



## **Oral History of Pasquale Pistorio**

Interviewed by:  
Doug Fairbairn

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**Doug Fairbairn:** So we're here today with Pasquale Pistorio who's a leader not only in the semiconductor business but the semiconductor industry. He had a very successful career at Motorola and STMicroelectronics. He was a leader in the move towards social responsibility as well as environmental responsibility on the part of corporations, and we're honored to have him join us today and share his experiences in the world of semiconductors.

**Pasquale Pistorio:** Thank you.

**Fairbairn:** So we'd like to begin just talking about, where did your beliefs and skills develop? We're going to go back to your youth. Where were you born? Tell me about your family, siblings. Early on, who were the people and the developments going on around you that steered you towards a technical career and a management career?

**Pistorio:** Well, I was born in a small town in Sicily, poor, agricultural. My father was a small merchant in agricultural products. Not poor, but not rich. We were a modest family and my parents wanted us to study, which was not normal. Many children would not go to school, university, and my parents did a lot of sacrifice economically to make me and my brother, we were two, study. So the first education comes to you always from the family, and for me, my family was a great, great educator. My father was a man of integrity, coherence and the moral DNA starts from there. And my mother was love, so in the family, you had this combination. And I believe that since you're a boy, you start having those kinds of traits that remain with you all the time. Then from my small town, where you had only primary school, I had to continue in Catania, which is 70 kilometers away. But at the time, in Sicily, it seemed to be another world. So I was moving to study there for the *liceo*.

**Fairbairn:** So you lived there. You had to go off to school and lived in a dormitory.

**Pistorio:** I lived there. I was going back to my small town twice a year only. Easter, Christmas and vacation. And by the way that taught me a lot in my infancy, during the vacation, my brother and I were helping my father, because he was running two areas, one 18 kilometers from the other. He could not be present in both, so we were helping him during the summertime, time when you have the grain, the trading the grain and those things, which gives us a sense of responsibility in a way that was very participative in the family. And one thing that remains to me from that time, children of my age that were going to study outside-- when I moved out of my small town, I was 13-- were always given with somebody saying, "You take care of my child," you became kind of the father. My father says, "No, no, no. My son is responsible. He is autonomous. He runs his life, doesn't need to have a timetable. He's free." And that gave me a lot of sense of responsibility and I believe this was part of my personal formation: the family, the sense of integrity, the respect for others, the duty, the commitment you have to deliver those things that make rewarding your parents and whatever. After the *liceo*, I loved very much scientific matters and I thought to go to engineering, since at that time, the best school in engineering in Italy was reputed, from Sicily at least, to be the Turin Polytechnic. I went there.

**Fairbairn:** Was there anybody that steered you in that direction?

**Pistorio:** The professors.

**Fairbairn:** You didn't have technology in your face in Sicily.

**Pistorio:** No. The professors of the *liceo* said, "You want to be an engineer? Then you should go to the Turin Polytechnic. It's the best one in Italy." So my father says, "Fine. You are to live in Turin or another place. You have to go out." So I went there. And again, it was a period in Italy at the time, Italy was coming out of the war. There was the reconstruction. The country was poor. Studying at university was not common. It was an elite, and I didn't have the money, we didn't have the money, so it was really a sacrifice. I remember that I was going back from Turin to my city three times a year usually. But now the trip was in a train, third class, wooden cars. Very tough, all crowded together for the travel time, but it was fine. I could travel the time, 27, 28 hours that it took standing or sitting, because it wasn't very crowded. I don't think young people today can stand this kind of thing. We have changed the habits. But then in Turin, I graduated, and I met one gentleman that was a distributor of Motorola. In fact, he was the agent of a distributor of Motorola in Italy. My desire would be to become a designer, to be an engineer. This guy says, "Ah, no, you are a real born salesman." So he convinced me to take a job as a salesman, simply offered me much more than what other companies were offering me, and I became a salesman for the distributor of Motorola. That's the way I started.

**Fairbairn:** Let me just stop you there and go back a little bit to the university. So you went through, and I was curious about that point. You went through thinking you were going to be an engineer.

**Pistorio:** Yes.

**Fairbairn:** You were going to do design work and it wasn't until afterwards that somebody--

**Pistorio:** I became a salesman.

**Fairbairn:** -- steered you in another direction.

**Pistorio:** Absolutely. I graduated in engineering. I did graduate. I was so proud, because I like mathematics, physics, all kinds of technical matters, for me they were very important, but the other gentleman offered me quite a good extra salary and I wanted to get settled, to get married, and I took it.

**Fairbairn:** So before we leave your family, you had a brother. Was he older, younger?

**Pistorio:** Younger, two years younger.

**Fairbairn:** And did he follow a technical path?

**Pistorio:** Yes, but not a university degree, just a high school degree. He wanted to finish sooner, so he did graduate, in Italy it's called *perito industriale*. And once he graduated, 18 he graduated, he started working, while when I graduated, I was in the middle 20s.

**Fairbairn:** Your father was an entrepreneur. He was a small businessman, right?

**Pistorio:** Small, very small entrepreneur, yes.

**Fairbairn:** Did he ever want you to take over his business? Was there any pressure?

**Pistorio:** No.

**Fairbairn:** Son, oldest son follow in the father's footsteps?

**Pistorio:** No, no. My father was always, "You do whatever you feel. If I can support you, I will." But no constraint of any kind, no, no. My mother's dream was that I would study. She wanted me to make a medical doctor, but I said, "Hey, it's not what I like." Fine. No, I think my parents were very, very open, which was not common at the time in Sicily. I married-- for example, my wife is a lady from the north. We met in Turin and married in Turin. She was born in Venice, in the area of Venice. For a Sicilian to marry, it was a little bit strange.

**Fairbairn:** Out of your class or something?

**Pistorio:** Yeah, so my mother was a little bit concerned, but my father was very open. He said, "Yeah, he likes her. She likes him, he likes her, so then what is the problem?" Very open minded.

**Fairbairn:** Interesting. So did you meet her at the university, or afterwards?

**Pistorio:** No. She was doing another school. We were both students, but she was making other school, not in technical matters, but in humanistic matters.

**Fairbairn:** So you followed the money, could make more money doing sales.

**Pistorio:** Absolutely.

**Fairbairn:** And you went into that representing the distributor for Motorola.

**Pistorio:** Exactly.

**Fairbairn:** Tell me how that evolved and how you then moved onto Motorola itself.

**Pistorio:** Well one thing that may be curious, I want to say it because it's curious, I started making the salesman without having a driver's license or a car. So I was calling on customers by bicycle or tram, which is unusual today. Can you see today a young salesman going on a bicycle to see the customer? But then I took a driver's license. No, I evolved because of doing this. Motorola eventually, a few years later, opened their own sales office in Italy, and hired me from the distributor to be their sales manager. And I started being the sales manager of Motorola in Italy, and then eventually became the regional manager of Motorola in Italy, very rapidly. It was easy, you know. Motorola was very young in Europe, so the progression was very fast, and the opportunity was plenty. So after that--

**Fairbairn:** Let's stop you right there. So you went into sales. You'd never even thought of being in sales before. Did you ever regret that?

**Pistorio:** No.

**Fairbairn:** Did you enjoy it?

**Pistorio:** I did enjoy it very much. I think that I would have enjoyed anything. I'm an optimist. But I think that job was very rewarding, and I've always been a salesman in the sense that I like very much to communicate, and I believe the salesman's job is probably the most difficult. You are there representing all your company, alone with the customer, and you must be able to sell your company to the customer and sell back your customer to your company. And you must be able to understand your product's technical. You're not selling objects; you're selling technical products so you must have good competence. You must have good communication skills and a lot of integrity, towards your customer and towards your company. If you do so, you're successful. You don't try to cheat your customer, because you'll have cheated yourself forever. So a job I liked very much and I enjoyed very much, and kept growing from there. After regional manager, Italy, a couple of years later, I was appointed marketing manager, Europe, and I moved to Geneva. Then in Geneva, I spent a few years as marketing manager, Europe, and eventually, I was promoted to general manager, Europe.

**Fairbairn:** Okay, when you went into sales, that wasn't your goal. Somebody convinced you that was the right thing to do. As you got into sales and then started moving up the ladder, did you have a new career goal for yourself? Did you envision yourself running a company or whatever?

**Pistorio:** Yes.

**Fairbairn:** At what point did that come to you? You were new to sales. At what point did you decide, "Here's my path and I really want to move up this ladder?"

**Pistorio:** I remember. I was still a salesman in Italy, for the distributor of Motorola, not yet to the Motorola office and I was dating with my wife. When we were passing by the SGS plant, I told her, "Sooner or later, I will run that company." It was half a joke and half not a joke. So no, I think that you need to be ambitious. Every young person is ambitious. Hard working, ambitious, and if the circumstances are favorable, you can capitalize. So yeah, my commitment was to continue to grow, to be as much as possible in the career, scaling up, and then we'll see. And getting married, having my family. So, you know, inside the family life, which has been for me the number one priority ever, and number two, to have my career, which worked out nicely. And it doesn't take very much. It takes that you have a lot of dedication, the willingness to make the sacrifice it takes, not completely dumb. Must be a little bit capable. But I think most important is the commitment and the ability to work with people, which has been always my characteristic. I think I've been always capable because I like the interaction with colleagues, customers, I just like it. And therefore being able to work with people who can get a lot of things done.

**Fairbairn:** That's great. Obviously it's worked very well for you and I can understand that completely. So you're working for Motorola. Is this purely Motorola semiconductor?

