

An Interview with
JOHN CULLINANE
OH 349

Conducted by Jeffrey R. Yost

On

29 July 2003

Boston, Massachusetts

Charles Babbage Institute
Center for the History of Information Processing
University of Minnesota, Minneapolis
Copyright 2004, Charles Babbage Institute

John Cullinane Interview

29 July 2003

Oral History 349

Abstract

Software products industry pioneer John Cullinane begins by discussing his education and his first jobs in computer operations and programming at Arthur D. Little, C-E-I-R, and Philip Hankins & Company. He relates how these experiences led him to form a software products firm, Cullinane Corporation, and raise venture capital. He discusses the firm's development and marketing of a number of new software products, including Culprit, Library Update System, EDP Auditor, and IDMS, and IDMSDC, and relates how the Cullinane Corporation transitioned from selling individual report generator programs to suites of data processing systems that included database software and other applications. Much of the interview focuses on the firm's evolving management strategy that led to its long-term financial success. Cullinane also discusses some problems occurred after he left the active management of the company, the sale of Cullinet (the firm's new name) to Computer Associates, and his subsequent business and philanthropic activities.

This oral history is conducted for the NSF-sponsored CBI Software History Project.

Yost: This is Jeffrey Yost of the Charles Babbage Institute and I'm here today with John Cullinane, in his office in Boston, Massachusetts.

Yost: John can you begin by giving a brief description of where you were born and where you grew up.

Cullinane: I was born, probably a couple miles from here, in Arlington, Massachusetts. My parents were immigrants; they came here in 1929 from Ireland. I had a traditional suburban background, and in regard to computers, I knew nothing about them. I was a student at Northeastern University, which was at the time a commuter college, it's a co-op in nature. And it was in that particular capacity that I got a job at Arthur D. Little in 1954. In 1955 they had one of the first commercially available computers, in the United States. It just happened to be located in the room right next to where I was physically located so I got a chance to see all these flashing lights, and all these buttons, and all that sort of thing. Computers in those days were viewed as "Electronic Brains". I remember the head of the finance department calling us all in and saying that when the computer came in everybody wouldn't get fired; with attrition, they just wouldn't be replaced. So, anyways, that would give you a sense of what it was like in the 50's. Then, when I graduated, they offered me a job to run the computer, so I had to learn to do all that on the fly. So that's how I learned what computers did; what punches in punch cards meant, and so on and so forth. That was my first introduction to computers.

Yost: Did you learn from others or a class?

Cullinane: No, it was all on the job training. They sent me to programming school and all that sort of thing. And then I was in a management training program with New England Telephone & Telegraph, and I saw an ad in the newspaper for sales people for a firm called C-E-I-R, The Corporation for Economic Industrial Research, which was the first computer services and software company to ever have a public offering. The stock came out at six in 1958, or '59 and went to ninety-six, and eventually went back to three. They hired me as a sales trainee and within a year I was making three times the amount of money that I had been making with New England Telephone and Telegraph. Then they made me the sales manager, and later, the Center Director. The Center was an extremely boldly run organization; it was unbelievably visionary. They had these ten Centers around the United States and these Stretch computers; but they ended up with IBM 7090s, and 7094s, that sort of thing. So the Boston Center was losing \$50,000 dollars a month. After they made me Center Director, I turned it around in a year from losing \$50,000 to making \$50,000. But then I decided to leave, and I went with a firm on an equity basis, a firm called Philip Hankins & Company They were eventually acquired by Wang Labs, and they did traditional consulting. It was there that I got the idea to treat software as a product. When I joined them there were seventeen people; classic software programming going on. I was a vice-president of marketing or sales, so I had to figure out how to make something out of these seventeen people. I looked at one person's background, he had some payroll background; I went to State Street Bank in downtown

