

Let me just have you start by saying your name and tell me what your occupation is now.

Ok. My name is Ming Liu, and I'm an engineer at Spirit Aerosystems.

Ok. And I should say that this is Fletcher Powell doing the interview, and today is May 28, 2013, and we're in the conference room at KMUW.

Ming, you weren't born in the United States, tell me where you were born and—

I was born in Taiwan in 1951.

Ok, and you grew up there?

I grew up there and I moved to United States in December, 1976, for study.

Ok, so, you were in your mid-20s at that point, and you moved here, was it to go to university?

Yes.

Where?

For graduate school at Arizona State University.

Ok. How did you get interested in them?

Uh, at that time, most of the college graduates would like to go abroad for continuous education, to do more study, and I follow their shoes.

You had been educated in engineering up to that point?

No, actually, my background was in economics. Not until after post-graduate did I switch to study engineering.

Ok, so, post-graduate, but you went to Arizona State for graduate school. And so you went there for economics as well?

Yes.

And, then—so that was '76, you said?

Study in spring '77.

And then what made you make the switch following graduation from there?

Uh, with a base in this degree, especially in economics, you were not doing accounting, you were not doing anything, you know, it's a specific area, so it's difficult to get a job at that time. And most of my engineer friends, they got a job easily. So I decide to make a change.

So is that what was attractive about engineering, was you saw people around you getting jobs?

Yes. Yes.

Was that a difficult change to make?

Yes. Yeah, you know, changing from that business to engineering is a major difference. So I had to take many, many hours to make up those requirements.

Oh, you almost had to redo a lot of your schooling.

Yes. And redo a lot of undergraduate schooling.

Right, and did you do that at Arizona State as well?

Yes.

Ok. And, um, so, then what degree did you end up with from there, in engineering?

I ended up with a PhD in industrial engineering.

Ok, so you went through the entire program up through your PhD in industrial engineering. What year did you graduate from there?

I graduated in 1987.

1987. Ok, and then where did you go after that?

Then I stayed there as a visiting assistant professor. They keep me there to teach for one year. Then I got a job at Wichita State, so I moved to Wichita in 1988, and I stay until now.

So you got a job with the university here.

Yeah, I started with Wichita State University, until 1994, then I moved to Boeing at that time.

Ok. What did you do at Wichita State?

I taught at the industrial engineering department for six years.

Ok, and then how did you end up making the move to Boeing from Wichita State?

It was very interesting. One day, I got a phone call from Boeing, a manager said, 'are you interested in talking to me?' I said, 'well, what is that?' He said, 'well, your name has been mentioned several times and I would like to talk to you.' I said, 'ok, just a talk.' And I end up with a job offer.

Interesting.

Yes. And then I weighed the difference and I decided to take it.

Ok. Do you know who it was who'd been mentioning your name? Were they former students?

Uh, yes and no. Ok, first they would interview one person, locally, for that position. And that person, he was my former student. He said, 'I'm not an expert in this area, there's a Dr. Liu at Wichita State, you should talk to him.' So the hiring manager would say, 'well, ok, so what?' So he asked another Boeing engineer, said, 'can you find anyone in this area?' And that guy said, 'there's a Dr. Liu at Wichita State University, go talk to him.' And finally he talked to, you know, a manager inside Boeing who is Taiwanese, came from the same country as I am. And he said, 'oh, I know there's a Dr. Liu at Wichita State.' And so finally he decided to pick up the phone and call me.

I keep hearing so much about this Dr. Liu...

4:59

Uh-huh, yes. So it was a kind of interesting coincidence.

So what was attractive about Boeing that made you decide to go ahead and make the switch?

Uh, I think it's different projects every year, every time. You know, compared to school, you have your own field and you teach the same course over and over and over again.

So you were looking for some variety.

Some variety and something more challenging.

So what was your position when you first moved over there?

I was hired as a statistical analyst.

Ok, and what is—what did that mean at that point?

At that time I was hired in for the manufacturing R&D group and I do a lot of number crunching, yeah. They collect data and they analyze the data, and explain why phenomena goes with that data, or those numbers, what they mean.