**Pistorio:** Semiconductor, yes. I was born a semiconductor salesman and I retired as a semiconductor CEO, but always semiconductor. But Motorola was a great company, really great company. I must say that my business background comes from Motorola. I learned whatever I knew from Motorola, first as a

salesman, a sales manager, then a regional marketing manager, Europe, General Manager, Europe, and eventually I ended up in Phoenix. I was moved to Phoenix by Motorola, promoted in two steps. First was world director of marketing and then general manager of the international semiconductor division, as it was called at the time. And we moved with the family in Phoenix, which was a great experience professionally, and from a family point of view.

**Fairbairn:** When you initially joined Motorola, you were working in Turin, is that correct?

**Pistorio:** Yes.

**Fairbairn:** You moved to Geneva?

**Pistorio:** No, first to Milan, and then to Geneva.

**Fairbairn:** And were you married by then?

**Pistorio:** Yes, yes. No, I married immediately, as soon as I had a good job, and earning a reasonable amount of money to keep the family, I married. I knew my wife since eight years already, so that was also one reason I accepted the job, because I wanted to get settled.

**Fairbairn:** So you enjoyed traveling, you enjoyed moving to new places? Your wife was happy to move?

**Pistorio:** My wife has been instrumental for the success, because we had a kind of agreement. You take care of the family; I take care of the business. So we decided, since we got married, that I would work for my career, she would do the full time mother. She stopped working, took care of the family. We wanted children. We were already some age. We married, we were nearly 30 years old, so we wanted kids, and we have three children.

**Fairbairn:** Three children?

**Pistorio:** Three beautiful children, at the time. Now are much more beautiful, the grandchildren, five fantastic grandchildren. So she was taking care of the family and she was very flexible. I remember that every time there was a relocation, I'd say, "We move," and she would say, "Okay, fine." Not always happy.

**Fairbairn:** There were friends and schools.

**Pistorio:** Never any difficulties in the family. And the children were not suffering because the family was very strong. And we moved from Turin to Milan, from Milan to Geneva, from Geneva to the United States, from the United States back to Milan, and then back to Paris and then to Geneva, and then finally back to Milan. So it's been quite a lot of movements but my family has always been very flexible, my wife. My children, once they go to university, it's gone, of course.

**Fairbairn:** What about within Motorola? Were there specific individuals? You said you learned a lot and it was a great company. Were there specific people within the company that were mentors or that you felt you learned a lot from?

**Pistorio:** Well, first of all, of course, even if I never worked for him, Bob Galvin. Galvin was a leader remote from the semiconductor sector because he was the head of the corporation, but a man of principle, a man of integrity and a clear leader. And I think all of Motorola was really driven by him. Then in the semiconductor group where I worked, a lot of people were for me a good example. Tom Connors was the CEO of the semiconductor sector and then John Welty. He was also the CEO, and I worked directly for John, not for Tom. I was still lower in the ranking, but for John, I worked for him. So those were great leaders which I respect a lot, and also the colleagues. All the colleagues, I think I had a very good interaction. Some still around, I don't know, Jim Norling, who eventually became the CEO of Semiconductor Group. We were colleagues working together, but many others. I cannot mention all of them, but I think I had a good working relationship with everybody. I mentioned before Al Stein, who was my peer, Gary Tooker. So I don't have a single name to say, probably fair to single out, the great leader was Bob Galvin, and then the two persons that I had more interaction working for them, Tom Connors and John Welty.

**Fairbairn:** Motorola is a US company. When did the Motorola management team recognize that Pasquale Pistorio was somebody they needed to pay attention to? Was there an event or a meeting or a visit that--?

**Pistorio:** I don't know. I think the performance was pretty good. I think that in the assignments that I had, I was doing what is correct to do. So I believe Motorola perceived that. Maybe there was a particular moment in which I was particularly appreciated. This was in 1969, when there was a big exit from Motorola of Les Hogan, and a lot of people. This exit was all over Europe. Many European guys left following, and I was offered the job to go over to Fairchild and I turned it down, because I felt my loyalty, even though they offered me straight double salary, straight double salary. I was regional manager of Italy and they offered me the same job, but double salary. I said no, and I think this was appreciated, particularly from Tom Connors who was at the time the worldwide director of marketing and then became the CEO of the Semiconductor Group later on. But I didn't do it to gain credit. I did it because I felt that Motorola had been very good to me and I was feeling very good. I had a good job. I was convinced that there was room to grow in Motorola, so it's not because of salary. By the way, I have one conviction about salary. There is a level of salary below which you really need and motivates you. Above a certain level at which you feel comfortable, I don't think salary motivates people. Not me. So I was already making a reasonable salary. Doubling the salary is not what motivates me.

**Fairbairn:** I think that's a wise insight. So you're working your way up Motorola. You were in Geneva and what was your responsibility at that point, and then what triggered the move to the United States.

**Pistorio:** Well, in Geneva, I was first director of marketing for Europe and it was very interesting. It's the first time that I had international responsibility, managing several countries and having this interaction with the colleagues of several countries. It was the first time I was exposed also to a crisis. In 1971, I had got the job by, I don't know, 1970 in fact I started. 1971 was terrible, but already in '70 I had got the job of marketing manager and I was confronted with the first big crisis of the semiconductor industry, which was another good way to learn how to cope with a crisis. And then in 1974, there was another crisis which was '75, and a lot of people were fired or promoted. Europe was doing well. My boss was Bob Heikes at

the time, another great leader that I respect a lot, and he was promoted and I took his job. They promoted me as a general manager, Europe in 1975. And then Motorola decided in '78, '77, to organize vertically, making a world director of marketing, and therefore they promoted me corporate vice president and head over of world marketing, and moved into the States. That was the reason. This happened in March '77.

**Fairbairn:** Okay, so in the '70s, while you were there, another important thing was happening. That is, Intel was starting to show its face and the 4004 appeared in 1972 I think, '71, '72. By the mid '70s, Intel realized that they had something in terms of a microprocessor and from marketing positions--

**Pistorio:** Even later than that. No, later. When I moved in Arizona in 1977, TI was the number one and Motorola was the number two. And I remember as a world director of marketing, I launched a kind of motto, saying "It is time to become number one," which eventually Motorola did in 1980. When I moved back to Europe, Motorola was passing TI as world number one. So Intel was not yet. Yes of course they were coming up, but still the bigger players were TI and Motorola through 1980. And then eventually, Intel became a big player.

**Fairbairn:** I was actually thinking from a marketing position. The microprocessor. Not that Intel itself was size competitive with TI or Motorola but that in the early '70s, I know that it didn't come up with the microprocessor as a way to take over the world, but realized that it had something after it had developed this, and started a major marketing effort to promote the microprocessor as a general purpose tool. And I was wondering, you were running marketing for Europe at that time. What was the perception on Motorola's part as to the microprocessor, and how did you feel Motorola responded to that technical challenge?

**Pistorio:** I think Motorola responded very well. Motorola had a very strong line of products. And by the way, for many years, it was not sure that Intel would become dominant. Who made Intel is IBM, not Intel. Motorola had, in my opinion, a better microprocessor, the 6800, the 68000. There was also National had a good microprocessor. TI had a good microprocessor. But Intel was adopted by IBM and became the industry standard, and then changed the world and made Intel successful. I think IBM didn't understand the personal computer, just to me, the personal computer, because it wasn't necessary to make; other people had. So by adopting Intel and making the IBM PC a standard, everybody had to take Intel and Microsoft the same. So the combination of Microsoft, Intel by IBM became the standard.

**Fairbairn:** Yeah, no doubt. I think Intel would even admit that they had an inferior product.

**Pistorio:** Intel had one great thing, still I think they have. They have been unbelievably successful and capable in generating new products and coming up with a new generation of products before anybody can. The innovation rate has been very fast. Technology and products. So they've kept everybody far. Maybe IBM provided the opportunity, but I think Intel capitalized very well, has been capitalizing all of us very well. They are a great leader and they deserve to be great leaders. I'm saying that maybe IBM gave them the opportunity, but Intel deserved it and deserves. So Motorola in that area didn't catch the PC, but Motorola still remained, and I believe still Freescale is very strong, in the automotive area for example, in the embedded microcontroller area. So Motorola was strong in my time in the microprocessor and in the microcontroller and I think now, which is Freescale, still they are.

**Fairbairn:** Yeah, and I was interested in that period before the personal computer, when the microprocessor happened on the scene and the 4004, the 8008, and the industry started to catch on about how big of an opportunity this might be. And I was curious as to what your perception of that was. Clearly, Intel didn't have the foresight to do it in the first place, but once they had it, they had the foresight to take advantage of it.

**Pistorio:** Absolutely. I guess that probably Motorola underestimated the potential. So it was committing a lot of resources and a lot of money, but probably nobody at the time understood what would have become and Intel made this clear. But Motorola, in any case, had the great products. By the way, it was done in Austin, in Dallas, the center of the microprocessor of Motorola. I think it's still there, right? I think at the time, standard logic were more common. The microprocessor was a big change in our industry, making LSI programmable.

**Fairbairn:** Right, tremendous change.

**Pistorio:** It moved from SSI, MSI, LSI, VLSI, but then you could not continue. The microprocessor made this programmable, so allowing you to have the same complex chip multifunction, which was a big discontinuity. And that big discontinuity was understood maybe not immediately, and then via the PC was exploited best by Intel.

