator. We had similar machines in India that we had developed. But we had also developed a 16-bit bit-slice computer that ran COBOL, FORTRAN, the usual languages. We went to the company (DCM) and said we want to take this to market. The competition was the IBM 1401s that you saw downstairs and the ICL 1901s and Unit Record Machines (URMs). We thought our technology was very superior to them and didn't need that much infrastructure, was much more reliable, etc.. What happened was, India was a socialist country in those days, and we had an act called the Monopolies and Restrictive Trade Practices Act, which basically said that no large private companies could get into any new area, and they would be fined, etc. We took the line that programmable calculators and computers there's no real difference since they both need programming. . You call this a microcomputer, if you like. But it's just a progression. But the DCM legal department's advice-- internal legal department advice was that, no, you'll run afoul of the government if you do something like this. Because we were going to compete with government companies, public sector companies, as we call them in India, who were making computers. But their technology in the ECIL TDC

Series was old and they were unreliable and broke down quite often. So that's the time six of us who worked there decided, and microprocessors were just coming out, we decided that if the company didn't understand how microprocessors were going to change the world in this computing business, we might as well go do it ourselves. Because there was no one else doing it in India and our competition was using very old technology.

Fairbairn: So what year was this?

Malhotra: 1975.

Fairbairn: '75. So, there were eight-bit microprocessors available.

Malhotra: Absolutely.

Fairbairn: And sixteen-bit was--

Malhotra: No. Eight-bit and four-bit. Both were available. In fact, our first machines were based on the Rockwell PPS-4, the four-bit microprocessor, and it was a programmable calculator, because that's what we knew, and we'd built it in DCM. So, when we left, we rebuilt it. The good news was —that DCM had taken it out to the field and we knew what the limitations were in their machine. So, we really hadn't even built our machine. We had a prototype in the lab, but we used to tell people to see the demonstration of the DCM machine, and then tell them what additional features we are going to give them when our machine comes out. That's how we did our initial sales. --

Kapoor: So, there was a restriction on importing computers, but not chips?

Malhotra: Yeah. Components were allowed.

Fairbairn: So--

Malhotra: Even today, there are some restrictions on fully assembled machines.

Fairbairn: So, what you describe in terms of working at a large company, coming up with an idea, a company doesn't want to do it, spin out, do it, it's a very common story here in Silicon Valley.

Malhotra: Yes.

Fairbairn: But not so common in India <laughs> at the time.

Malhotra: Yes. No., we were probably the first group that did that.

Fairbairn: So, what was that like and what--

Malhotra: It was tough. We had no money. We had no business plan.

Fairbairn: And what did your friends think? Or your family or--

Malhotra: My parents were okay. They said if that's what you want to do, it's fine. I was married. I had a child. The rest of my uncles and aunts, of course, thought I was crazy because you're leaving a big company. You're doing well there. You've got a stable job, a secure job. I mean, you must be crazy to leave it. You know, but two things. One is I remember telling people that microprocessors are going to change the world. Change the world was something people thought he must be high on pot or something.

<laughter>

Malhotra: But the other thing was that DCM's most profitable unit was their fertilizer plant, where the turnover is something like 100 crores, which is a billion rupees, basically. a crore is 10 million. And so, we said we've got to build our own fertilizer plant. Basically, that was the motivation, that I want to get to 100 crore, a billion rupees in revenue. That's what we've got to build and everyone had that vision of that number.

Kapoor: As a computer?

Malhotra: Yeah. That's how we started. We pooled in all our money, six of us. We had 175,000 rupees that would—in those days, translate to $17,500.

Fairbairn: And now, your family, you've got a wife and-- was your wife working?

Malhotra: Yeah. Both my parents were working; my wife was working.

Fairbairn: So, you weren't completely without a lifeline?

Malhotra: Yeah. There was no problem. And really, I just thought if it fails, I'll have mud on my face. I can always get another job. But what happened was out of the 175,000 that we had, you had to have an office in Bombay. Sixty percent of India's taxes came from Bombay, and that was the big market for computers. Unfortunately, the structure of renting was such that you couldn't rent. You had to buy. If you rented, you had to give a deposit equal to the value of the property--

<laughter>

Malhotra: Right. Because the rent control was such that if I rented for X years, after that, it became mine. I didn't have to get out. And so, 125,000 rupees out of 175,000 went to buy this place, an office in Bombay. And our working capital was just 50,000 rupees.

Fairbairn: How big of office is the--

Malhotra: It was 953 square feet.

<laughter>

Kapoor: So is this post your-- the-- I think you started in Microcomp in Delhi.

Malhotra: Yes. So that's how we started in my grandmother's barsati You know, in Delhi, you're allowed to build two floors. And then, a half-floor above that which is called a Barsati. So at my grandmother's house, that's the part where we started the company, originally. Of course, we had no money. So, we said let's go out and trade in calculators to generate cash to do our development. And initially, we thought we'll make our own calculators. Fortunately, what happened was there was this TV manufacturer called Televista. Their CEO, a gentleman called Ved Luthra, he approached us. And he said, "Look, I make calculators. I'm not able to sell them. So why don't you take calculators from me? Why set up your own factory? You sell my calculators. I'll tell you what my cost of production is. You tell me what your selling expense is. We'll take a number halfway in the middle, split the profit, and basically, I'll give you a 90-day credit on my machines. And we'll do our accounting at the end of that period and then adjust who made more, who made less, and do our adjustments." So basically, we had a lifeline. We had had a cashflow, because we paid only after 90 days. And so, that's how we started

Fairbairn: So how did he find you? I mean, you're six guys in a third-floor--

Malhotra: No. But everyone knew us. We were the big gorillas in the calculator trade.

Fairbairn: Okay.

Malhotra: So we had--

Fairbairn: Because of your reputation--

Malhotra: DCM had eighty percent of the market. I remember the revenues at that time when we left DCM, just for calculators, were 1.72 million rupees. Out of it, 0.72 million rupees was our profit. So very profitable.

Fairbairn: And you were responsible for distribution and sales.

Malhotra: That's right.

Fairbairn: So, you just picked up where you left off.

Malhotra: That's exactly what we did. That agreement lasted for a year or so with Televista. What did happen was they didn't want to increase production. We needed more calculators. So he said, "Go out and build your own calculators." And so, we called someone else and got different models built. And then, it ran into rocky weather because not always can you sell every model. So, Televista used to have some

stock and he'd get very upset about it and say, "No. Why don't you sell my machines? Why are you selling the other machines?" And so, after a period, that partnership broke. That whole thing broke and he got out of calculators altogether. Their TVs were doing very well at that time, so he focused on television.

Kapoor: So, you had enough funding to--

Malhotra: By that time, we had enough. So, what happened is--

Fairbairn: You started in Delhi and you went to Bombay. How far--

Malhotra: It's about 700-odd miles. What we did was there was six of us. Two people went to Calcutta (East). Two people stayed in Delhi (North). Two people went to Bombay (West). We didn't go South because we felt that you can get depressed if things don't work out. So, you need two people, one to cheer the other one up and say it's okay.

<laughter>

Malhotra: That's how we did it. I think six months later; the company was doing really well. So, one person from Bombay went down to Madras, now Chennai, to start that office. I got pulled out from Calcutta and came back to Delhi. Shiv Nadar and Subhash Arora were in Delhi. Shiv and I moved out and we started looking at computers, that let's develop our own computer and sell it while the other founders kept the cashflow growing because they were trading in calculators.

Fairbairn: Your family stayed in--

Malhotra: Delhi. We were working from my grandmother's house. By this time, we had taken over her bedrooms and expanded to the floor below the barsati where she lived. What we would do is roll up the bedrooms in the morning, make those offices, and when we finished in the evening, roll back the bedroom and the living room and give it back to her.

Fairbairn: This is the equivalent of the Silicon Valley garage. Instead, it was the bedroom of your--

Malhotra: Yeah. And she became our receptionist.

<laughter>

Malhotra: So, if someone had to wait, she would talk to them and because she had traveled all over the world with my grandfather, she'd make interesting conversation and find some connection, which Indians are very good at.

Kapoor: So Shiv Nadar and you were the leaders in terms of the computing?

Malhotra: Yes. When we decided to get into computers, the government had restricted the licenses to manufacture them. They said only government companies-- public sector or state public sector could get into computers. So, we had to go do what is called a joint sector company with the U.P. Electronics Corporation (UPTRON), which was in the state of U.P., which is right next to Delhi, to be able to get the permission to manufacture computers. And the model of our joint sector company was that UPTRON owned 26 percent. We the promoters owned 25 percent, and 49 percent was supposed to be offered to the public. But the total equity was only 2 million rupees or 20 lakhs. So if you had to go to the public markets for Rupees 9.8 lakhs, which is 980,000 rupees, the cost of going public was more than that. So, we ended up owning 74 percent and this 49% was held in the original calculator trading company, Microcomp. That was what we named the company and we named it Microcomp only because that was the name we had given the programmable calculator we had developed in DCM. And we'd been telling DCM to get the name registered, and they had been sleeping on it. So, because they hadn't got it registered, we decided to pick that name.