Ok, so, why certain things behave in certain ways.

Right. And we do a lot of so-called design of experiments—use data, do some statistical analysis and draw conclusions, what would be the best combination to do a process.

Right, ok, and was that exciting to you?

Oh yes. Yes. And I experienced many different projects. You know, in the industry, in the manufacturing world, there's never a less challenge to you, never. Always a new problem come up. So it was very interesting.

Uh, when you first got there, was there anything about maybe the tools you were using or programs you were using that surprised you? Things you weren't used to? Or were you able to move in pretty quickly and be comfortable with what you were using?

Oh yes, you know, I merged with them quite smoothly. Yes. Basically, they were still using the Microsoft Office tools. Because Excel is a good tool for statistical analysis.

Right. So tell me, maybe about some of the projects that you worked on, um, at least early on, and maybe through your time there that were interesting to you. You said there were a number of different things, what were some things that stand out to you?

The most interesting one was the drilling process. You know, at that time we drilled holes in aluminum panels and the frames. So we put those parts together to make airplanes. However, we consume a lot of drill bits. So we need to study what would be the best combination about the speed and fit of certain materials so you can show the best hole quality, the precise of the holes, you know, and what's the quickest time to complete the job. So that was very interesting, a lot of statistical data analysis from that study.

Was there a certain part of the plane that you often specifically worked on, or was this the entire—

Oh, at that time it's complete program from 3-7 to Triple 7 to 4-7s. Because statistic—it's statistics. Data analysis covers almost the entire ground.

Were you working with a lot of people in your department?

Oh yes. The manufacturing R&D group grew from a little bit over a hundred to almost 300 today.

Ok, from the time you started in '94 until now.

Until now, yes.

Ok. Um—wow, that's a lot of people. Um, was it a pretty ethnically diverse group? I mean, you're from Taiwan, were most of your coworkers Caucasians?

You—no, most of them were Caucasians, yes.

Did you encounter any kind of tension because of, uh—

Not really.

So everybody was pretty welcoming.

Oh yes. Yes.

Ok. Great.

Now, Wichita is a place you don't see much of that discrimination of the other big cities.

Ok, so you haven't even had that problem in the larger city, I mean beyond Boeing you haven't really seen any kind of discrimination in the larger sense.

No—I have been to Los Angeles many, many times because of my siblings, they live there, and, you know, that's almost like an international city, so you don't feel that way.

Um, so, did you position with Boeing change in the time you were there? Did you move up or down, or did you pretty much stay in the manufacturing R&D the entire time?

I stayed in the manufacturing R&D the entire time.

And with the, basically the same job description?

9:58

Yes, uh-huh.

Ok. And then, so, you moved with the company to Spirit in 2005.

Yes.

Was that a strange transition for you?

Uh... job-wise, a little bit changed. But the feeling is kind of different. You know, I'd been with Boeing for so long, Boeing's a well known name in Wichita for so long, and suddenly I'm no longer a Boeing employee. But other than that, I recall very well.

Did you feel like there was any kind of a work culture shift when you switched over? Or was it really just the name?

At the very beginning, it's just the name. And now, it's slightly changing.

How so?

Uh, in a new company, it's a new philosophy. So we're kind of more focused on the cost savings.

More of a business side—

More of a business, yeah.

So when you were with Boeing before, from '94 to 2005, what did you feel like the company's culture was then? If now you feel like you're shifting more toward the business side, cost containment, uh, how did you feel about Boeing's work culture when you were there, at least in the 1990s?

You know, Boeing, they have many divisions, and I've been to several of those divisions, and they worked like a big family. You know, even though you crossed a program—you have military, you have commerce, you have—but I feel like almost everybody worked toward the same goal.

So it was like a big family. And did you feel that way the entire time you were there?

Practically, yes.

Because I know, um, I guess a few years after you would have gone in they had the merger with McDonnell Douglas. Uh, did you—did that have any effect on your job or did it pretty much stay the same way for you?