**Fairbairn:** Then Motorola came out with the 6800, which I think everybody fully admitted was a superior product to the 8080 and so forth.

**Pistorio:** Excellent, 6800 and then 68000.

**Fairbairn:** And the 68000, right.

**Pistorio:** Absolutely. I think that everybody was convinced it was superior to the Intel, but it was not chosen by IBM.

**Fairbairn:** Sometimes that doesn't count. So you moved from Geneva to Phoenix. A big change, moving to the United States. You've traveled to the United States a fair amount. Had your family been there before?

**Pistorio:** Never. Visiting, yes. My wife and I had been already, but living, never.

**Fairbairn:** And you had children by this time?

**Pistorio:** Yes, three children, my three children were already all born. No, the thing was amazing because, I must say, this movement was suffered by my wife at the beginning, because she didn't speak English. She didn't drive, didn't have a driver's license and she hated the hot weather, because she's from the north of Italy, and Geneva. She had lived in north Italy and Geneva. So we arrived in Phoenix. I was promoted in March, but the family moved after the end of the school year. She remained in Geneva with the children, so we moved there in the middle of July. Now you imagine this poor lady arrives in the middle of July in Phoenix, Arizona, and doesn't have a driver's license and her English is marginal.

**Fairbairn:** I can't imagine.

**Pistorio:** The closest supermarket was seven miles, so you could not walk seven miles, and you don't have a driver's license. Your English is marginal, so she was a little bit somewhat disappointed. No, not disappointed, was worried. But she was great, again. The first thing was taking a driver's license, and since she didn't speak English, she gave the exam in Spanish and passed. And I remember, I was with my kids at home, waiting for Mama going to get the driver's license. We were betting she wouldn't pass. She comes back, "Here it is. I passed!" So once she had a driver's license, her English improved. You get used to the heat. She loved Phoenix. In fact when I decided to take the job at SGS and move back three and a half years later, she was really sorry to leave Phoenix. And I believe from a personal family life, our best period was the one we spent in Phoenix, because at the time, Phoenix was not the huge metropolis it is today. It was still a relatively small city, a lot of space, easy driving, easy parking, easy shopping, relatively cheaper than the big cities, and a lot of time, free time. I was traveling a lot, but nearly all the weekends, I was home. You can enjoy with your kids and your family. From a family point of view, it was really the best period.

**Fairbairn:** How old were your kids when you moved to Phoenix?

**Pistorio:** They were pretty young. I think Carmel, the oldest one, '77 was 11, and then the youngest one was five.

**Fairbairn:** And did they speak English from school?

**Pistorio:** They didn't speak any English at all. They were speaking Italian and French, and they had to learn English. By the way, an anecdote. The youngest one, Vittorio, was four. He was refusing to learn English. He was just refusing. I was telling him, "Make an effort." He said, "Why should I make an effort? Why don't they make an effort to speak my language?" I said, "Look, they are 400 million." "So what?" So the younger boy, then two months later, without saying anything, he was speaking fluent English and that's it. But it was easy for them. The age was still very young to adjust. It was a little bit more difficult when we moved back for the oldest son, because at the time, he was past 14, and the disruption is a little bit more. That's why I decided to bring him back into the American school in Milan. So they completed in Milan the American school, and everybody went back to the United States, and all three graduated in the United States. So my three children are US graduates.

**Fairbairn:** So from a business point of view, how was it different working for Motorola in Phoenix versus working for Motorola in Geneva or in Europe?

**Pistorio:** I think the culture of the corporation is the prevailing dimension. This didn't change. Working in Phoenix was a little bit different, because it's more organized. Europeans are a little bit more disorganized, so that if you want more-- there was more systematic. Working hours were longer in Geneva than in Phoenix. In fact, I think I brought some bad habits. I remember when I arrived in my departments, everybody 4:30 was going home, I said, "You're crazy." And I succeeded moving up to 6:00, 6:30. But in Europe, before 7:30, 8:00, you don't go home, before and still. So working habits were more disciplined, more effective and shorter hours than in Europe, but the culture was the same. So there is not a big discontinuity. People I knew already, the corporate culture is the same in terms of innovation, integrity, open minded respect for people. Those kind of things were the same. And I must say that, for example, Bob Galvin was very strongly committed to give weight to people, importance of

people. I think that people was a tremendous attention in Motorola, and respect for people, trying to get the people as much as possible accomplishing what they can, exploiting their potential, and this was the same.

**Fairbairn:** Before we leave Motorola, we're about to transition to the big change. You were at Motorola for 17 years. What are you most proud of? What do you think your greatest contribution or greatest learning was? What were the important events or contributions or experiences at Motorola?

**Pistorio:** I think that what I got was my education, business education is from Motorola. What I gave to Motorola was all my dedication to make them the number one in world marketing. I ran lots as general manager international manufacturing locations, but my real commitment was marketing, and I believe that I brought a lot of ideas. For example, I believe I was the first in the industry to organize marketing by segments, not only regions, and I did this already in Europe. And I brought back in the States when I moved in the States, giving the segments, computer, consumer--

**Fairbairn:** The industry segments, yeah.

**Pistorio:** Exactly. Relevance above regions. And this was something that I think was an innovation to which I contributed very much. The customer relationship was very much attention. So my contribution was to do the job of the marketing manager, and when I was the general manager international, still my major focus was on marketing. And the challenge of being number one. My obsessive challenge to be number one. This kind of motto, "It is time," was something we launched to say it's time to go to number one. The ambitions of succeeding, of being number one, as a marketing manager should be driving. And I maintained this mentality when I became also, let's say, general manager of the international division, the drive to be number one.

**Fairbairn:** So you had a long career at Motorola. You turned down an opportunity to go to Fairchild. At what point did the option or the interest or the possibility of leaving Motorola first occur? Was it internally driven or externally driven?

**Pistorio:** It was externally driven, totally externally driven. In fact, I was already, let's say, setting in my mind that I would be growing in the United States, my family, etc., and my wife was happy of that. We had nostalgia, I don't know if it's a good word, for Italy sometimes. We were going back every vacation, and when you are far for many years, you have always a little bit of amplification in your mind, how beautiful the culture, the family ties, all those things. But for me, the prevailing drive was professional. So in 1979, late '79 or early 1980, I was approached by a head hunter, and this head hunter was Boynton International. And they approached me in Phoenix, saying that SGS was looking for a CEO. I said, "This is a joke. Come on. SGS. Who is SGS?" The guy says, "Look, first time you're in Europe, talk to them." So I talked to them. And in fact, my desire started being stimulated. SGS was basically broken, it was a failed company in the sense that it was surviving because it was government owned. Every year they were giving it back to them the money they lost, so this was surviving like this for ten years. In the red and every year, "How much you lost?" "Twenty million." "Here's 20 million. Start again." So relatively small, but I was general manager of a division, and to be the CEO is a totally different challenge. So the idea of taking a broken company of my country, the only in Italy, and being the guy that makes the turnaround was very, very stimulating. So this was a real prime motivation. I said, "Boy, I can be the CEO of SGS. I can turn around, I think I can." That's too much a professional challenge, combined with a somewhat nationalistic appeal if you want. We go back, my father is becoming older, my mother, same

for my wife. So we go back, the parents will be happy, but the real motivation was the professional challenge. Let me see if I'm good, if I can take a company that is broke and turn around.

**Fairbairn:** What was SGS at the time? What was its background? What products did it have?

**Pistorio:** SGS was a company, by the way, born before Motorola. SGS was born in 1957 and Motorola in 1958 or '59, so a little bit older than Motorola. It was a company that had some good technology, intelligent power, already at the time they were very good. And they had some good RF germanium, some discrete products. Basically, you know, was this. They had some licenses from RCA for CMOS logic. But basically, they were a company having some intelligent power, and discretetes. The size was \$100 million, and the loss was \$20 million in a good year, \$50 million in a bad year. They had a lot of debts, but the fact that the government was the owner, for employment reasons, for whatever reason, they were keeping them alive. Every year they were paying exactly, no more, no less, how much they lost and were continuing to do that way. They had good people, and some still very motivated, some demotivated, and some good technology niche, as I said, intelligent power, they were pretty good already. So I thought it could be done. What was clear that was not there was the ability to produce competitively and the ability to market worldwide. In the US, the sales were below \$10 million, I think, \$7M, \$8M. You cannot be a semiconductor company selling in Italy. You must be a world-wide company. So the professional challenge drove me back to Italy and I took the job.

**Fairbairn:** At the time, had they previously had or did they currently have alliances with Olivetti or Fairchild and others? What was the state of that at the time you took over?

**Pistorio:** Yeah, in fact the company was born, without going through the true origin, as a tri-part agreement. Fairchild, one third, Fiat, one third, and one third Olivetti. The first walk out was Fairchild when Hogan left, and walked out. And this was dramatic, because the technology was coming from Fairchild, so they were left alone. Fiat walked out; remained Olivetti. Olivetti didn't know what to do, and in 1970, they sold to the government, because the government had another small company in the south of Italy called ATES. So they merged and they called it SGS-ATES. This was in 1970. So in 1970, it became SGS-ATES, totally owned by the STET group, which was the government owned company. So they continued, but losing money. Good R&D lab. Making research and everything, was technology minded, R&D minded, but no products, very little products. So there was a little bit of a big lab, not a manufacturing or marketing company, so there was this to change.