Fairbairn: So, I want to go back just for a moment. The-- you left this big company. You started on your own. There was no infrastructure. You cannot raise money. So you did this other mechanism. Banks and other people, did you-- you never had to take a loan? So you were cashflow-positive and you didn't depend on anybody else in the ecosystem dependence?

Malhotra: Yeah. Not in the initial year. Once we got the licence to manufacture computers we incorporated Hindustan Computers Limited in August 1976. It's now called HCL. We just use the initials as the brand became known. There, we started with programmable calculators, competing with DCM, because DCM in their wisdom then decided to go to the market. They took this decision after we had left. We knew their machine better than they did. And a lot of their people by this time had left and joined us and there was another start-up in India called Alpha Electro, who were also trying to make computers. Some of them had gone there. By June '77, we had more machines in the market than DCM had. And so, we then became the big boys in this market.

Fairbairn: Now, what-- when you say machines, what-- were these built on--

Kapoor: Yeah. That's what I was going to ask.

Malhotra: PPS-4-based programmable calculators called MICRO 2200. They had a magnetic card reader that could store programs and read them. DCM's machine had 100 memories and 1,000 steps. Our machine had 200 memories and 2,000 steps. You wrote a program the way you'd punch it in in a calculator, but the system remembered the sequence and repeated it.

Kapoor: So, I also understand that you had Winchester disk drives in this, versus floppy. Is that--

Malhotra: Yes. So-- well, no. The programmable calculator had a solid state--

Kapoor: No. I meant the computer. Sorry.

Malhotra: Yeah. We got the computers out only in '77. And the product-- the first machine was based on the Rockwell PPS-8. It was called the HCL8/C. It had some unique features. Because we were trying to replace the 1401s, and they had punch card readers, we gave our machines a key to mini floppy, the five and quarter-inch one. We were a worldwide beta site for Shugart's five and a quarter-inch floppy drive. While everyone else making Computers in India which had eight-inch floppy drives, we had eight-inch drives on our machines, plus a five and a quarter-inch to read the offline data entry. So, we had data entry machines (we called them DATA 7400) offline that we sold, which had similar features to the IBM punch card data entry machines. the structure was similar. In the IBM machines you had punch cards for data entry and then, you —inserted the cards into a reader on the computer. In our machine, you took the offline data entry mini floppy from the DATA 7400 and put it in the machine and the machine read it. The HCL 8/C machine could have Two-floppies, three-floppies, or four-floppies. And it also had what we called a PSAR, a power shutoff auto restart unit, which really had a truck battery connected through this device to the computer so that when the power failed, it held all the counters and registers where they were and started when the power came back from the point where it stopped, and that was unique.

Fairbairn: Very important in India, right?

Malhotra: In those days. And it was unique. All we had to do was the maintenance engineer had to go every two weeks and top up the distilled water in the battery. And so, he could make the customer feel good as he felt he was being actively supported

Fairbairn: So, this was exactly the same time as Apple and all these other companies were coming out with personal computers.

Malhotra: Absolutely.

Fairbairn: Yours was not a personal computer. It was for a business application?

Malhotra: It wasn't personal.

Kapoor: So, what was the size of the R&D?

Malhotra: The machine was in a cabinet about the size of a deskside filing cabinet. That's all it was. And then, of course, it had a single-line display. It had a small 80-column printer. And then, you had the big dot matrix printer next to it. The 80 column printer was really for the programmer to know what sequence of jobs he's loading and information like that. Since we were charging a good price for the computer, we used to ship it with a table, a metal table. And so, the engineer used to take time to install the table and the computer. If he took a day to install the system, more than four-fifths of the day was assembling the table.

<laughter>

Malhotra: Right? That's hard work.

Kapoor: So, what was the size of the team, R&D team or design team, development team?

Malhotra: You know, it was big. I think we had 30 or 40 people in R&D. The other thing I should mention is there weren't too many jobs available at that time in India. So, a lot of good engineers would go overseas. We were one of the few companies who would go to the IITs and recruit. We had 24 key institutions from where we would recruit. We only recruited from them. But since we were one of the few companies who had jobs in India, a lot of people applied. I think we got some very good engineers. Plus we were working on state-of-the art stuff. I remember when I was at IIT Kharagpur, I saw chips in a drawer, but I never really worked with them. But here, you're working with the microprocessor itself. You're doing a lot of that kind of work. Also, at that time, IT was not the industry parents wanted kids to go to. It was the more traditional industries who needed mechanical, chemical, civil engineers. And the companies that were preferred were companies like Hindustan Lever (a Unilever subsidiary), Larsen & Toubro, and companies like that. So only the risk-takers would come to somewhere like HCL, which is one reason why we've spawned so many start-ups. Today, I think half the CEOs of the IT services companies in India, are HCL alumni.

Kapoor: So, the expertise for these designs came from, originally, like when you were at DCM?

Malhotra: No. We then got a head of R&D, a PhD from IIT Delhi, a gentleman, he's now passed on, Dr. S Raman and he was the one who ran R&D and production. And he did a great job. I think he was very tight on cost control. I think his assessment of which technology was going to be available was very good. We were the first people in India to introduce hermetically sealed Winchester disk drives. We were the first, of course, for the mini floppy. We fought the whole market. There were 14 companies in the business. All had eight-inch floppies. We were the only ones with five and a quarter-inch. And when it became the standard everyone would look at HCL to predict which way the technology would go, or likely to go. We were the first with the start-stop spool tape drives, the small ones. Not the vacuum column ones that you have downstairs here. We made a lot of technology decisions where we were considered pioneering

Kapoor: So, there was no competition, basically?

Malhotra: No. There was competition.

Kapoor: So, who were the competitors?

Malhotra: The main competition was DCM and a company called ORG, which was a part of the Sarabhai Group. . ORG came from a much more application technical background. For the first few years, everyone was selling about 200 computers a year. You know, we were selling 200-odd. ORG was selling 200. DCM was selling 200-odd. Then, we got one of our MBA graduates—a salesperson, who joined us '76. He came abroad to be a Professor and he's now teaching at some business school in Georgia. He was doing his MBA here, after doing and MBA from IIM Calcutta, and he wanted to do a summer project in India. So, we told him to come in and work on what are the decision models on which people buy computers. He presented a very interesting paper. He'd worked in the field in India, so we didn't have to brief him too much. He set up four types of models. One is a large company where you put in the budget

and he called it an adaptive planning model. Then, he went on and he said there's an entrepreneurial model. There are lots of companies, mostly small, some medium, where the one person takes a decision. So, if you can get his hot button, if you can say what his key problem area is, whether it's scrap management or invoicing, and you tell him how a computer can help him solve this problem, he'll buy the computer right then. So we then switched our strategy in a way. We were selling to the corporate sector. That continued. We got a whole new group of sales people and we got them focused on the first-time user market. That's the ads that you see there. We would give them one application free as part of the deal. If you said I want my financial accounting or general ledger to be done, then that would be given as bundled with the hardware because in those days there was enough margin in the hardware. And it wasn't that we were selling it cheap. In those days, it was Rupees 364,100, for a machine with one application free.

Fairbairn: 364,100?

Malhotra: Rupees. And what happened is we started out-selling competition. We were now doing 1,000 computers a year. They were still at 200 and dropping. They couldn't figure out what was happening. So they dropped their price, actually from 300,000 rupees to as low as 100,000 rupees, but they still weren't selling. So at that time, they figured that the way to do it was to recruit my people. Maybe they have the formula, the secret formula. Again, you got to remember the industry was going through a change. Earlier, our processes, our quality control, was probably not as good as it should have been. In the early part of the emerging computer market, it was innovation that was important. The market had started maturing and process like quality etc. became important, not so much just innovation. Things like what is your mean time between failures for your machine? How good is your support? Et cetera. Our competitors were in the wrong cycle. So, when they switched and took our people and paid them fancy prices and gave them nice designations, the market has switched to this and so, we already were established, and we had already got our processes in places. So in 10 years, we became the largest computer company in India.