Well, actually they expanded my job assignment. I was able to work with a Long Beach division that had never been Boeing, it was McDonnell Douglas. Yeah, actually I worked *more* after the merger.

I remember you also said that you worked some with Boeing working with China?

Yes.

What was that?

In 1996 to 1998, from Boeing Seattle, they needed someone to train the supplier in terms of quality, you know, which is my training in college. So, they needed someone who can speak bilingual, both Chinese and English. So they picked me. So I was the lucky one to go there, train their engineer and show them how the Boeing quality system—at that time we called it PQA, Procurement Quality Assurance. You know, all the vendors, you need to commit and comply to Boeing requirements. And I taught them how to do statistical analysis on certain data. Yeah. So they can produce good parts for us.

About what year was that, do you remember?

From 1996 to 1998.

Ok. So—

Two years, I've been to China four times.

Ok, so you went back and forth.

Yes.

How long were you typically in China?

Uh, from one to two weeks.

Ok, and then you'd come back. So, did you feel like, well, did you feel like you were satisfied after that was over and did you feel like they were satisfied?

Yes. But, for one particular side, I think they kind of abused the system. I trained them, after they're trained they moved to their internal program, instead of being the Boeing program.

Oh, so they kind of took what you taught them and went and did their own thing.

Yes, yes.

I'm sure that was surprising to you, was that surprising to Boeing as well?

I think that's a surprise to Boeing. Yeah.

Because they invested a lot—

They invested time, people, money, and then they have to retrain again. And that's why, at the later version of that training, I decided to, you know, train the trainers, so once they are trained they can train others, so we can get the effective training program going.

I asked you if you had any big surprises when you first started working there, did you have any big surprises during the entire time you were with the company? With Boeing? But let's say before you moved to Spirit. Was there anything that surprised you about, maybe, what happened with the company, uh, the company's attitude toward you guys in your department, anything like that?

You mean, before we became Spirit?

Before, yeah, before you became Spirit.

15:29

Uh, actually, in my level, we don't feel much difference.

Nothing changes much?

Uh, we heard about something is coming, but, you know, for our daily in-and-out, my work, my assignments, not much changes.

And then once you found out that you were—that Boeing was selling to Spirit, was that a surprise?

Uh, at the beginning, yes. But later, you know, hey, it's an upper level decision, we cannot do much to it—even though with the SPEEA and the employees we tried to say, hey, we'll form our own company and the employees become like a Southwest, everybody becomes a share owner... but, hey, it didn't work.

Did you—were you concerned at all for your position at the company when they moved to Spirit?

Uh, yes—they offered me the job, but not everybody gets the offer sheets.

So there were people even around you in your department—

That had to go.

Why was that, do you know?

I don't know.

Yeah. They offered you the job right away.

Yes. During my time with Boeing and Spirit, I've experienced five layoffs. But I survived.

All five.

All five times.

How many people right around you were laid off, I mean were—

A lot.

A lot of people, even in your department?

Mmm-hmm.

Through all five. What—I mean, I guess I'm going to ask again, do you have any idea why they got laid off and you didn't?

Well, I can just say, I guess, uh, your work ethic, your work attitude, and your performance.

Were any of your friends among those laid off?

I think every single one belonged to one of those three classes, yeah.

Ok. Uh, did it seem like it was—let me ask, how long were the people laid off? Because I know a lot of times the people will be laid off and then brought back after a while. Did you see that much? Sort of the up and down?

Uh, how many got brought back? Not very many.

Really, so most of the time they were laid off they didn't come back.

Mmm-hmm. It also depends on the reason, when they lay you off. And also your skill level, how much value you can bring back to the new company.

Did you ever feel like any of those layoffs were unfair?

A few. Yeah. Those cases may be an attitude problem. It's not the performance.

So it's almost like when there were the big layoffs they were able to use that sort of to clean house?

I guess that's the business case.

So, you didn't have to deal with being laid off yourself, did you ever have to deal with any strikes?

Oh yes. Several times.

And was that with SPEEA or was it just crossing—

Both. Both.