**Fairbairn:** You didn't have a lot to work with. No ICs.

**Pistorio:** It was very simple. No, there were ICs. They had them, but CMOS was fractional, some bipolar. No microcontroller, for example. Yeah, some microcontroller but very little thing. I think they had the license from Zilog. So there was the Z80 of Zilog, as microcontroller. That was the only thing. But one thing I want to say, I didn't leave Motorola; I joined SGS. In other words, I have a very big souvenir of Motorola. I left on good terms, and I believe I remained on good terms with Motorola colleagues or the top executives like Galvin.

**Fairbairn:** I was going to say, they must have not been happy when you announced to them that you were going to leave.

**Pistorio:** True.

**Fairbairn:** They couldn't believe you were going off to do this when you had such a wonderful job at Motorola.

**Pistorio:** I must say that I appreciated a few things when I decided to leave. For example, there was John Mitchell, who at the time, Motorola had three people at the helm: Galvin, Welty and Mitchell in Chicago. Mitchell flew from Chicago and we had a long dinner through 2 o'clock in the morning, trying to convince me to stay, which I appreciated very much. But, as I said, I'm not leaving Motorola. I'm joining SGS because I think it's a great opportunity from the point of view of my personal, professional challenge. But also I want to go back to Italy, etc. But the nicest thing was the next day with John Welty. It was Saturday and John invited me to have lunch in his house. John is dead, unfortunately, but at the time he was my boss, the CEO of the semiconductor sector. So we had a long discussion. At the end, John was smoking a pipe. He said, "So, Pasquale, you're going back to Italy and to SGS because SGS is a great company." I said, "Come on, John. I told you, they are nearly broke. They are broke, de facto." "I see <makes pipe smoking noises>. But you're going back because Italy's a nice country where you can work well." I said, "Come on, John, there's the Red Brigade and the unions. It's a mess." "I see. But then you're going there because SGS is paying you more than Motorola?" "No, no. My salary will be half what I make in Motorola." And he says, "Are you crazy?" I said, "Yes, John, I'm crazy." I remember this last discussion. But again, the challenge was too much, and it worked out fine.

**Fairbairn:** Double the salary didn't keep you then and didn't take you away before, right?

**Pistorio:** The salary, again there I made a mistake, I must say, because I felt Italy was much cheaper than the US. So I said, "Okay, my salary will be half, because it's a government company." The salaries were not like the free enterprises were. The book of the government companies, as it were: either you take or you don't. So I did the take, but I said, "Gee, I thought Italy would be cheaper." No way. Milan was much more expensive than Phoenix, and then my family suffered there. In the beginning it was a pain. We had to change our habits, but fine. Eventually it worked out well. And it was a very, very interesting job. I think a job of turning around a company is a real big challenge and is fantastic.

**Fairbairn:** So you came in, your first day, your first week, your first month. What was your goal? You were trying to make Motorola number one. That was your goal there. What was your dream or goal for SGS?

**Pistorio:** The first meeting I had, which was the first day I was there-- by the way, I had received from SGS all kinds of papers, studies, analyses. So I learned about the company, going back to Italy by boat. We took a boat cruise with the family, with the Queen Elizabeth II from Boston to Southampton. So during that, I prepared my strategy, which was very simple. And when I had the first meeting, I told my colleagues three goals. Goal number one, we must become profitable. It seems so obvious for a company that's since ten years it's systematically losing money. It was not obvious. Goal number two, we must penetrate the United States. If we don't sell in the US, it means our products are not good. And objective number three, we must become a member of the billion dollar club. A remaining member of the 100 million is nowhere in the semiconductor. So at the end of that meeting, there were people saying, "This guy's crazy," and people saying, "Fantastic. I love it," and there were people saying, "Okay, in six months he will leave or will be fired." So I fired the last one, and the other guys started working like crazy. It was fantastic, really fantastic, because there were very good people there. Depressed, but still

continuing to work like crazy to see the company profitable. And then you give them something to work for. It takes some months to make clear that you believe it, and we start acting immediately. The first month was July. In Italy, there are the *dirigenti*, the upper layer of management is called *dirigenti*. You cannot fire workers; you can fire *dirigenti*. And the first month, I fired 20 out of 80. Not because I'm a man that likes to fire people.

**Fairbairn:** I understand. You've made that clear.

**Pistorio:** But the company's losing money since ten years. I first interviewed everybody for one hour, everybody. Go through with each one, one hour interview. I visited the plants they had all over, then I took the decisions. And if you have a guy that is the sales manager, for example, and says, "Look, yeah, our company's a disaster. The quality's terrible. The cost is high. The service is a disaster. It's still a miracle that we get some orders." I said, "You are the marketing manager?" He says, "Yeah." What can you do? So you simply ask him to leave, because it cannot be. And another guy that was a top guy, saying-- I think he was the head of purchasing-- and he says, "Look, we are losing money, but what is the problem? If the government wants the luxury of a high tech company, it's normal it loses money." I said, "Ah! And you are one of the top guys here?" So when you have those things, you make the cleaning and everybody understands you're right. And I never started touching the lower level until I cleaned the top level. The second month, I attacked the lower level. Absenteeism was 22 percent. Can you imagine 22 percent absenteeism? And then I fired some 17 people, I remember that, that were absenteeists, and their track record was more than 50 percent of the time for three years in a row.

**Fairbairn:** Absent.

**Pistorio:** Yeah. I fired them. And by the way, it's impossible, it was considered impossible in Italy and in a company that was government owned. A lot of mess, occupation by the unions, strikes, unbelievable. But eventually it passed and everybody understands the culture has to change. So we made a lot of things, then the product portfolio, and all the things you need to do. But the first thing is the culture. You must change the culture. And in the first two months, we really got to the culture changed. And the people that were there, somewhat compressed because the environment was not allowing. They started becoming--

**Fairbairn:** They rose.

**Pistorio:** And we did a real good job. The company was the first to become profitable in Europe, because in the semiconductor industry at the time, 1980, every large broad range supplier of Europe-- and there were four in total, Siemens Semiconductor, Philips Semiconductor, Thomson Semiconducteur and SGS-- they were losing money, all of them by far. And we were the first one to become profitable in 1983 and showed Europe that you can do it. So the others say, "Hey, if SGS can do it, why can't we?" I think in this sense, I believe that we gave the example to revive the European semiconductor industry.

**Fairbairn:** So was there a time after you joined the company that you wondered what you had done, that things were worse than you had even thought or whatever?

**Pistorio:** Yeah.

**Fairbairn:** You had some second thoughts?

**Pistorio:** Second thoughts, no, but indeed, for example, I must say, the economic thing was a big impact. The standard of living of the family had to change. We have the same cost of living and half of the salary; it makes it a little bit difficult. The children, I was sending to the American school. It was not easy. But the problems with unions, with the shareholders. My shareholders were not my enemy, but the one I had to fight the most, because they didn't want - They were government controlled; they didn't want strikes. So they're slowing me down.

**Fairbairn:** Keep everything peaceful. Don't disturb, don't rock the boat.

**Pistorio:** I said, "Guys, I'm here. You hired me to turn around the company. That's what I'm going to do and I will do it. Either you want or not. And if you don't want, I go back to the States." I made it very clear. So I was doing, and they were agreeing, of course, but they didn't want trouble, particularly because you are a government controlled company, therefore, but we did. And second thoughts, no, I knew we could do it. And great people, the good ones coming up, the mediocre ones either come in the new culture or leave or remove them. So SGS was profitable in 1983 and then in 1986 it was time to look around, because I knew that if you want to be a great company, you must have dimensions of scale. And we were too small, so to accelerate the dimension of scale, the merger with Thomson Semiconducteur made sense.

**Fairbairn:** How big was SGS at the time?

**Pistorio:** We were equal. Both of us were 400 million each. At the time, SGS was 400 million, which means from '80, 100, to '86, 400, was some nice progress. We had grown; multiplying by four in that period was not bad. The company was being profitable, full of debts because of the shareholders. Once we became profitable, they stopped giving us money. They give you money if you lose money. If you don't lose money, you can do a loan, borrow, and the bank will give you. So we had a lot of debts, but profitable. Thomson Semiconducteur had no debts because it was part of a huge group. It was a division of a group, but was losing a lot of money. And we had the same size, some complementarity and a lot of overlap. So we decided, from the bottom, the two CEOs, said, "Hey, would it be good if we merge." We presented to our shareholders the project. They accepted and we merged the two companies.

**Fairbairn:** Who was the CEO of Thomson at the time?

**Pistorio:** Jacques Noels. Great guy, good friends. He came from TI, so I was coming from Motorola and SGS and he came from TI and Thomson. I must say that he was younger than me and he came in Thomson two or three years later than I came from Motorola in SGS. So he probably didn't have yet the time to make the turnaround. So at the moment we decided to merge, Thomson Semiconducteur was losing a lot of money. In fact, when we made the company, at the moment of the merger, July 1<sup>st</sup>, 1987, at that time the size of the company is \$800 million in sales, \$200 million in loss and \$350 million in debts. The debts were all SGS heritage. The loss was all and plus Thomson Semiconducteur heritage, because we were making a profit. So they were making more than 200 million losses, while we had a lot of debts. So that's it.

**Fairbairn:** So you and the CEO of Thomson decided you were going to merge July 1<sup>st</sup>, 1987. Did you make a list of what your challenges were, what problems you had to resolve? What was your biggest fear? What was the worst case scenario that might happen?