Fairbairn: So how did that-- did you stay in the business market? Did you ever enter the personal computer market and how--

Malhotra: We did both. In fact, what happened on PCs was a good example. We had our own small machine that ran our version of DR-DOS, if you remember the SCO operating system. By the way, we also wrote our own operating systems and our own compilers, because we technically weren't allowed to import software unless it was in source code form. I couldn't import software. I could import it in source code, which is why UNIX became so popular in India over time. So, we had to write our own operating systems, which is what we did. When PCs first came out, we were late in reading the PC trend. There were a couple of companies that came in a year or so before us and they priced their PCs at 100,000 rupees, in that range. When we realized that that was the way the whole market was going to go, we went to Taiwan, picked up six PCs, disassembled them, got them into India, assembled them again, and--

Fairbairn: You could import them if they were in pieces?

Malhotra: Yes.

Fairbairn: Because assembled units--

Malhotra: Right. And put a label on them, took out an ad saying, hey, we are advertising our PCs at-- we called them Busybee. That was our brand name for our PC. At 50,000-odd rupees. Or 35,000. I forget the number. But at a much lower price than anyone else. And obviously, we had no machines to deliver. It was going to take us three, four months to get the parts and assemble them. So, when we started booking orders, we told people there's so many orders, you've got to wait so long. And everyone believed that. And we got-- <laughs>

Fairbairn: There were so many orders compared to what you had.

Malhotra: That's true.

<laughter>

Malhotra: But actually, in India, we were seen as the company which was a leader in the PC business. Because we got it in at a sensible price. We went for volumes, right, and we had this massive advertising campaign that supported it. The PCs then, of course, become a commodity. So now, you are fighting the mom and pop shops at the corner of the street who are also giving you a PC. We discovered through our market feedback that 80 percent of the users used VisiCalc and WordPerfect. They didn't use anything else. And so, what we did was, again, using our R&D, we replaced the 8088 with the 8086, wrote some microcode, and called it the Busybee 2, which ran those two applications three to five times faster than the normal PC. It didn't run any other application. And I think our bill of material difference was 75 rupees, but priced it at 10,000 rupees more, if you wanted better performance. And sold a whole lot of them. So-

Fairbairn: So you had taken these six computers from Taiwan, taken them apart, and then, you went and designed your own, basically clones of those?

Malhotra: Yes. We did our own motherboard and it just took time to get the parts in.

Fairbairn: And that's what you actually shipped as your unit?

Malhotra: You're right.

Kapoor: So, going back to the founders, how-- what were they doing? Were they all--

Malhotra: Okay. So in the meanwhile, we'd also diversified into reprographics and Instruments.

Kapoor: Right. I was going to say the printers. Yeah.

Malhotra: Yeah. So Pammi Puri looked after the reprographics part of the business. Subhash Arora looked after the calculators. Calculators were still running. They were not an important part of the business, but they were a positive cashflow. So, he was looking after that. I was running the field sales and service. Shiv was running finance, basically, and accounting. And he was the CEO. Raman was running production and R&D. Ajai Chowdhry was running one of our regions. He ran the south for us, and south became a bigger region than any of the others, over time. And-- who was left? Yogesh, he worked in the financial area, banks and he was really focused in that area and he also ran our instruments business. We had a instruments division, too, that we had started. The whole idea was to diversify. You know, that whole concept of if you diversify, we'll do okay. We changed that thinking later and said you better focus on computers. The others are just take too much attention, don't get you any real value. They're a commodity. There's no real differentiator. So, we just out of the businesses and focused--

Kapoor: So, the printer business, were you competing with Xerox or--

Malhotra: Yes. That's a little bit of a story. What happened was we're 10 years into the company. We'd become big. We had offices all over the country so when I used to send a typed circular, it would take one month for the last office to say I've got it and we're going to follow it. I was not used to this delay. In a start-up, you call people to a room and you tell them, hey, let's do this and you step out of the room and everyone's got the message. So, I was really frustrated and I realize now that I was going through what is called a midlife crisis. I talked to everyone and said I have a cottage up in Mussoorie. It's up in the hills, like Tahoe. And I said let me go spend three months there, come to terms with what I want to do in life. Because I think maybe I should go back and do a Ph. D., get back to academics, stuff like that. Then, everyone said that is not going to work, so why don't you go and do a course where you learn something, and you'll also be able to sort out your head. So in early '85 I came to do the Advanced Management Program at the Harvard Business School. And I think that really helped. Because what I realized there is that I was missing the fun of a start-up. I really didn't want to run a big company. It wasn't something that excited me. So, when I went back to HCL after 13 weeks, I told them, hey. Don't change the structure you have already set in place. Whoever's running it, keep running it. I don't need to get back to my old job. I just want to do some of the new things that we are looking at. And I'm quite happy to run it with a small team. In fact, I'd rather run it with a small team. Everyone agreed, but they said, look, you can't only have fun. So we came to an understanding that if any of the divisions runs into a problem, then I have to go and help turn it around, which I thought was only fair. You know, you can't have the other people working and you're having fun. And so, that's what I did. At that time, we decided to go into selling solutions around engineering requirements, what we called CAD/CAM, and I started the CAD/CAM division. Work stations were just coming out. I came to the US and signed an agreement with Apollo Computers, and we manufactured the Apollo DN3000s. We called them the Nexus 3000 in India. In fact, did a lot of good work for them. Improved their display, because we couldn't import the display from Philips and Philips weren't willing to give it to us in kit form. We had to go to Mitsubishi, get the display from them, build our own display controller etc. It was better than the display Apollo had. And when HP bought Apollo, they were talking to us about taking the display from us. We did a few more things with their machine that were unique to us because we weren't allowed to import power supplies, for example. You had to live within your restrictions in India. So, we started the CAD/CAM division, which became wildly successful in the sense that we got the largest order that HCL had ever had till then. We came out with workstations and

the solution software around it, whether it was from Racal-Redac or from Mentor Graphics or whoever. And those things weren't inexpensive in those days. On the other side, we had this reprographics division where we were selling copiers that we made in association with Toshiba. We used to get critical parts from Toshiba and build the rest ourselves. Xerox had come into India and they were selling copies. We were selling copiers. At some stage, what happened was we suddenly fell off a cliff. We were making money and then, suddenly, you're losing money like crazy, whereas Xerox seemed to be doing quite well. So, with that old promise, I got pulled into looking at reprographics. In fact, what happened was in one of our board meetings, we said let's sell the division. And I opened my mouth and said why do you want to sell it when it's not doing well? You sell divisions when they're doing well. So, they said okay. Why don't you make it do well. That is how it ended up with me. What I discovered was the people there were very demotivated. And until you can get the people motivated, there's nothing you can do with any company. It took me three or four months to get them to start believing in themselves. That if they gave me a target, they'd be able to meet it. And it took three or four months, because you can't also force it down their throat. In the meanwhile, we were working on getting some new products in. Once we had a range of products, and these people came back where they started believing in themselves a little bit, we announced our product range and for the first time in India, we did comparative advertising. I'm sure you know what comparative advertising is. I think we got 10 to 20 times extra mileage off our cost because everyone discussed whether this was ethical or not ethical. It became a topic of national discussion. We were able to turn the division around within a year, make it the most profitable division that we had, which was nice.

Fairbairn: Now, you said you were selling copiers, Xerox was selling--

Malhotra: Copies.

Fairbairn: Copies. Did you change your business model also or did--

Malhotra: We changed it. We did a hybrid. We didn't change it completely, but we got machines that were far more efficient than theirs, so our cost of copies was lower.

Fairbairn: So you changed the product line and you changed the business model?

Malhotra: Yes.

Fairbairn: So it was significant.