Boston, which still exists, and I knew the vice-president of information systems. He wanted a design of a generalized payroll system. He wanted the bank to get into computer services, so we designed a payroll system. Then I got another contract to design an implementation for \$9,000 dollars for Industrial National Bank in Rhode Island, which is now Fleet. Then we got one for \$35,000 from Marine Midland Banks in Buffalo. And then we got a call from a bank in New Jersey, First National State Bank of New Jersey. They were interested in a generalized payroll system, and it turned out they had exactly the same configuration, computer wise, a GE 415 six tape system, as did Marine Midland Banks. So the thought naturally occurred to me, why don't we sell them the one we just finished. Then the question arose of who owns it – you have to remember that in all my experiences you're going to find that I'm doing things at a time when they've never been done before. I had to figure out how to do all this. I just used common sense. So I said, my feeling is that Marine Midland owns it, but let's do a deal with them so that we could sell the product and pay them a royalty; sell the product at \$20,000 dollars and pay them a royalty of \$5,000 dollars. So we sold the system to the First National State Bank of New Jersey for \$20,000 dollars. They were up and running payrolls in two weeks. They had a much better system than they ever imagined they could get for \$20,000 dollars, and they were so pleased they paid the invoice right away. I mean, in two weeks you get a \$20,000 dollar sale and it's mostly profit, and it had a great impact on me: this is the way to do business. But I wasn't prepared at that moment in time because I didn't have the confidence and so forth to go out and form a company on my own.

Yost: Do you remember what year this was?

Cullinane: That would have been in the 1961 to 1964 time-frame. The C-E-I-R business would have been 1961 to 1964, and Philip Hankins was 1964 to 1966. Then I went with a firm called Auerbach Corporation which is a famous consulting firm.

Yost: We actually have their records at CBI.

Cullinane: Oh do you? Isaac Auerbach, was in high level consulting, database, and all that. I didn't know anything about that end of the business. I was recruited to open up the Boston office of Auerbach Corporation. We were budgeted to lose \$20,000 dollars in the first six months; we made \$20,000 profit in six months – a swing of \$40,000. So I was selected as an outstanding member of Auerbach, and I was given the performance award. Isaac Auerbach came to see me, pleased to give me the award – it was \$500, payable over three years. Well, I guess there's no future here, with Isaac owning 99% of the equity and that was the way it was going to be. I had been thinking about forming a company around software as a product. That's what pushed me over the line. If he would have come and given me some equity and a good bonus, I would still be there, and they might still be in business, if I could be immodest, because you don't drive good people away; lots of other people had the same experience that I did. So that's when I started to think about forming my own company and specializing in software. The concept is: we're going acquire software from institutions like banks that were in the business of selling software, re-package and resell them. I marched down that particular road and put together a proposal. I went to Wall Street with someone I knew who had been hugely successful

with a previous company, so anything that he was interested in investing in, these other people were also. They didn't know what I was talking about, they didn't know what software was - it was strictly an idea. I raised \$400,000 dollars for 40% of the equity in 1968 and I got the money probably in November of 1968. And that's when I formed Cullinane Corporation. So that's kind of a brief summary leading up to that.

As I had worked for these companies – like Hankins – they were run by technical people who drove salespeople out. And C-E-I-R was run by sales types from IBM that drove the technical guys out. Why couldn't you have an organization that was both good technically and good from a marketing point of view? I didn't know it could be done, I was not a technician. It's now 1968 and I've got \$480,000, and there's all these checks on the table from Wall Street – of course they take their piece, now it's down to \$450,000 – now I have to deliver on the promise.

Yost: Prior to seeking the venture capital, you got non-binding letters?

Cullinane: Yes, this is critically important, and to this day, I've used this concept so many times since then. I went to various organizations, like the vice-president of information systems at State Street Bank, and said look, If software were available or if a company was available that could sell products, would you be interested in this. And if so, would you provide me with a non-binding letter of intent on your stationary that you, indeed, would be interested in this product. And the Vice President of State Street did, as well as four others, on their letter head. It's a test – is so-and-so nervous or afraid to put their

corporate name on their letter? Then maybe... It's very, very important to go out and test the marketplace with ideas. It's very easy in a room like this to think that an idea is great. But when you're in the marketplace there's always incredible competition, you have to test it somehow. If you can get these people to provide these non-binding letters of intent and put those as part of the financial proposal, that is the most important thing in the financial package. To this day, I'm promoting that concept, and I've used that non-binding letter of intent in direct sales and software products and I can guarantee you that I take 80% of them to the bank.. When someone signs that letter of intent, it's a psychological going over the line. So that was just a technique that worked out, and has to this day.