**Pistorio:** Fear, never. I've been always convinced that the job can be done. Of course, the integration of the two companies was the first challenge. If I make the photo at the moment, I mentioned to you, \$800M, \$200M loss, \$350M debt, is a result of the company. I think we had something like 20 plants worldwide. For a company with 100 million, 20 plants, overlapping products. Seventeen thousand people for sales spread in the range of \$50,000 or less. So there was a lot of redundancy to be done. Thomson had not yet done the cleaning. So the first job, the first commitment, work on the integration. If you don't do that, you're dead. So the first of July, the company became official. The seventh of July, I had the first meeting with all the staff of Thomson Semiconducteur, all the staff of SGS in Grenoble. And I told them, "Okay, guys, we are a company now. By November of this year, nobody will know any more what was SGS and what was Thomson Semiconducteur. It will be all as SGS-Thomson. We will not distinguish anymore." So we started undergoing a tremendous amount of work to rationalize plants, closing plants, moving processes, restructuring. In November, there was a new organization and the new organization was SGS-Thomson. Somebody happened to be French, somebody happened to be Italian, but no basic difference. You are in charge of this, and we happen to have a plant in Italy, a plant in France, a plant in Singapore. Doesn't matter. So it was the rationalization and the integration of the company, which was done very, very rapidly. The basics of the success was rapidity of the integration. We moved very, very rapidly. I remember reading an article some two or three years later. Harris bought RCA Semiconductors. And two or three years after, I was reading the article saying they were moving pretty well. They are halfway to integrating the two companies. So no way, you can move. So we had to move very rapidly. We did move very rapidly. And I must say, in this respect, I must give a lot of recognition to Mr. Gomez. Mr. Gomez was the head of Thomson Group, so one of the two shareholders. Because the difficulty is not only that you have to make the job. The difficulty is to have the job when you have two shareholders, 50:50, two different companies owned by two different governments. That is not easy, because in their shareholder agreement, internal shareholder agreement, there was a very simple set of statements. Employment must be equal in the two countries, in France and Italy. Capital investment must be equal in the two countries. R&D spending must be equal in the two countries. It was not written, but management must be both from the two countries. This was not written; the other was written. And as a CEO, you're the CEO, but that's what you have to comply. So you have to do those things economically, which we did. And that was really something interesting, making the integration rapidly, with those constraints, is an interesting exercise. I think Mr. Gomez was very good, because he accepted first of all, and by the way, he chose me. The two shareholders, I don't know how they came to choose me, but I know that he liked me, so he chose me. The Italians, both chose me. But he told his people right away. He said, "We have chosen a CEO. Don't come and cry in my office. If he does a good job, he will be receiving a pat on the back. If he does a bad job, he will be fired. But don't come and cry to me. He's the boss." And second, while the Italian shareholders were asking me, "Don't move fast; go slowly," Gomez was telling me, "Move as fast as you can, because the integration is better fast." So I got strong support from at least one of the two shareholders. The other also, but I mean, he was giving me-- it was a privately owned company with two shareholders, 50:50, governments. So it would have been difficult without having the clear support of one or both of them, or one of the two. So I was given, "Do whatever it takes to do it."

**Fairbairn:** So the headquarters remained in Milan?

**Pistorio:** No, because the shareholders made a little agreement, saying, "Okay, since we've chosen an Italian as a CEO, the headquarters will be in Paris." So the headquarters were in Paris. For the first year, that's ten years, I was in Paris. I moved from Milan to Paris with the family where the headquarters were for ten years. Past the ten years, I came to the shareholder to say, "Look already we are a public company, so there is no more of this. The best thing is Geneva." By the way, I knew very well Geneva, where I had worked for many years for Motorola. Geneva is fantastic from many points of view. Centrally located in Europe, you can reach in one hour, an hour and a half, any point in Europe. Very good to attract executives from any part of the world. A good financial environment, good quality of life, safe city. Very good. And from Geneva, I could drive to Milan in three hours, the major center of SGS and I could drive one hour and a half to Grenoble, the major center for Thomson Semiconducteur. So it was ideal. So we moved the headquarters in '97, ten years after, to Geneva.

**Fairbairn:** Tell me about the process. You went into SGS and had to fire 20 out of the 80 of the top people. Was it a similar process at--?

**Pistorio:** A little bit different, because in SGS I did it to change the culture, so taking all the people that were here you had to do, because you could not double your team at the company, so there's need for redundancy. So I was choosing, reorganizing the company, making one company only, and of course, there were redundancies in the first level. One half of the two first levels had to go. Some went back to their corporation, some went back to state, some went back to Thomson, some others remained in the company with a lower responsibility. I don't believe I had any problem with management. The culture was a really unifying thing. Immediately we had a clear objective: we must become the number one in Europe first. We must become profitable, very quickly. We must become the number one in Europe and then we have to attack the world. We must internationalize. And the people get motivated with ambitious challenges. We became profitable, again, the first one was SGS and then SGS-Thomson was giving the light to the other companies in being profitable and managing well the company in terms of generating shareholders' value. We had to do difficult decisions. We closed a few plants, 20 plants, so we had to rationalize. Moving processes from one plant to the other. You do the things that have to be done. What makes those jobs more difficult in Europe is the environment is much less flexible than in the States. You want to close a plant in Europe; it's very, very tough. You want to relocate people in Europe, it makes it much tougher. So turning around a company, where you have to take a strong restructuring is much easier in the States or in Asia than it is in Europe, because of the social environment. But apart from that, the principle is the same, so it takes a little bit longer, but it was done. I think that what we addressed was simply the integration, the product portfolio and the manufacturing. To make manufacturing for us was a very strong drive. We believed in manufacturing. I believed in manufacturing. I remember, for example, there was still a lot of back End in France. You cannot do back End in France, so you have to move out those things into Asia, which we did.

**Fairbairn:** So this was 1987. About that time, the whole foundry business was starting to become-- well, it wasn't clear yet, but it was beginning, right?

**Pistorio:** My philosophy was that we want to be an integrated manufacturer. I believe that if you are too small or incapable to manufacture, you should not stay in manufacturing. But if you have the dimension of scale that can afford, and you know how to manufacture, you should be there, because manufacturing gives you a level of independence, a level of flexibility and the possibility to have some special technology that you want to complement with the standard thing that gives you a competitive advantage. This was my belief. And then my philosophy was we will use foundries for no more than 15 percent. That was the target. So in good times, when you need to make, maybe you go a little bit over. In bad times, you bring

back home, but the target was to have about ten to 15 outsourced both back and the front end, and the rest in-house. And to do so, you must learn how to do well manufacturing. One thing that we did, we embarked pretty soon in total quality management, which was one of the good things that the company did. And in fact, we learned a lot. There was a good impact on the manufacturing, but also in the way the company was run. And one thing I'm proud, in 1997, so ten years after the merger, we won the European Quality Award. We were the first European company, believe it or not, to win the European Quality Award. Because until then, it had been American companies in Europe or Japanese companies in Europe. In 1997, we won the European Quality Award. And in 1999, we won the Malcolm Baldrige Award and we were the first European company to ever win the Malcolm Baldrige Award. This is great for ourselves to learn, for our customer confidence, and the process still maintained. And we won, by the way, the quality award in every country where we were operating, in Singapore, in Malta, in Morocco, in Malaysia. Wherever we were applying, we were winning. This means we were perfect? Of course not. This means we had the right philosophy and the right practices? Yes. And if you have plants that have dimension of scale, the real quality concept and a TQM [Total Quality Management] philosophy, you can have a competitive advantage.

**Fairbairn:** So for this merged company, you had some basic goals: profitability, maintaining and growing scale, maintaining manufacturing capability. What about from a product point of view? Did you have a vision for the company in terms of what its product strategy was?

**Pistorio:** Of course. Let me say, we defined the three major behavioral strategies. So the strategies that were leading the company. The first was innovation, driven by the market through strategic alliances. Very important. Innovation, driven by the market through strategic alliances. We started this. In many companies, like NEC or others, public is saying that they want to copy ST. The second major strategy of the company was globalization through integrated presence in each major macroeconomic system. We want to be in the States, but we want to also manufacture and develop products in the States, not only export. We don't do commodities, we don't do memories. If you want to be a really successful maker of dedicated products, you must be close to the customer. And the third was TQM, total quality management to drive productivity. Those were the three major. Then in terms of products, in terms of applications, we had a precise product strategy and application strategy, saying that the first rule is that we want to be in any product family in which we can be among the top three. I had divided the product portfolio with my definition in categories, excellence, leadership, major player and participant. Excellence, we have the number one and make a lot of money. There were rules that I'd set. And then leadership, top three. Major player, among the top five. Participants should be a transition. If you cannot be one of the other categories, get out. And then in application, which was achieving, the application more than the products. We selected to be in the wireless industry, where we were number three; in the disk drive, where we were the number one or number two with TI; the digital consumer, not the analog consumer, with the set top box where we were the number one; the automotive, where we were the number three; and then the general purpose multi-sockets mass market. So those were the applications sectors, broad range supplier across applications, and the product category where we wanted to excel was the intelligent power and in general power.

**Fairbairn:** Still from the SGS days, intelligent power.

**Pistorio:** This was an SGS origin, but of course we had become a much broader, vertical integrated power, horizontal integrated power, smart power, intelligent power, power. This was one of our main, analog in general. And then of course you participated to the platforms, the big platforms, like for example, in the communication for the integration of multimedia with communication. So the product

strategy, but the philosophy is important to be either one of the top guys, or you don't participate. And the segment of driving the products, rather than vice versa.