Malhotra: There is a company in Japan called Riso, which makes electronic cyclostyling machines. Now, I don't know if you remember what cyclostyling was, but Gestetner had this manual machine where you typed on a master. You typed in something and then you cranked it manually over a bed of ink and produced some 20 to 50 copies of what you typed on the master

Kapoor: Turned--

Malhotra: Right. This was electronic. —Through the computer, you key in something on a master and then you could print out up to 1000 copies, from a built in laser printer. And so, it was much better quality. It opened markets that we weren't addressing earlier, like internal exams for universities. They don't want their question papers to go out of their premises. It might leak. So, they would buy a machine to print this internally. We sold a lot of those machines and others in our range and that's what made that division profitable. Now, while that was happening, we ran into a problem in our recently started U.S operations. We had come to the U.S.-- I'm sort of jumping around a little bit. What had happened was when UNIX came into India, we obviously took it-- we got the source code, so we took it immediately. And then, we decided that we will use this for our commercial machines. We built our own file system on it. Very similar to the file system on the PDP-11. That was our model from which we took the file system features. We built our own compliers. We built our own spooler. We did all that on UNIX. The other problem with India was India was part of the Soviet Bloc in the cold war days. So, getting import clearances of the latest microprocessors from the US Department of commerce was always a problem. For example, while the U.S. would clear the Motorola 68020 for us, the 68030 had been announced and it was not cleared for a year or two after it came out. But people in India read technical magazines and they wanted the latest microprocessors and their computing power. So, we ended up developing a multiprocessor machine that gave them that power. But to the user, it ran as if it was a uniprocessor computer. The UNIX didn't change for the user. But internally, the machine was a multiprocessor machine. You could go up to four CPUs with the 68020. Three was the optimum, four if you wanted lots of terminals. The fourth CPU didn't change the throughput by very much. In the meanwhile AT&T had bought UNIX. When a VP from AT&T had come to one of our computer shows in India, he was really impressed and was quite flabbergasted that we had done so much work on UNIX. We didn't realize that that's what we had done. So then, we got McKinsey to do a study for us and they looked at the U.S. market. and they said that multiprocessor machines, like the ones from MPIS and Pyramid cost about $1 million, or in that range. Whereas our machine was a $100,000 multiprocessor machine that we could put out on the market that didn't have that power but had that kind of capability. They recommended that we come in with our machine to the U.S. market and address the mid range user. We lobbied the Indian Government, got us permission to convert our rupees to $5 million in US Dollars because foreign exchange was really tight in India in those days. And we came here. HCL still has the same office in Sunnyvale that we took in 1989.

Kapoor: So was that the first move to the U.S.?

Malhotra: That was the first.

Kapoor: Okay. Yeah.

Malhotra: First move to bring ourselves to the U.S. We used to come here to buy parts.

Kapoor: No. I meant the move to--

Fairbairn: The business.

Malhotra: Yeah. HCL is still at 330 Potrero Avenue, just off Central, in Sunnyvale. We came in there to manufacture computers, so we took this office, all 33,000 square feet. We thought we would set up our production lines here. We got a $50 million OEM order from Fortune Systems. Fortune was a multiconnected word processing system-- beautiful system, but they wanted to move up. They wanted us to take their operating system and put it on our hardware. Fortune got acquired by SCI. SCI said they wanted to use only Intel chips in their systems. They did not want Motorola. Our whole system was Motorola 68000-based. While this was happening, the HCL Founder partner who'd come here, Yogesh Vaidya, had to go for a multiple bypass. Now, in those days, bypasses weren't as common as they are today. While he did say, "In 10 days, I'll be back in the saddle and I'll be allowed to drive," sitting in India, we thought he's unnecessarily putting strain on himself. So, we had a discussion. I was sort of in between projects, so I got sent here. Basically, I was sent to shut down the company quietly, because we'd taken a lot of mileage in India about how good our computers were. They were going to the U.S. When I came here, the first thing I did was I said I don't need my hardware team. There were nine people. I laid them off because we, obviously, were tight on money. We'd already spent 3 to 3.5 million of the 5 million that we had been cleared to get. When you are getting your machine to the U.S market the enabling technologies must be ported onto it. I needed compliers. I was working with Microfocus. I needed databases, so Unify and Informix. We were porting these databases and normally, you pay to port on your hardware. Our deal with these companies was that I'll give you my R&D engineers at my cost. They understand multiprocessor technology and they will do the multiprocessor extensions on your software. And then, they will port it on our hardware. The multiprocessor extensions are yours, your IP. We're doing it free for you. But I'm not going to pay for porting. What happened was that I decided that we were shutting down. I called all these companies and said I'm pulling my engineers. I don't need to do this anymore. Everyone came back to me and said they need these extensions. We'll pay you for these multiprocessor extensions to our software. And so, I suddenly had a cashflow, a nice positive cashflow, because they were paying me $45+ an hour in those days. I'm going back to 1989. So, I just kept quiet. I told no one in India and they were very happy I'm not asking for money.

<laughter>

Fairbairn: How many people did you have here?

Malhotra: We had quite a few. I think we had about 10, 15, maybe 20 people. I can't remember the exact number.

Fairbairn: How big was the company then, just as a reference? I mean, how big was HCL at the time?

Malhotra: Oh, boy.

Fairbairn: Worldwide.

Malhotra: See, when I came here in '85, our revenue was Rupees 80 crores. That's 800 million rupees. It would have gone to-- now, this was '89. I think we would have gone to about Rupees 2 billion-- something like that. I'll have to look at the numbers. We weren't that big a company, but, you know--

Kapoor: Going back to another thought, when you were initially-- when you-- after graduation, you were thinking of working here. You'd already got married. You wanted to come to the U.S. Right? So-- and then, of course, you ended up working in India and HCL and all that. So, was there any desire during this time that it whetted your desire to not move to the U.S., stay in India, or you still had that desire?

Malhotra: You know, you had no time to lift your head up from the field. I never once thought that I'll come to the U.S. I came here in '76, right after we started, because I had gone to Calcutta for six months when we started the company. And I told my wife, who was working and stayed on in Delhi, that if the company does okay, I'll take you for a holiday to the U.S. And since the company was doing okay, in the summer of '76, it was the bicentennial year in the US, we came here for two weeks, basically a holiday. Then, I came here in '81. That time we wanted to get into mainframes and there was a company here called 2Pi which is now where Apple has its offices. It's in that corner of Stevens Creek and 280. And we were about to sign the deal with 2Pi for hardware, and the IBM operating systems were public domain, the ones that we were going to use. Just before we were to sign 2Pi got acquired by FourPhase. So, then we came a little while later, and talked to FourPhase. Lee Boysel, I remember, was the guy who started FourPhase. And we were about to sign with FourPhase when they got acquired by Motorola.

<laughter>

Malhotra: And I still remember I was at their offices when Motorola acquired them. It was Lee Boysel's birthday and suddenly, this big cake rolls down the corridor and out jumps a stripper

<laughter>

Malhotra: We had asked Motorola to give us the 2Pi machine. And they said no, not right now. We just acquired it. About nine months later, Motorola calls us from Schaumburg, Chicago, and said let's talk about it. We're willing to give you the 2Pi machine components at 15 cents to a dollar, you can take the parts and build your machine. We went there, met them, and spent the whole day with them. They take us out for dinner at night and this guy from Schaumburg is telling us, "I feel more at home with you guys than these guys from California."

<laughter>

Malhotra: He was shocked that a stripper was in the office.

<laughter>

Malhotra: But that was California. We ultimately didn't do it because when we went to India, the government told us that if you get in to mainframes, we'll squeeze your supply of chips. You know, we'll delay the clearances.

Kapoor: So, this is still under MRTCP? Is that--

Malhotra: No, no. That had pretty much gone defunct. If it was there, it wasn't implemented. But the government had a public sector company, CMC, that was selling imported plug compatible mainframes from East Germany. They didn't want someone else to come in and start doing it better than CMC or-- I mean, suddenly, if someone else is doing it, then there's competition and pricing gets threatened. So that was a problem. I was all for it. I was willing to fight them. Shiv Nadar, our Chairman and CEO, was the more sensible one who said let's not do it. I think he was right. But I was upset. We'd spent so much time trying to get this going.

Fairbairn: So, what was your dominant-- was HCL's dominant product line or business? I mean, you're in personal computers. You were in a variety of business computers.

Malhotra: Yeah. We were basically personal computers and the servers that were made from Intel chips. And we had our Motorola 68000 based machines that we made. We subsequently, in '91-- '91 it was, yes. We signed a joint venture with Hewlett Packard, where we took the HP 9800 Series and we started manufacturing them in India. So instead of putting our own investment in R&D and big servers, we worked with HP. That agreement came because we were manufacturing Apollo Workstations. HP acquired Apollo and we had 80 percent of the workstation market in India. HP came to India and figured that they didn't have that kind of market share anywhere in the world. If they took Apollo away from us, which they wanted to do because they wanted a common strategy on both Apollo and HP workstations, it was going to hurt them. So, in our discussions, they decided that instead of us taking it from you, why don't you take over and run our computer business in India, which is what we ended up doing.

Kapoor: So then, when you said you got out of the hardware when you came here and were doing the extensions and services, was that the seed of the services business?

Malhotra: Yes. That is how HCL Technologies started. As I mentioned earlier, I didn't tell anyone in India. I sent them reports and they're very happy that I'm not asking for money. Then, when India ran into a recession-- you remember '91, '92, we had a recession all over the world. India had a recession too. First items that get hit are computers and office equipment. So, India ran into a very tight cash situation. I was making a fair amount of money here and because I had losses, I was paying no income taxes. So, I ended up buying their Instruments Division factory. I didn't know how else to send money to them. I bought their instruments factory for $1 million, which is at the border of Delhi and Gurgaon and that became our first offshore factory. That's how I could transfer the money to them. . Then, they asked questions. Where did you get this $1 million from?