Ok, then talk a little bit about having to strike—

For the SPEEA strike, you know, they just carried a sign, they would not, you know, walk on the picket line, in a picket line. But for the IAM, the mechanics, they do. They would stop every single car that entered the parking lot, they'd talk to you. But just be nice to them.

So did—you never felt like they were rude or threatening or anything like that?

Oh, no, no, no, not at all. Because many of them, they were my friends. So when they talk to me, I'd just be just like a friend, talk to them just like a friend. You care for them, they will understand. The reason people walk on the picket line is because the contract issue. The company always says something about their position, but the worker also demands something. You know, when the company makes good money, they should take care of their employees. But employees should also produce something, produce value to the company. It's supposed to be a benefit to both sides. But not argue on each other.

And so, did you feel like the strikes were justified, then?

Uh, you know, nothing can go forever. Someday, you need to go back to work. And the company needs to produce parts for the customer. So eventually they will come to a mutual agreement, and life goes on.

Did it ever make you angry? That either IAM was on strike or—

No.

Ok, so you pretty much understood the—

I understood both sides' positions.

Ok. And so you said with SPEEA you went on strike?

SPEEA were, they were on strike once in Wichita.

All right. And you were there at the time?

I was there at the time but I did not walk on the picket line.

Um, were you, did you—how does that work? Did you not have to go into work?

Ok, because if you are SPEEA's member, then you have the option to walk or not, but I was not a SPEEA member. I was an engineer but did not belong to SPEEA.

Ok, that makes sense. Um... did you feel like there were any kind of, uh, I sort of asked this already, but did you feel like there were any kind of culture shifts during your time, while you were at Boeing? Did it ever, um, I mean, like we said, Boeing, you felt like it was a family, at Spirit you feel like it's more business-oriented—did you feel a shift like that while you were at Boeing? Or did that shift take place only after you moved to Spirit?

21:51

I think the shift took place, you know, right after it became Spirit. Boeing, they usually, 'yeah, ok,' one eye's closed one eye's open, that's why when it comes to layoff time (snaps fingers) you can do the clean house. But in Spirit, huh-uh.

Ok. Um, while you were at Boeing—I'll ask both sides of this—what were some of, um, the most positive things for you there? What were some of the real benefits of working for Boeing?

Uh... benefit?

I mean, how did—you worked there for—

10, 11 years.

11 years, and then you continued on with Spirit, so there must have been things that you liked about working for that company.

Ok. Everybody keeps saying, 'Boeing has the best health insurance in town,' and I agree with that. And salary-wise, I think it's comparable nation-wide.

And so, you also felt personally, um, pleased with working there? Not just the salary and the health care, but, um did you feel fulfilled professionally?

Yes, yes. During the Boeing time I was also part-time at Wichita State.

So you were still teaching?

Yes. So, many times I can use the Boeing example to teach to my students. And that makes them learn a little quick, you know—once they graduate, they can apply that knowledge into the real world.

So you were able to take things that you were learning and use them.

Yeah. Actually, it's a win-win situation, yeah. Boeing would get the good recruitment, ok? And the student, they are prepared for their future work.

Very clever.

Yeah.

Uh, on the other side of that, then, did you ever feel like there were any major frustrations for you while you were working at Boeing?

Uh... it's a little bit personal, you know. As you may see, I'm not a native, uh, natural-born American. So when it comes to a promotion, we don't get the equal chance as others.

You feel like you're looked over?

Yes. You know, one time, they decided to promote a manufacturing R&D manager, so I decide to take the exam and went through the interview. They said, 'I'm sorry,' you know, 'you did not pass.' So as soon as they promoted the, quote, target, you know, employees, they sent me a letter that said, 'oh, I'm sorry, we made the wrong calculation, now you can apply for a manager position.'

But this was already after they'd made the promotions.

A-ha.

Interesting.

Yeah.

So, I mean, I guess that must have been frustrating. Did you see that sort of thing happen to other people who weren't, uh, weren't naturally born American?

25:06

Uh, I don't know much about others, but, at least, it happened to me.