**Fairbairn:** During that time, were there any segments that you entered cold, where neither Thomson nor SGS had a presence or significant presence but where you were able to actually enter and become a top three supplier? Was it mainly building on the base that you already had?

**Pistorio:** We were so diversified.

**Fairbairn:** A little bit of everything.

**Pistorio:** Little bit of everything. I would say that, for example, in automotive, we were not very strong. It was one area I focused on. This was a precise choice. We want to be one of the top guys in automotive. Why? Automotive drives quality. If you learn how to serve the automotive market, you can serve everything else. Second, automotive have long life products. Consumer is a short life cycle. Automotive is also very demanding in competitiveness, but then it's stable. So I said we must serve automotive. It will drive the rest of the company. And when I retired, I think ST was the number three in the world, but very close, Freescale, Infineon, ST, and today I think are there about. But we started from very low. We really abandoned the consumer analog, where I think Thomson was strong. We didn't feel we could compete with Phillips or Sony or the Japanese, but focused on consumer digital and the setup box was a major area. So other areas, in wireless, we decided we wanted to participate in the wireless, but we decided not to participate in the infrastructure. You cannot do everything. So choosing to be in several segments, to be a broad range supplier, but the ones we participate, my object was to be among the top three. If you cannot be among the top three, you are not there. But if you cannot see in a reasonable time to get among the top three, forget it. For example, in the computer, we never participated. Yeah, selling occasionally chips for the power supply, but the computers, forget it. Disk drive? Yes. So areas in which you think you can be successful, the worst thing is to be number five in ten things. It's much better to be number one or number two or number three maximum in fewer things. That's what we did.

**Fairbairn:** As you grew ST, you merged in '87 and you retired in 2005. So you were there for almost 20 years, 18 years you were running the company.

**Pistorio:** Yes, 17 and something, because it's 1987 to 1994 [2004]. The '94 [2004] was my last year. The shareholder meeting was in March, 2005.

**Fairbairn:** But then you became chairman.

**Pistorio:** Never chairman. I became honorary chairman. No responsibility, nothing. No, no, just finished. In fact, by the way, I had put the policy of retiring at 65. So I wanted to retire when I turned 65, which is 2001. And the board says, "No, no, we are in the middle of a crisis. You cannot retire now."

**Fairbairn:** Yeah, 2001, disaster, yeah.

**Pistorio:** You must stay one mandate more, which is three years. That's why I took another mandate. Otherwise I would try to stick to the policy that I'd set of retiring at 65. When I finished my mandate, I retired, and my last year of operation was 2004. Then the shareholder meeting is March 2005, when you

physically, legally pass the command. But Carlo Bozotti took the management of the company already during 2004 progressively. And by January 1<sup>st</sup> 2005, 100 percent. I didn't even go to any meeting, anything. And even the budget of 2005 was set by Carlo, not by me, because it's correct. You must do it not me. It's your budget. By June 2004, I told Carlo and Alain. Alain Dutheil was already announced the COO. Both were announced CEO and COO in March, 2004. In June I said, "Okay, guys, from now on, everything that is post 2004 is your baby. I will continue to complete my year, but if you want to take decisions that are going to be, post 2004 is your baby. So it's good that you start doing it." And in fact, it was this.

**Fairbairn:** So during that period, perhaps the biggest challenges in the second half of that, from the mid '90s to 2004, the semiconductor industry was undergoing major transitions. The Asians were becoming much bigger players, and the technology became much more expensive. What were the driving forces, not from a product point of view, but just from an industry dynamics point of view, for the company, for the industry? What did you have to be? What did you have to do, just to stay in the game?

**Pistorio:** If you are a little bit faster than anybody else, if you manufacture a little bit cheaper than anybody else and if you make the customer pleased a little bit better than anybody else, you win. No magic. I think that the best, from a financial point of view, period of the company was from the moment we went public in 1994 through the year 2000. That period, seven years, the company was running an average compounded growth rate of 20 percent a year, and was having a return on equity of 20 percent a year, 19.5 to be precise, which was absolutely top class. And we were doing the right things, strategic alliance, very important. Customers, this was one peculiarity of ST. I think that we were the first in the industry to establish this kind of philosophy. Customers know the system better than you and will always know the system better than you. So they should drive your development. Nokia was our strategic ally in the wireless. Who better than Nokia can know what will they need three, four, five years from now? Western Digital or Seagate were our strategic allies in disk drive. Who better than them? So if you have your customers being your strategic allies, they drive your development. And since we want to be a dedicated product, we were not a memory company, we were not a standard logic company, but a dedicated company, a dedicated product company, making specific applications, application specific standard products, then the strategic alliance was really a major positive factor for the company. We had some ten strategic partners in each segment, one, two, three, everyone agreeing, because otherwise you must do with the agreement of your customers. And this was driving our portfolio, manufacturing, growing the dimension of scale, making the right choice. For example, one thing that I remember with pleasure is that we were the first company to start front end in Asia, the first among European, American or Japanese. Of course, the Taiwanese, they have plants in Taiwan, or the Koreans in Korea. But nobody would venture. Even before the merger in 1982, I decided to have a fab in Singapore. Ten years before TI by the way, because I thought they were mature with the knowledge and the school and the preparation and the ability to have technical support. This would give us a very big advantage. Back End. I think we started in back end probably better and before the most, if not everybody else. To consider back end is not only that you put in Asia because they have a low cost. Backend is important for quality, for service, so cycle time, productivity, mechanization. I think we had the fantastic plant to mechanize it, to have a high quality, lower cycle time. And those give us also the ability to compete in manufacturing. So we had a few choices that worked for us. With the Japanese, with the Koreans or whoever, it doesn't matter. By the way, I've never been afraid of competition. You needed to do the right things for your customers.

**Fairbairn:** So in terms of strategic alliances, did you have them in process development as well, or was that all internally?

**Pistorio:** We did have also by process. For example, in R&D, if you want to really be a leader in R&D, technology, pure silicon technology, the cost is huge. So we had formed, in Crolles, an alliance with Phillips Semiconductor, Motorola Semiconductor, ourselves, sharing our facilities but in three, paying for the R&D development. And then on the basic CMOS technology, everyone would develop his products, whatever. But this would allow us to have dimension of scale, to have the R&D cost and to compete with the other guys, Intel, TI, whoever, but also improve development with several alliances with the competitors in terms of products, in terms of platforms. In fact, one of the important things for us was the alliance are to be with customers, first of all, most important, but also with competitors, to share the development costs of some technology, or development cost of some products, and also with universities. We had established, I think, one of the most comprehensive networks of universities with whom we had programs of co-development, in Europe and in the United States and in Asia. So alliances takes also a cultural attitude.

**Fairbairn:** Yes, they certainly do.

**Pistorio:** Because if you don't have that cultural attitude, you don't do it, and this is part of our culture.

**Fairbairn:** Right, cultural attitude in alliance is extremely important.

**Pistorio:** Absolutely. Respect for the other, complete respect for their rights, must be a win-win. In fact, every time there is an alliance that we were working, the first question I would ask my guys is what there is for them. Because you're coming, proposing, or I'm thinking, of course, I know there's something for me. If I don't find something for them very important, then it cannot work. It must be a win-win situation.

**Fairbairn:** Right. So throughout that period, you said initially your goal was to use foundries for only 10 to 15 percent.

**Pistorio:** Yes.

**Fairbairn:** How did that evolve and change over time, or were you able to maintain that?

**Pistorio:** We always maintained that. When I retired, things have changed. Of course, the world has changed. I think that is public knowledge. Carlo, my successor, has announced an asset-lighter philosophy, in order to have less use of capital. So he's maintaining strategic technology now, more vanilla kind of technology is going to the foundries, but that's his choice, his views. But until I retired, the strategy was that: integrated manufacture. You go outside for flexibility, and still, ST has a lot of plants and a lot of in-house manufacturing. But his officially announced strategy is to be asset-lighter, and again, the principle is that you maintain in-house what you need really to have some advantage, or you give outside what is general purpose technologies.

**Fairbairn:** So looking back to your 17, 18 years running this company, you have a lot to be proud of. What are the two or three things you're most proud of, that you feel were your greatest accomplishments or contributions?

**Pistorio:** The thing that I'm real proud, and this remains forever, is the fact that the company has been a model in social responsibility. I've been always convinced. I remember when I was in the States in the

middle '70s, there was a debate: shareholders' value, or stakeholders' value, or both? And the prevailing opinion was that you are a manager paid to create a shareholders' value. Don't waste your time, your money, with this idea of a stakeholders' value. And already at the time, I was publicly stating that stakeholders' value is not in contradiction with shareholders' value. On the contrary, a company that can satisfy both will be more profitable than a company that can't. I think today, this has become kind of obvious, or is becoming forced, but it was not so obvious. All the time in ST, we were very strongly convinced of the importance of social responsibility, and in particular, environmental responsibility. ST was a leader in environmental responsibility, was and is a leader. I think we were in the first in the industry, to my knowledge, we were the first, I don't know any other, to publish what we called an environmental decalogue, where we gave quantitative targets. People state, "We will save energy," but don't state, "We will save 5 percent of energy consumption every year compounded for unit of product," which is stated in our environmental decalogue. So we had a very strong commitment; we made money. My point was based on three considerations. When we launched in '93, we launched a major environmental program in the company, with three basic assumptions.