<laughter>

Malhotra: Then, I had to tell them what I was doing. One other reason why I didn't tell them earlier was in our mind, engineers were for R&D. Programmers were to write applications. In HCL, we always looked at our engineers to do operating systems and compilers and software like that. Whereas you looked at non-engineers who get a little training on languages to be the ones who write application software. That was our thinking. To have engineers do applications was completely alien to us, which is one reason why for many years, and I take the blame for that, we didn't get into applications at all. We were in product

design, while companies like Infosys and TCS and WIPRO were doing very well in applications. We only got into applications because one of my ex-HCL employees who had emigrated to Australia landed up here. And he came, and he talked to me and said let's do work on SAP, he was an expert. He said, "Let me run it for you." I said, "Okay. If you want to run it, run it." And that's how we got into applications. Which is also the reason why HCL today is doing well compared to the others, because the application services market has cooled off. But the product market is hot and HCL Technologies has just overtaken WIPRO as number three in India, after TCS and Infosys, and now, it's HCL at number three.

Kapoor: So, in terms of overseas operations, you had Singapore and Australia and New Zealand?

Malhotra: On a personal level, when I started the company, I told myself I'm doing this-- because I was creating some uproar in the family, I said I'm doing this because I want the economic freedom to do what I want to do. And at that time, I didn't know what I wanted to do. I figured at some stage in life, I'll figure out what I want to do. But I wanted the economic freedom to do it when I figured it out. And now, I was starting to get close to 50. The Internet had just come out. And HCL's strategy on the Internet was right. They were a public company. If they were a private company, I probably still would have been in HCL. But they were a public company and their strategy, and rightly so, was let's look at the trend. And once we see which way it's going, then let's invest heavily behind it and try and become a leader in that area. For me, the fun was fooling around with these new technologies when they were coming out, not waiting for them to become a trend. And so, I figured if I wanted to do that, I would have to leave. So, I went back to India with the idea of trying to work an exit-- an amicable exit. In India, amicable exits are not too easy. So, when I went back at that time, we had just started looking at new markets. We had kind of a start-up in Singapore and Hong Kong and we were just opening Australia and New Zealand. And so, when I went back, I said, look. I'll take care of these new areas that we are entering. So that's what I ended up doing.

Kapoor: So, what were the areas in those countries? Were they just extension of what was happening?

Malhotra: Well, Singapore and Hong Kong were somewhat extensions of what we were doing in the US. What happened is when we started Australia, the company put in $1, I put in $1 to register and start the company. And then, the corporate office said it doesn't have any further resources to give us. Since I had already recruited people, I decided that we'll change the model a bit and must bootstrap the entity. Instead of just doing services, we'll also do recruitment and placement. Because for that, you get a 30 percent or some such percent of the salary upfront, which helped my cashflow. I only allowed three people on contracts if you got me two recruitments, and that's how we managed our cashflow and grew the business in Australia. Ultimately, made the business there bigger than the HCL business in Europe, which was interesting, because we had no real support from corporate. When I was leaving HCL I advised their corporate office to put in at least $1000 as additional equity as I did not want this to become a bone of contention between us in case my exit discussions became contentious. Fortunately, everything was settled amicably.

Fairbairn: So they were doing recruiting?

Malhotra: What we were doing is placements. We would recruit, and place people and you get a 30 percent recruiting fee of their salary. And then, we were also doing time and materials contracts. Because in contracts I must pay the salary every month, but I get paid by the customer after 30 or 60 days. So, it requires working capital. How were we going to get our working capital, I got it from the recruiting revenue.

Fairbairn: I see. <laughs>

Malhotra: So that's the model that we're following there. My logic is you have got to play with the cards you're dealt. You can't say I wish I had a better card or something else. I mean, that's how you--

Kapoor: It's interesting that in Singapore-- I read that you worked with Walden International as--

Malhotra: Yeah. In Singapore we had two operations. One was the HCL operation. Then, in HCL, in the earlier days, we had taken a decision. I'm going back to 1980 now. That we didn't want to be a big fish in a small pond. We rather be a small fish in a big pond. And so we wanted to look at the world as our market not just India. I think we were a rupee 3 Crore (Rs 30 million) revenue company at that time. We were a small company with big ambitions. We decided to go to Singapore and manufacture computers there. We were the first computer company to do that and we got pioneer status there. The model was very simple but interesting. The hardware was manufactured there, but we sold a solution. We didn't really sell just the hardware. We had a group in Madras, now Chennai, which did the application software development. So, you captured the specs in Singapore, send them to Madras. They develop the application. Development sent you back the floppy with the application program. And then, you installed it at the customer site. That was the model that we followed in Singapore. That entity was called Far East Computers. And two of the six founders went to Singapore to set up and run that.

Fairbairn: So, these founders became key parts of-- extensions of the business and went in and solve problems in the United States or went to Singapore to start things. You were quite a team.

Malhotra: Yes.

Fairbairn: Quite a remarkable team.

Malhotra: Yeah. And we stayed together for 19 years. The first founder left 19 years after we had started. He decided he wanted to do something on his own and he decided to leave. And then, the group sort of split up. I was the second person to leave. I thought I'd retire when I turned 50. That was my plan. It's just that I didn't plan my retirement, so I got thrown out of the house in 10 days. I still remember my wife telling me--

<laughter>

Malhotra: She-- because you start interfering in the house. Why you--

Fairbairn: Yeah. Right.

Kapoor: Oh, yeah.

Malhotra: She told me-- she said, "I married you for--" She said, "We've been married for 27 years. I married you for good or bad, but I didn't marry you for lunch."

<laughter>

Malhotra: "I'll pay for my home budget. Go sit in a business center and work from there. Don't work from home." I did that and ended up starting another company.

Kapoor: Yeah, so, let's start with that. It was TechSpan?

Malhotra: Yeah. What happened was, when I was leaving HCL, my lawyer was talking to me one day and mentioned that his tennis partner who is probably his good friend too. he said his friend was representing Goldman Sachs, and Goldman Sachs wanted to invest in the IT services industry in India. They wanted someone to do their industry due diligence. So, he said, "Would you be interested in talking to him?" and I said, "I can only do it after I've left HCL, but yeah, I'll talk to him." And so, it's funny; when I signed my release from HCL-- It was done at some lawyer's office in New York, I remember-- I walked a few blocks and signed my consulting agreement with Goldman. And then I felt guilty. Goldman would make you work three days a month and pay you your whole month's salary. I just thought that wasn't right. We reviewed several companies in India for them. They wanted a squeaky-clean company. Now, India had a myriad of laws. There was no way you could stay squeaky clean. For example, if a foreign exchange invoice was 180 days old, then you had to take legal action. If payment came on the 181st day and you hadn't taken legal action, it was against this law called FERA-- Foreign Exchange Regulation Act. Goldman didn't want anything like that to touch them, and there was unlikely to be a company in India that wouldn't have run afoul of something at some stage. So, I finally got fed up. I left HCL in March 1998. By June/July, sitting with their partner in Singapore, I said, "Look. It's not going to happen. You're wasting your time. You're wasting my time. If you want something like this, why don't we start a company and keep it squeaky clean?" So, they said, "Hey, why don't you do that?" I had some of these ex-HCL guys who had left and started their own company, and they were telling me, "Come in and become our chairman," and I figured they didn't need a chairman. They needed money. So, I said to them, "Hey. Goldman's interested. Give me a business plan." So, when people hear "Goldman," they make the business plan bigger than what it normally would have been. So, they pulled in a few other people who worked with us at HCL America, and then we gave them a plan which they said they'd fund, end-October, '98. And we decided that we'd do a little more planning and start on first of January of '99.

Fairbairn: This is to start up an IT services company in India?

Malhotra: That's right. Well a US IT services company with a back office in India. We negotiated the deal with Goldman Sachs in San Francisco with Steve Sahfran, the partner involved. Since I had never negotiated a deal with a VC or anyone, I had a friend in Walden International whom I thought, "I'll sound

him out to see what kind of questions get asked and how the process works," but the closure just happened in one meeting. We sorted the whole thing out, and then Steve comes back just as we were leaving the office and says, "Hey, you've been talking to Walden?" I said, "Yes." He said, "We want to cut them into the deal," and so that's how Walden got cut into the deal. Initially we thought we would do a traditional IT Service company focusing on verticals like Telecom and Finance.." I think a couple of weeks into the market, we realized that that wasn't what the customers wanted. The market had this bubble in 1999 and e-commerce was what everyone wanted, So, we just refocused ourselves, said, "Let's do e-commerce." We did a million in the month in June, that is six months after we started. We ended the year at revenues of $15.4 million, marginally profitable. Year 2000 calendar, we did $65 million, I think, or $64 million, and we made an EBITDAt of $4 million.