Did you ever feel like leaving the company because of something like that?

Uh, no. Because, you know, if they don't use me as a manager, they can use me as a good engineer. So I continued to produce.

You still had a good job.

Yeah.

What's your impression of Boeing in the larger community, uh, sort of as a contributor to Wichita?

Boeing is a major contributor to Wichita, you know, economic-wise, technology-wise, and sponsorship-wise. You know, how many Boeing employees live in Wichita with their families? How many satellite companies supply to Boeing? In turn, how many people rely on Boeing? And technology-wise, their military program or even before their commercial program, they have new technology development, and everybody in this community benefits from that, from Wichita State, from other universities in the state of Kansas, even for community college, students can get their hands in touch with the technology side. Now, as for sponsorship, how much money Boeing donates locally to all kind of events, from Special Olympics to Asian Festival—you name it, Boeing's name is always there. Now, with them leaving Wichita, will they continue on those? I don't know. I hope they will.

I know you don't work for them, um, anymore, but how did you feel when you found out they were leaving town completely?

I feel sorry for Boeing employees and I also feel sad for the city of Wichita. We lost a long-time partner here in Wichita.

Did you feel like it was a pretty big surprise for you to find out—

Big surprise, yes.

What do you feel like will be the result for the community going forward, that Boeing won't be here anymore?

Well, uh, economic-wise, no, I think we can recruit—the city of Wichita—recruit other industries to move into Wichita. Ok. And here, we have the best technology support, with Boeing, with Spirit, with, like, other aerospace industries, Cessna, Bombardier, and Hawker Beech. This is our asset here. So we can recruit other aerospace industries to move into Wichita. Now, with the NIAR and others, with Wichita State, we can also recruit a high-tech industry to Wichita. But the city government, you know, the city mayor, they need to come up with some type of strategy, ok? How to attract those industries, come to Wichita and they will benefit in our Wichita area.

So you feel like, economically, at least, we can maybe fill that gap if we're smart about it.

Right.

Do you feel like there's any other kind of effect? Of Boeing leaving? Beyond the economic?

Well, another one, as I said, sponsorship. Many activities, many events in Wichita, rely on Boeing's sponsorship. We need to find a replacement if Boeing decides not to continue that. Otherwise, I believe many programs will be running a budget deficit. Yeah, so, I don't know, I cannot singlehand carry that, it must take the whole group, maybe the entire city to sponsor that.

So yeah, that is something that we could be losing. How do you feel—what do you feel like Boeing's ultimate legacy in the city of Wichita will be. Let's say, I don't know, 30 or 40 years down the line, people look back at what Boeing, um, meant for the city of Wichita, what will their legacy be?

30:00

There was a movie said, 'Never say never,' right? Maybe some day Boeing will decide to come back to Wichita!

That's an interesting thought.

Yeah, because we, as I said, we have the best technology base, best aerospace workers here in Wichita. So, if they cannot find those kind of people to work for them somewhere else, maybe they will come back to Wichita.

Very good. Looking back on your time with Boeing, um, tell me how you feel, generally, about the time that you spent there.

It was a happy time. You know, I got what I want and I worked on things that I feel interested to do, and I accomplished a lot of projects that benefit Boeing. So, I really enjoyed my time with Boeing, yeah.

And, so, I'm not going to ask you to say anything bad about where you work now, but do you continue to enjoy your time at Spirit?

Yes, yes. Uh, after I became a Spirit employee, I worked, like, five years in a different division, I worked under the chief scientist office. We did a lot of advanced research. We tapped into the nanomaterial, tapped into the composite material, it was very interesting. And they just closed the chief scientist office last year because Dr. Peter Wu retired. So I'm now back to the manufacturing R&D group.

How long do you think you'll work?

It will be fine, it will be fine.

So you think you'll just stay till it's not fun anymore?

Hey, every day is a new day. Fun is always there. It's all how you look at it.

That's a good way to look at it.

Yeah, always look at the bright side, the positive side. Yeah. If there's nothing new, you go find new things for yourself!