**Fairbairn:** It was in 19?

**Pistorio:** Ninety-three. That was the formal. Of course, the culture was there, but in '93, I decided it would be a corporate-wide priority and that's what we will do. And there were three principles. I remember that I made a small televised address that was diffused in all the--

**Fairbairn:** To all the employees?

**Pistorio:** The employees. Number one is an ethical mandate. A company must be environmentally responsible. Number two, it's vital to motivate, attract and retain good people, young people, because they are much more sensitive to those issues. I knew because of my children. And number three, makes money. To me, it was obvious that if you can have processes and products that consume less energy and less materials, evidently you must be more competitive. It was intuitive. It was, de facto, the results. In the ten years from '94 to 2005, 11 years, up to my retirement, ST saved \$900 million in these environmental programs, having invested in front of each one along the years \$300M, which means a net savings of \$600 million. So the environmental commitment of ST was also a significant contributor to the bottom line and to the competitiveness. And this is what I preach to everybody, environmental responsibility makes money. Social responsibility makes money. You may not measure-- how do you measure the motivation of people? How do you measure the pride of the person that wants to work for you? We started the ST Foundation. The ST Foundation has one obligation and one objective: reduce the digital divide in the poor countries. And we started because I was a member of the Digital Divide Taskforce of the United Nations, set up in the year 2001, I believe, if I remember correctly, by Kofi Annan. I was one of the members of this taskforce. And this was my idea in the taskforce and this is what we did there. So social responsibility I believe is important. In some cases, the payoff is measurable; in some other cases, it's more intangible, but there is a payoff for me for sure.

**Fairbairn:** Did you find resistance to that? You'd obviously been talking about it all along and helping to establish that culture. In ST, when you finally came up with it--?

**Pistorio:** At the beginning, when we launched the environmental program for the company, some managers said, "Great, fantastic! Are you giving me extra money if I were to do those investments to cut energy consumption?" I said, "No. You have a capital budget. It simply is a priority in your capital

budget." "But come on, I have to do the other things." Eventually, very soon in fact, people noticed that they were making money, that it was simple. Just a little example: You have a lot of motors in a company like us. I decided to replace all the motors with high efficiency motors. They paid back in one and a half years.

**Fairbairn:** Is this motors throughout the fab?

**Pistorio:** Throughout anything that has an electrical motor in the company. You're speaking of several thousands and thousands of motors. We changed them. We go high efficiency. Okay, you make the investment. The payback was one year and a half. But then the life of the motor is what, ten years? The rest is free energy savings, a lot of savings. In all the environmental programs of the company, during my tenure, the average payback was two and a half years. Some longer, some shorter. That's a great investment. If you have a payback of two years, two and a half years, the rest is free. So no, the resistance disappears when people really see it makes money, which is a financial advantage, and then the morale. So all the social responsibility is one of the things I'm most proud, the company was able to reconcile that. Second thing that I am, if you want, I don't know if it's vanity, I believe that ST is credited for having resurrected the European semiconductor industry, first as SGS and then ST. Because before SGS was profitable, all the European semiconductor industry was going nowhere. And then thanks to SGS and then thanks to ST, all the European semiconductor industry was a little bit more dynamic and more vital. Now there's been some decline again with the troubles of the--

**Fairbairn:** As you were saying, ST is now profitable again.

**Pistorio:** ST?

**Fairbairn:** Yeah, they just reported profitability this last quarter.

**Pistorio:** Sure, that's normal. That should be normal, at least. The last few years since I retired have been quite tough, because I believe the euro has been very, very strong, and ST is a company that has a tremendous base still in Europe. So the euro has been penalizing ST. The other problem has been that the decision to exit the memory has been costly. So there have been some circumstances that have been impacting the bottom line, but the return to profit is the normal way. It's the natural way. During my stay, we had one other thing I'm very proud of. Do you remember the crisis of 2001?

**Fairbairn:** Mm-hmm.

**Pistorio:** That was the deepest crisis in semiconductors, not 2009. In 2001, the semiconductor industry was worse in terms of the client. In 2001, every broad range supplier in the industry lost money, TI, National, Phillips, Motorola, Infineon, all the Japanese. Intel, excluding the micro for PC, if you take Intel and take out the micro for PC, lost money. ST made money. We, in 2001, made money. Of course, much less than the year before, but I remember speaking with the analyst. I was saying, "Yeah, our profit is smaller, but it's better a small profit than a big loss." So most of my competitors are reporting a big loss; I'm reporting a small profit. So the company showed also the resilience in tough times to maintain. It's another thing I remember with pleasure. But to build a company that was an improbable candidate for success and to make one of the top five in the semiconductor industry I think is something you can be satisfied. If you allow me, I will say this thing: when we made the merger and I told you the following, the

shareholders, the Italian shareholders, the French shareholders, hired two banks, two big American banks, saying, "Go there, look around and tell us what is worth this thing that we have made." And the bank came back they said to the shareholders, "Between minus 1 billion and minus 2 billion." That was the company at the beginning. The Bocconi University, which is the major Italian business school, made a case study, same period. And they concluded that we had no chance but to die.

**Fairbairn:** What great pleasure in proving everybody...

**Pistorio:** Yes, so we did something that is worth it, and normal, by the way. We did the things that had to be done.

**Fairbairn:** I had one more question on the whole issue of social and environmental responsibility. What was the driving force? Is that something that just came to you over time, that you realize this is part of your culture? Was there any particular event that sort of solidified your position and said this is the direction we have to go?

**Pistorio:** For the social responsibility in general, I think it was part of the culture. I was a strong believer that a corporation generates profits to the shareholder, but also must generate return to the community where it lives. For the environmental, the originator is my son, my oldest son Carmelo. He was a young man-- by the way, he graduated Tufts University in philosophy-- and he was challenging me, "You guys," not me, but every manufacturer, "are ruining the world, ruining the planet, and do this and do that." And I was really a bit skeptical on the environmental responsibility. My point was, "Look, we comply to laws, absolutely, so if we comply to laws, what shall we do more?" And then I realized that was not right. It's not enough to comply to the laws. You must be beyond the laws, and you'll make money. So my son really convinced me that we had to do something, and then I reached the conclusion and launched the campaign.

**Fairbairn:** Great story. I'd like now to shift to more general questions: a little bit on the semiconductor industry, we talked a little bit about that off camera before, but I'd like to touch on it here. And then some even more general questions in terms of technology and what young people might find-- what you think are interesting technology challenges for young people today. So in the semiconductor industry, you said it's in your blood from the very beginning. What is the state of the industry today and where do you see it going over the next five or ten years? What are the major trends? What are the keys to survival? What direction do we see taking?

**Pistorio:** The first thing is that the industry has not yet matured from a technology point of view and this is what keeps delaying the process of consolidation.

**Fairbairn:** Still not mature?

**Pistorio:** Still not matured. New technologies coming on, new inventions. There is a dynamic, and this will keep having new companies coming in, inventing new things, etc. So we are far from seeing the saturation in terms of innovation of this industry, and maturing of this industry. Some sectors might mature but new ones come, and a new wave comes. And for the next ten, 20 years, we will keep seeing that. The second thing is that speed is becoming more and more important. The competition is so strong. The globalization is a reality. Emerging markets, competitors are appearing. The Koreans are

the first ones, the Taiwanese, whatever, but there is a lot of small startups that come all over the place. You have to move fast. The time factor is very, very important. There must be an obsessive attention to time to market. If you miss the window of opportunity, you have missed it. The consumerization of the end product and the change of consumer habits are so fast, that you can be making components in some system, must be able to follow. The other thing is that silicon is continuing, and will continue to be for many, many years, the basic material, but there is organic material that is coming on also, as a support for the microelectronics. And the merging of organic and inorganic will give and open new opportunities for innovation.

**Fairbairn:** Is that a direction that ST would take?

**Pistorio:** Of course. Already in my time, for example, as ST was making the lab on chips. It's one thing that was already made in my time, the MEMS. We are the world leaders and that was started in Castelletto when I was still the CEO many, many years ago. ST had one great thing in my time, and I think it still has. My philosophy was that I was dedicating not a huge amount of money, \$30 million a year, for doing developments on which I would not see the results myself, ten years or more. When we decided to start MEMS was I think in the early '90s. It became a big business now that I'm retired. When I was still there, it was not a big business in the early '90s. But you needed to be there, so ST has the commitment to look, and is not a big deal of money. It's a little amount of your R&D budget. ST spends 15 percent of R&D, our 11 billion company that spends a lot of money in R&D. A little portion you put for the R&D man that has some ideas. Of course, he must have products in mind; it's not pure speculation, but they are far removed. So nanotechnology is going to be a big change, and it's coming. We're already using nanotechnology to do particular products. And the rest, I believe at a certain point in time, the Moore's law will continue. The stoppage of the Moore's law is predicted to be in five years, but then continues to be. I remember when I was much younger; nobody was thinking that we could have a 22 nano node. Come on! Now the 22 nano node we know that is going to be there, but I read articles saying maybe it is the last. Maybe it's not economical or technically interesting to go below. It probably will happen. But there are other things. There is More than Moore: technologies that are not scaling only, but making other combinations. I believe sooner or later we will have-- and there are still examples-- logic that are not based on Boolean algebraics. We will have computing done on cognitive computing. So those things will happen. Microelectronics is still young. Silicon may mature a little bit to a new form, but microelectronics is still young, innovation will keep it going. So I think people have to be very quick in taking the innovation. They must spend a part of their money, the big companies, trying to be ready. For example, all the alliances that we had with the universities are big windows on the world. ST has people in Berkeley; ST has people in Carnegie-Mellon, physically working there, learning there. You see what I mean. So this is necessary to be there. But the fundamentals will remain the same. You need to have, in my opinion, dimension of scale. You need to have alliance of the customers. You need to have one thing which is absolutely mandatory: the ability to manage people. If you want to be successful at the end, everything boils down to people, and people are the difference.