Fairbairn: You were developing e-commerce applications for companies--

Malhotra: We were just selling contract programmers to do this.

Fairbairn: Everybody was just trying desperately to get into the business?

Malhotra: Yeah. People wanted programmers who understood what it was, and yeah, we did some work. We had a mobile e-commerce solution, we used to call it m-commerce, and we had some other relevant solutions. But that wasn't what was selling. In fact--

Kapoor: They were buying some workstations and all that stuff like crazy.

Malhotra: Yeah. It was-- No one understood what was going on. Everyone thought, "Brick and mortar is going to die," during the bubble, if you remember-- We're fortunate because we were supposed to go public at some crazy price, but we were being discounted because we were making a profit. Right, and that went against my grain because I come from India. You can't be discounted for making a profit. And so, we didn't go public, thank God, which is why we survived. And then, the bubble burst at the end of 2000. We had that $4 million in our bank which supported us through late 2001. By then we had decided that you can't live thinking that three months later, the economy is going to come back again. When it didn't come back for nine months, we said, "Hey, we better think of something else." So, we then went out and acquired the back office of a European Investment bank in Bangalore. There was this investment bank from Europe called DrKW, and they had set up their IT back office in India where they recruited only the top engineers from the top institutes and paid them top dollar. So, if your IIT joint entrance exam rank was over 300, they would not touch you. So, they recruited some really smart people, built a back office in India where they taught them the innards of an investment bank. In the meanwhile, we decided as a strategy that we've got to just go after one segment and build deep domain expertise in it. We can't be a another me-too company, we must be domain led. So, we implemented a strategy called “asset light”, and I'll explain what asset light is. Everyone was getting laid off at that time, including people from Goldman and Morgan Stanley and companies like that, so we'd go to bars in New York and try and talk to people who had been laid off from these investment banks. If a company like Goldman Sachs would say, "I need someone in municipal bonds for my municipal bonds group," and we'd find that we had talked to someone from Morgan Stanley who's been laid off from municipal bonds. So, we tell the Morgan person,

"Why don't you come with us for this call? I'm not going to pay you--" That's what asset light was-- "but if we get the job, then I'll put you on my payroll." And so, that guy was willing to come because he was doing nothing either. He was laid off, too. We got a lot of jobs, and we didn't get a lot, but the good news is when the economy came back, the people who we tried to help remembered, and all of a sudden, they became customers for us, as most of them went back to the investment banking market. And we were domain specialists because we used to get people who knew their domain in front of customers. The other thing that had happened is something called recall. So, what happens is, when Goldman looks at their books at the end of the day, they're 500,000 IBM shares short, they'll go to Morgan Stanley or another such bank and say, "Hey, can I borrow 500,000 IBM shares, because I've got to balance my books?" Now, at some stage, Morgan Stanley is going to want these shares back. That's called recall. Most companies make recall very ineffective. To them, it's all manual. You leave a voicemail, say, "I didn't get your voicemail." "I sent you a fax." "Oh, I didn't get the fax." They want to be the last people to get recalled, to send the stuff back. Goldman decided that they wanted to automate this, but they couldn't automate it in the US, so we were running it out of India for them every day (night for them), and we'd give it back to them in the morning in New York. Then the industry regulator decided the industry needed to go from T+2 to T+1 and then T+0. That means that you got to settle within one day or immediately. Goldman, at the SIA-- the Security Industry Association-- Goldman presented us as experts on recall. We'd been running it for four years. So, suddenly, we got positioned right as we were seen as expert consults in this area. In the meanwhile, we had merged with Headstrong (erstwhile James Martin & Co). We took the name Headstrong because they had a name in consulting-- That, then, became our market. In India, DrKW got acquired by Dresdner Bank who got acquired by Allianz, and in their wisdom, Allianz decided to withdraw from Asia and focus on Europe. So, they were laying off this group in Bangalore. We found out, I think, three or four days before the pink slips were going to be issued. We went in and did what I call a soft acquisition. We took over their lease, we took over all the equipment, and we gave offers to all the employees. And so, suddenly, I had domain expertise in India, which even an Accenture didn't have. So, I was able to go and--

Fairbairn: How many people did you acquire in that?

Malhotra: There was something like 40-50 people in there. We did this in September or October 2001. We figured we'd break even with them in 6 months. We had to support them for six months from a cash point of view, and if we didn't breakeven it would sink the company. But we were quite confident that once we have this expertise in India we would get customers. No one else had this. Customers are going to come to me because they have specialized functions that they can't outsource to anyone else. And so, that worked out well for us.

Kapoor: So, this is still under Headstrong?

Malhotra: Well, this was Headstrong. This is what we did. We grew it to about $220 million, and then--

Fairbairn: To $20 million, or $220 million?

Malhotra: Two hundred and twenty million. And then Genpact acquired us for $550 million in May of 2011. A lot of people had lock-ins. I left pretty much immediately, a few months later.

Kapoor: So, what company is that? Genpact is based where?

Malhotra: Genpact is a public company and trades under the symbol “G” at NYSE It started as GE’s back office in India that they took public. It's a leading BPO company, . They wanted to get into IT Services. It's public on NYSE, and it has the symbol G. When Gillette got acquired, G became available. Genpact is "G" on the New York Stock Exchange.

<laughter>

Fairbairn: So, then you were out of a job again.

Malhotra: Yes. So, first thing I did was, we were trying to acquire expertise in insurance, so there was this insurance company in Hyderabad that we had talked to, and the company was selling product licenses and then doing implementation over a couple of years. But their accounts were done not under US Gaap but under India GaaP. In India GaaP, I can take the full license fee into my revenue immediately. Under US GaaP, if I have a 24-month implementation for that license, only one-twenty-fourth of it can come to my revenue every month. So, his P&L looked really attractive because he was getting the million-dollar license fee that was coming into his profit immediately whereas if I tried to acquire them, I'd have to look at a US GaaP profit number and trying to convince my board to pay that price to acquire them wasn't going to work. So, we didn't acquire them, but they were a good company. I thought they were in a nice niche. So, when I left, the Founder talked to me and said, "Why don't you come in and help us grow or get acquired?" And so, we worked on this and nine months later we sold them to EBEX for $74 million, a $20-odd-million company. So, that's one thing. And then got involved in startups. I have this healthcare company that I talked to you about. —These are ex-HCL guys, they first talked to me in 2007. That time, I was just at a high-level telling them what I think they should do. I got a little more involved once I had multi--

Fairbairn: Yeah, so, let's talk about that.

Malhotra: Yes.

Kapoor: So, of course, meanwhile you've been recognized by a lot of institutions and entities for your achievements. You got the Albert Einstein Award from Jerusalem, you have been given a lot of honorary PhDs--

Malhotra: One. One honorary PhD.

<laughter>

Malhotra: And one honorary Doctor of Science.

Kapoor: Okay. So, anyway, congratulations for all of that. So, let's talk about the startups and your current passion.

Malhotra: I am spending about 25 percent of my time with a company called Magic Software, Magic EdTech and Magic Finserv. They're basically in the K-12 space. They are digitizing content for the K-12 market. They work with the large publishers, and our basic differentiator expertise-- if I use that term-- Yes, we do the digitization. We do the animation. We do all that, but there's accessibility, certifying and doing quality assurance and certifying the digital content for accessibility so that the learning-disabled-- and they estimate that there are about 20 percent in US schools-- can use that content to learn effectively. That's what Magic does. I'm the chairman on their board. One of my Headstrong executives-- The guy who headed our New York and London, Europe operations, Acky Kamdar, he is the CEO and he takes care of most of the field operations. I just help him run the back office in India. We had to set a lot of things right. The company had to transition. It was a pure content company, and —since the market was changing, it had to transform towards engineering rather than just content. It's a 25-year-old company, and so you've got a lot of old employees who have been there for a long time who come from their traditional content background who are probably unlikely to be able to change to the new requirements. You can't just one day tell them to go. You must work it out slowly. So, I'm helping him transition the company

Fairbairn: So, when you say engineering, what did you mean?

Malhotra: So, what you are doing is, you're not just doing content. You're saying, "How do I take it out to users? How do I make it accessible on multiple devices? How do I show it on a mobile device? How do I show it-- it should look the same whether it's on a tablet or a PC, or whatever device. Then how do I know who is using and what are they using? " Today, I can say how many people are logged into a particular chapter, how much time did they spend on each page, etc., etc. And a lot of that is very useful for the publishers because then they'll know how to price their content. Of course, the problem in the US is a little different. Students and their parents want digital content. Some teachers are not ready for it yet. You have several other issues that are on the ground. Students want different animations in the same content.. The problem today is, the economic model for the content is not very good, so they're not willing to pay very much for it, and that's an issue.