**Fairbairn:** so you've always had a positive outlook throughout your whole career and been excited about the new possibilities. What are you working on now? Are you still involved in technology, an observer of technology? Is there anything out there that has you so excited you think, "Boy, I wish I was 30 years younger. I would go do that."

**Pistorio:** Yeah. After all, now I'm serving on a few boards. Not in semiconductors. I was in charge of the semiconductors, on the board of Chartered Semiconductors, which was sold last year. But I'm serving on a few boards, but there's no fun like running a company, particularly a high tech company.

**Fairbairn:** In there day to day.

**Pistorio:** So yeah, I wish, but there is no need. Seventy-four is not so much, no? Seventy-four--

**Fairbairn:** A long way to go.

**Pistorio:** Yeah, Morris Chang I think is older than me, runs TSMC pretty well. But anyway, apart from the joke, I think the industry still offers a lot of challenges, and there are a lot of things that can happen, can be done. I see companies that are fantastic. I see companies that are not so well run, and you feel that you could have the medicine, but it's an intellectual exercise if you want. But one thing I would like to say for a CEO, what is the role of the CEO? Of course, we read in the books, etc. I've always considered the role of the CEO to be five major attitudes, five major things that the CEO has to do: create the vision, build the team, install the culture; design the road map, drive the execution. And that's what I've tried to do since I started being a CEO, or even a general manager of a division, or even a head manager of a small unit. Wherever you have a responsibility of driving a unit, you must give the vision. People want to know where they are going, and the vision has to be ambitious but feasible. You must convince them it's feasible. Build your team; install the culture, very critical. Very critical. The culture is what makes a company different from another. Define the road map, where we want to go. Here's the way we will go. And drive the execution. If a CEO can do that, then it's okay, very simple.

**Fairbairn:** Everything else comes along with that. So in terms of technology or areas, if you were looking at someone like yourself graduating, is there anything that sparks your interest, that you think, "Boy, if I were graduating university, this is the direction I'd go."

**Pistorio:** Semiconductors. I think semiconductors, let's call it microelectronics, because the material can change, organic maybe. But still, microelectronics is going to be still the motor of the innovation in all the electronics world, and therefore is fantastic. It's the enabling technology that drives everything: computers, communication, automotive, electronics. This is the major enabling technology, so I think it's worth really very stimulating, and there is a lot of innovation still. There is a lot of challenge, far from saturating.

**Fairbairn:** You mentioned that you were involved with helping to bridge the digital divide. There was a foundation established and so forth, working with UN. What are the areas that you think that technology companies, either through their technology or social responsibility activities, need to step up and address the social or economic energy issues, the societal issues that we face today. Are there particular areas where you'd like to see companies like ST get more involved, either from a technology solution point of view, or part of their social responsibility?

**Pistorio:** Energy. If I have to single out one, energy. I think that the world has a tremendous challenge. I believe that the global warming is real. I believe that human impact is real important, is what determines it. There are other causes, but this is the main cause. If we cannot address this, we cannot address others. I believe that there is a limitation in the supply of fossil fuels. I believe that poor countries are paying an unfair tax in the high cost of energy for their development. So if we can reduce the dependence on carbon--

**Fairbairn:** Carbon fuels.

**Pistorio:** Carbon fuels, and if we can become a world that is much more capable of developing itself without this dependence, then I think we will contribute a better world. ST, among the major goals, had one goal: to become zero CO2 emission by 2012. That was one of the goals of the decalog.

**Fairbairn:** When did you set that?

**Pistorio:** Nineteen ninety-five.

**Fairbairn:** Oh my, long before anybody was talking about global warming.

**Pistorio:** Zero CO2 emissions, which I thought we could do. And of course, it's a goal that you may miss, but we're moving there. Number one, 5 percent reduction of energy consumption every year. We did until I retired, and ST is continuing to do to my knowledge now. Second was to have a portion of our own energy consumption generated by renewable sources. And during my time, for example we financed 10 megawatts of eolic wind power plants. We put solar panels in many roofs of our plants. And finally, reforestation. We reforest so much land to absorb the residual CO2, and we had a goal to reforest 35,000 hectares, 70,000 acres, of land. Before I retired, I think we were around 10,000. I believe later on, the economy has become much tougher, and from what I understand, the last two have been put on hold, the reforestation, while the renewable energy reduction has been continued. So we may not reach it, but if every company would put the goal of cutting energy consumption, semiconductor, non semiconductor companies, I think the world will be a much better world. I'm convinced that if ST did it, everybody can do it. For example, in energy conservation, we saved year after year, every year. The goal was 5, we did 5.2 and this continued after my retirement. Every year, the company uses 5.2 percent less energy for unit of production, being, for example, a standardized 8 inch wafer, 20 mask level. At my time, this was the unit of production, or a package. Why other people can't do? This is a great achievement. I believe, for example, if companies, individuals and governments would get their act together, and the companies can give the lead, I think the corporations can give the lead to governments and private citizens, because they make money. It's profitable. It's enough to convince a CEO, "Guys, you'll make money." Look at ST, they did make money, \$600 million net profit during the ten year period. That's not bad. That's pretty good. So this is one thing that is very important. And then to be a good citizen means everything that you want to associate. One thing is that, for example, our objective was to contribute every place where we go, not only jobs but technology, development, education, participating a lot of variety of social programs. In other words, you must be a good citizen. But energy, I think is a major priority today, and if all the corporations would act in that direction, it could make a bigger contribution.

**Fairbairn:** Excellent. I've already asked this a couple of times, but is there any other general advice you would give to young people who might be touring this exhibit, in terms of career directions and social responsibilities?

**Pistorio:** I think that social responsibility pays off, also economically and financially, so it's good for ethical reasons. It's good for motivating people and it's good for the bottom line. It should be done. And for people to be in their career, what can I say? The first thing is that you need to have a passion for what you do. Don't do something that you don't love. In my long career, I've always enjoyed what I've done. Either the salesman on the bicycle, or the CEO, for me, you must enjoy it. You must have the reward that you're doing something that is satisfactory for you and you create something useful. So passion is very important, preparation, hard work, a lot of hard work, and courage. You must have courage. In fact, I

think every person, more everybody that has a responsibility for teams, a leader, must combine courage, passion and brain, preparation and education. So you need to be hard working, prepared, passion and courage.

**Fairbairn:** Great advice. Is there anything that I've missed? I've skipped from one thing to another. What other things did you want to say?

**Pistorio:** I think the semiconductor industry, or the microelectronics industry for me is the most fun place to work. I would encourage young people--

**Fairbairn:** And you're still excited, it's very clear.

**Pistorio:** Absolutely. The dynamics are such, the innovation, the rate of innovation. Things happen so fast and they change so rapidly. I think it requires people to be passionate and give a lot of rewards. So go into to the semiconductor industry, there is a lot of future for many people.

**Fairbairn:** That's great. Now we'll sort of wind down. So you have three sons. One's in Florida?

**Pistorio:** One is in Florida, just moved last year. And two live in Singapore, one temporarily, one permanently. No one is an engineer.

**Fairbairn:** And no one's in Europe.

**Pistorio:** And no one is in Europe.

**Fairbairn:** They've become people of the world, huh?

**Pistorio:** When I retired, I went back to Europe. I went back to Italy, and now I have nobody in Italy. My children, and by the way, international children. My son that lives in Florida, the wife is an American from Santo Domingo. The son that lives in Singapore, the wife is a Chinese. And the other one living, is a daughter living in Singapore, the husband is French. None of them married an Italian. So I'm quite an international family, five grandchildren, beautiful. And I think that, I wish that they will have dedication to make a better world. I have always told my children when they were young, there are three big challenges in the world, and you, the young generation, have to confront those big three challenges. One is the excessive inequality in the distribution of wealth. Inequality in distribution of wealth is natural, must be, but today is excessive and growing. Second is the explosion of the population. We are seven billion and the beginning of last century, we were two billion. We are growing too fast. And third is the pollution and the global warming. Those are the three major problems that are the root cause of any major problem on the planet, war, slavery, everything. In my opinion, it's driven by those three major challenges. The younger generation should work toward curing it, and by the way, a little thing that I did once I retired, I started a foundation called the Pistorio Foundation. So a little bit of vanity if you want, and the Pistorio Foundation addresses the poor children in developing countries. So we help children to go to school, to eat and to dress. We have today 1,350 children that we maintain in the world, so it's nice. And by the way, the Pistorio Foundation is at zero overhead. All volunteer, me, my family, friends, all volunteers. No overhead structure.

**Fairbairn:** What a great contribution.

**Pistorio:** It's a little bit of social activity that continues.

**Fairbairn:** Yeah. Well, you clearly have a lot of energy and a lot of passion and you're doing what you love.

**Pistorio:** And by the way, now it's more fun. There is more competition. The crisis has changed the world, because easy money is gone. So companies must rely much more on their intrinsic performance. There is more need for good management. A lot of fun.

**Fairbairn:** That's great. Thank you very much.

**Pistorio:** Thank you to you.

**Fairbairn:** It's been a real pleasure and--

**Pistorio:** My pleasure.

END OF INTERVIEW