Fairbairn: Right. Yeah, I was wondering, how do you make money in this? Is it--

Malhotra: It's one of those businesses where you need a few experts and a lot of people who can be fresh, and so your costs are not that high. That's why you need to be specialized in something where you make your money.

Fairbairn: And what's the name of this company?

Malhotra: Magic Software. It's called Magic Software.

Fairbairn: How big is it? What's the scale?

Malhotra: It'll be about $10 - $12 million, in that range. Their fiscal year is March. They should end at about $12 million.

Fairbairn: And most is done in India, and a few people in the United States?

Malhotra: Yes. So, we have about 10 - 12 people in the US, and the rest, they're about 300 people in India. The unique positioning we have is we are domain experts in content, and we know engineering. Now, the big IT Services companies know only engineering. They don't have the content domain. So, when I go to these publishers, if they need and if I can position it right, they all want people who understand their business. We understand their business, although I have a much smaller company than an HCL or a Cognizant or whoever. But we are pulling jobs from them, now. In fact, right now <laughs>, if someone wants to give us a hundred-million-dollar job, I don't know how we could take it or how we'll do it

Fairbairn: It's always a challenge of what to take.

Malhotra: Yes, yes. Yeah.

Kapoor: So, in the field of healthcare, I think that's your other passion. Maybe you can say a few words?

Malhotra: Yeah. That's where I am spending 75 percent of my time. Basically, we started this company called Evolko-- E-V-O-L-K-O-- and it initially started as an EMR company, electronic medical records. But slowly, as we got more feedback and expertise we built our own backend-- For lack of a word, I'll call it an expert system and we are now adding AI and analytics to it. We've captured information from doctors in various fields and can now ask most of the triaging questions that you need to ask, which saves time for the doctor. So, we can use this to help diagnose patients in remote locations. If doctors have too many patients, we can help them saving time, patient-facing time, because a lot of it can be done by someone who doesn't know medical technology or medical science at all. But the system does it for them. It's effective, and because of the volumes in India; you are able to do it at a very, very low cost that's affordable for everyone. Volumes justify the numbers. It's very much what CK Prahalad talked about as the "bottom of the pyramid," if you remember those concepts. Yeah. It's exactly that. And for a small amount, for a dollar or 50 cents per consultation. The number of transactions is so large that you will get a whole lot of information that can be used to improve the efficiency of the software. . We also have monitoring software. So, let's say the doctor decides say you've got a heart condition. You go to your cardiologist. He looks at it, says, "You're fine. Okay, see me after six weeks." Now, unless you have an emergency in the six weeks, he doesn't know what happens to you, but if he could find out how your blood pressure went, three or four other parameters went in those 6 weeks, and he has that data, his ability to diagnose and give you the right medication is a lot better. So, we do that. It's fairly simple to do if you have the software. This is one of the areas where it can be applied in the US very quickly as insurance companies have said that for inpatients who are released from a hospital, if they come back to the hospital within 30 days or some period for the same problem, they're not going to pay for it. It's the hospital's cost. So, hospitals are really wanting to monitor patients who've left the hospital so that they can do preventive work. For example, a surgical patient who is at home, he takes his temperature as instructed by the doctor. It's 99. If I was the patient, I'd think, "Is 99 normal? Might be a problem with the

thermometer." But to the doctor, it could be the start of an infection. So, the system is smart enough to know you are a surgical patient and gives an alert to the doctor with a snapshot of the medical history. The doctor can then decide to call the full record or whatever he wants, decide if he needs to act, call you to the hospital or whatever. That becomes--

Fairbairn: So, that would be an avenue to bring it to the United States? Is that the--

Malhotra: Absolutely. There are several other avenues there. We've also got a clinic in the UK which specializes in diabetes. Here we also do meal planning for the patients to try and suggest meals that fit in what the doctor feels would be right for them. We're talking to people in the US, and they want that done too. A lot of oncology hospitals want their patients monitored. We've even got a request from a psychiatric facility where they want their patient monitored. Now, I must build that expertise into the system, and so we're working with people who can help us with that. We've gone into nephrology, we're working on dialysis, we are working with doctors to build expertise in multiple areas. I must build these into my system before I get to a new discipline, and that's what we do. So, right now, we are in several disciplines, and we keep adding. Every few weeks, we add new ones.

Kapoor: Palliative care is another one.

Malhotra: Yeah. There are lots of possibilities The problem with the US is, number one, I've got to make it HIPPA compliant. I've got to make sure that I get that certification, which we don't need to do when we are outside, although I think we are HIPPA compliant because we work with Amazon etc who are compliant. I have to also put it on iOS; right now, I'm only on Android, so I have to put it on iPhone because there are a lot more iPhone users here unlike India where there are many more Android users. So, those are some of the things, and again, you must set your priorities. You've got a limited number of resources. Right now, we up to our ears in India. We've just opened a diabetes lab in the UK, which has 13,000 patients. He just put his first 50 patients on, and he's threatening to take it to all of them. If it's effective, he wants to take it to NHS and try and make it a standard for the National Health Service in the UK, which means that then I won't have breathing time for another couple of years. But it's nice.

<laughter>

Malhotra: Keeps me young, I guess.

Kapoor: So, any parting thoughts on what the future generation should be doing as they select a career?

Malhotra: A lot of the millionaires look at life very different to the way we look at it, as do the so called "Z Generation," I think, or whatever they're called. It's very different because now when I talk to people and we try to market something, you've got a different message for the three segments: the Baby Boomers, that's people like us; the Millennials, and their ask from life is different, and what they're willing to do is also different. So, I don't expect a millennial to come in and work 12 hours a day for a week just because it's needed, and it'll make a difference somewhere. They have their priorities that seem to be different, and so I think-- Technology is becoming infrastructure today. —In India the government was thinking of

putting up a technology data highway between every village. It hasn't happened, but they had very ambitious plans. So, you're always looking at that highway, and thinking what applications can I put on it? And people think, "I can do healthcare, I can do this, I can do that," because if I've got a broadband highway connecting every village, then I can do a lot of things that I'm not able to do the way it is today. So, it is basic infrastructure. You can't argue with that anymore.

Fairbairn: I'd like to jump back to one of the things we were looking at, is the whole world of entrepreneurial ecosystems and entrepreneurialship, and I'm a similar generation to you and running technology companies, and we were hiring Indian engineers. Everybody was coming to the United States, and you were the one who stayed home <laughs> and started your own company. Were there any other tech entrepreneurs that you collaborated with or shared stories with at the time?

Malhotra: Yeah, there were some, but none of them-- How should I put it? It's very easy to get comfortable in India once you earn a certain amount of money. So, for example, this $10 million company Magic, I make $2 million of EBITDA. You pay your tax, you make $1.5 million or some number like that. Now, if I was the owner of the company and I took half that money out, very comfortable life in India if you are earning that kind of money, and in India, in the earlier days, it was tax free. All foreign exchange earnings were tax free. So, a lot of people didn't really create a big company. They were quite happy to stay, keep it small, and live a very comfortable lifestyle.

Fairbairn: "Lifestyle company" is what we call it, right?

Malhotra: Exactly. That's what I was going to say. That's exactly right. And a lot of mid-sized IT services companies in India are lifestyle companies, because when I left Headstrong, when we sold it, I had my team; I talked to some of them and said, "Hey, I've got a team. I can come in. Obviously, we take some salary income, but I'll do it mainly on stock price appreciation." But none of them were really interested. They talked, but it didn't materialize because they're having their annual resorts, they're taking their holidays, company gives them a good lifestyle, they get dividends. Dividends in India are tax free in your hands. The company pays the tax. So, they didn't feel the need to give a return to the other shareholders, but the other shareholders are happy because they're getting dividend, which is tax free for them. So, it just didn't create any interest in my proposal. So, there are lots of these lifestyle companies that are--

Fairbairn: So, is that different today than it was when you were starting out 40 years ago?

Malhotra: No, it's the same, but you have more people who now want to grow a company. Earlier, they wanted too many people who-- Growing a company takes a toll on your work-life balance, if I use that term.

Fairbairn: Yes <laughs>.

Malhotra: My children have still not forgiven me for not spending enough time with them. I still hear about it at least once a week. Something comes up, and--

Fairbairn: How many children do you have?

Malhotra: Two. And part of it comes up because you spend more time with your grandchildren than you-- "You never did that with me," kind of, yeah. But that was the way it was, and fortunately, I lived with my parents. We lived in the same house, so they had cover. My wife had cover, otherwise I don't know if I could have spent all the hours in the field away from home.

Fairbairn: And she didn't want you at home anyway you finally come back, right?

Malhotra: Yeah, when she threw me out?

<laughter>

Fairbairn: So, what have your children done?

Malhotra: So, my daughter taught at Stanford for a while. She did her master's in microbiology at Stanford, and then decided that's not what she wanted to do. So, then I told her-- She said she will do computer science master's, she will do an MBA. I said, "Go work for a while, and then decide." And then she worked for a while, found the person she wanted to get married to, got married, and taught at Stanford for a while, taught in the Languages Department at Stanford. And then when she had her kids, the elder one is borderline autistic, so she is now a full-time homemaker. He's 11 now, so she is now talking about, "Hey, maybe I should get back to the workforce in some way." And my son, he worked with KPMG for a while, then he worked with an investment bank in India, then at a couple startups, and then decided to start his own fund . He loves hiking. He goes hiking very often, so he needs something where he can manage his own time. He married an Italian girl. They met hiking in Nepal in the Himalayas, so he does that as a-- I think he does that as his job. The rest is a hobby <laughs>.

Fairbairn: These are your two millennial children who you find out what they-- <laughs>.

Malhotra: Yeah, but they claim they're not millennial because millennial is 1980s and up. They were born in '74 and '77, so-- <laughs>.

Fairbairn: I see. They were born much earlier.

Malhotra: Yeah. So-- to answer your question-- When I look back and say-- One of the greatest achievement a company like HCL did in India is, number one, it showed that by being a professional and transparent company, you can still create wealth for a lot of people, for the founders and investors, etc., I think very important message, knowing India, the way it was before that. And I think the second thing is, for a lot of middle-class people, it broke the glass ceiling, that they could step out and start their own company and do things like that. And I think the IT industry has really helped in enhancing that. HCL is not the only one that did it, but the IT industry did that. And so, there's a whole group of people today who think that they can start a company. Some of them want to do it straight out of college. Some of them want to do it even before they finish college. But there's a whole group of people-- I think I would count

them at 300 million or more, which I call the "lower-middle class," who still are very security conscious, who still need a job, and actually, they feel-- They want a government job because they think it's secure in India. It gives a pension, all that stuff. I was hoping the BPO industry will break the glass ceiling for them because that's the industry that employs a lot of them, and if some of them see it--

Fairbairn: BPO?

Malhotra: The Business Process Outsourcing.

Fairbairn: Oh, okay.

Malhotra: Right. I thought that would break that glass ceiling for them. Actually, what's happening is now with the robots coming in, a lot of that repetitive work will hopefully get done by robots. So, you'll have to think of how to make it efficient, whether it's a platform based or otherwise. How is their business model is going to evolve, as you go forward?

Fairbairn: So, what's the state of venture capital, and what's the availability of venture capital in India?

Malhotra: It's pretty good. You can get money. Yes, they ask a lot of questions. Well, it's changing here, too. They tend to be a little more conservative than they are here, but it's changing.

Fairbairn: Are they extensions of US or Silicon Valley companies? Or are there any indigenous ones?

Malhotra: They're both. There are some extensions of Silicon Valley companies. I think the angel activity in India is a lot more active because a lot of people my age who did get into the IT industry, a lot of them have done well. They made their money as stock options in companies they didn't start, or they started companies, and they are starting to become angel investors. The model is a little different here. The angel investor in India just doesn't invest, he tends to get involved in a way with the companies, more than just sitting on the board. Tends to be more hands on, and so they don't do too many investments.

Kapoor: So, what is the differentiation now between TCS, Infosys, and HCL, at a higher level?

Malhotra: So, I think TCS is pretty rounded in their offerings . They do everything. They do engineering services, they do application services, they do all that. They are the big gorilla in the room. Infosys is still a lot more applications than Engineering . They may do some engineering work, but a large part of it is applications. HCL is the other way around. Much more engineering, a lot less application. I think that's the basic difference. Now, of course, it's changing. HCL is starting to do more applications now. Also, I think HCL became big in the infrastructure outsourcing business, and the reason they became big is when the national stock exchange came up, they outsourced all their infrastructure, and HCL did that as an outsourced contract. I remember doing that bid. I remember the amount of issues we had in house when we did it-- whether we should do it, not do it, is it ever going to breakeven, will it sink the company, what will it do? But they did a good job on that. In fact, what we did was we made a separate subsidiary to do it

in case it backfired. Then at least the rest of the company won't get into trouble. But it did well. They then merged that unit back, and all the last three or four CEOs of HCL Tech have come out of that unit, HCL COMNET, it was called. We basically ran the entire infrastructure for the national stock exchange, and so they learned how to do infrastructure outsourcing and management, which is what they're big in today.

Fairbairn: Are any of the six founders still with the company?

Malhotra: Shiv Nadar is the only one who is still with the company. He is the chairman of HCL.

Kapoor: I was trying to get him and <laughs> Arjun together.

Fairbairn: Right. Yeah, well, it smells like there's more than one story here <laughs>.

Kapoor: And actually, one issue that is very common with those three right now is the H1B visa issues.

Malhotra: And L visa. Both. But it'll hurt them. If you close it suddenly, it will hurt. It will hurt any of the large Indian companies. But a lot of them are starting to recruit locally now. I think what's happening is-- I've always been "go domain." Let's talk to the business guy, not to the IT manager but the business manager, and then leverage technology as something to provide the solution. Now, whether I use C-Sharp or C++ or whatever, it shouldn't really matter because I am solving your business problem for you. In reality, if you look at this business, the lower your bill rate, the more money you make as a percentage, not in absolute terms. Because when I hire an engineer, I have to pay a certain salary, but when I take a BSc, a Bachelor of Science type of person in India, the salary can be much lower, and I can get him to do some 80 percent of the work an engineer does if it's in application programming. So, as you go to the BPO business, your percentage margins are better. Your profit amount might be smaller in absolute numbers. That is changing. What's happening now is that customers are no longer saying, "I want cost savings." They are saying, "I want value added. What value are you adding to me?" And so, suddenly, companies have to start thinking differently, which is one reason why in the last two quarters there was no increase in the number of employees in the IT services industry. In fact, a lot of people got laid off because they were considered as commoditized programmers. They're not going to be able to scale and understand the business.

Kapoor: So, is there a difference between US and Europe in that regard in terms of the requirements?

Malhotra: Europe is still very parochial. I'm dealing with a company right now in Vienna, and we say we want to take the job to India, they get upset. They don't like it. But if you take it to East Europe, they are okay with that. Now, initially, I thought it's because-- How do I put it? I don't know if you've been to East Europe, but the morals are pretty loose there. When you get in that Budapest Airport, they're throwing these massage booklets into your vehicle. I thought, "Maybe it's like a vacation for them. That's why they like to go to East Europe," but I think it's more than that. I think they are just Eurocentric which is why outsourcing to India hasn't picked up, and then the languages create a problem too. They expect you to do it in French and German and that's an issue. England's not Europe, for this. But once you get in with a European customer-- I would put it, it's like Japan: Once you get in, you must do something really stupid

to get out. In Europe acquiring customers takes a little time. US is a lot easier for people to change vendors.

Fairbairn: Okay. Well, thank you very much. We really appreciate your time and sharing your story and so forth with us.

Kapoor: Very nice. Thank you.

Malhotra: Not a problem. Sorry. I did all the talking. I thought you were going to be--

Fairbairn: No, no, no. That's why you're on camera.

Kapoor: No, no. We want you. You're on the camera.

Malhotra: You get me back to the old days, and--

Fairbairn: So, I have one more request for you. So, one of the things that I hear at the museum I work with-- It's called the Exponential Group, where we're looking at not only the people who have-- The museum is typically focused on the engineers, the scientists, and so forth, the people that have created the technology. The Exponential Group's goal is to expand that horizon to include the entrepreneurs, like yourself. You never got to do engineering, right? You did all the--

Malhotra: Very little. I did a little bit of CAD CAM and stuff like that, but I never really--

Fairbairn: <laughs> Yeah, same with me. So, anyway, we are expanding our horizons to include people like yourself, the entrepreneurs and the entrepreneurial ecosystem, the venture capital people and others. And amongst those, we have this little side project where we ask, "What is the one word of advice that you would give an entrepreneur?"

Malhotra: So, there's a word in India. It's called "jugaad," which basically says that you must reach your goal with the limited resources and whatever you have. That's all you have, and you must deliver with those limited means at your disposal. So, it's taught in MBA schools like Haas at Berkeley. It's taught in business schools now, because frugal engineering is a good example of jugaad.

Kapoor: Yeah.

END OF THE INTERVIEW