Yost: Were you aware of other software products on the market in the mid-to-late 1960's? In 1965 ADR came out with Autoflow; in 1967 Informatics came out with MARK IV. Were these influential to you?

Cullinane: I was very, very much aware of them. There was another company that had a product was a competitor to Autoflow, the name escapes me. Then there was another person, I think by the name of Harris, who had another product which I think still exists. Yes, I was very aware, but all of these firms, as I remember it, were in the consulting business. They had this attachment. They got into products as a fall out of what they really liked to do: consulting. The software business was something they didn't quite understand. When I founded Cullinane Corporation it was to specialize in software as a product exclusively; we were not in the consulting business. When I talked to people they

said, “Oh this can’t be done, others have tried it and failed and you will too.” That went on for a long time until we finally turned the corner. I used to go to meetings at IDC, and I’d be a speaker on a panel, and I’d take tremendous flack from people at IDC or other people on the panels about software as a product. They had tried it and failed. At that time, the jury was out; I didn’t know whether you could do it or not, and my money was running out, and it looked to me that I was going to be another casualty.

Yost: Were you battling the concept that software was free and did user groups like Share contribute to this notion?

Cullinane: There was certainly an element of Share and so on, because people would say, “Well, I can get product X or product Y.” But I don’t think anybody ever got a product out of Share that worked. It was just too much trouble. It was more a case of trying to sort through these early years of the company; come up with a product that was good enough that you could sell it. That was the thing we struggled with initially. Some of the products we acquired from the banks were second tier in terms of quality; they weren’t state of the art. They might have worked, but so what. When you’re in competition with the best of the breed it’s like a poker game, being second is not very rewarding. So we had to struggle through that. We had a couple technical people and they developed a product, our own product. Our first products, were very modest initially.

Yost: And what product was that?

Cullinane: A program called Program Library Update System. It was, believe it or not, a tape version of a program librarian. We sold that and generated sales and so forth. But in the final analysis, we made people aware that they had this problem and that there was a solution because everybody in their computer centers had these decks of cards representing the company's programs that a fire could totally destroy. Then what people decided was what they really wanted was a disk version. We didn't have one, but Pansophic did. I think we did more to help Pansophic succeed than anybody. Because we created this market that they responded to very well.

Yost: In 1969 IBM announced its unbundling decision to be implemented the following year. What impact did this have on you and your idea of the software business? How did it define or redefine opportunities for software products?

Cullinane: There's a sort of two-tier answer to that question. One, is that it sort of legitimized the business; yes, indeed, this was something now automatic- the message came from IBM that buying software as a product separate from hardware is a reasonable and legitimate thing to do. But, you still have to have the products to sell to them. Then we did a disk version of this program Library Update System, that we could store in one-disk pack, the same number of programs IBM would require three. It's that simple. Because they left all the spaces in the programming- because they were in the business of selling hardware. So having efficient software was part of the bargain. So those were our first steps. And then our second product, developed by the same people, was a report generator called Culprit. Which was, at the time, load and go. It turned out very good and

fast. But it lacked certain capabilities and that was a problem. So we're sorting down to a point where the bleeding is less, in terms of losing money, but it's all still fatal. I had to do some dramatic things. I think we had nine people, and I had to cut back from nine people to five.

Yost: Do you remember what year this was?

Cullinane: It might have been the Fall of 1970 or 1971.

Yost: So this is a time when there's a major recession.

Cullinane: Oh yes, to compound the problem. Because in 1969, it was similar to what happened to the e-commerce business a couple years ago. Stocks plummeted. No money. Time-sharing of that era, was what e-commerce was of the recent era. They poured money into time-sharing companies and the whole thing was a disaster. So everything shut down in 1969 and there was no money available, no refunding, you're on your own, and you had to figure your way out of this thing. I don't want to over dramatize it, but that's the way it was. And I thought we were going under in six months. So I had to cut staff from nine people to five, including the people who developed the product Culprit and the Program Library System. I ended up with the people that felt we were in business to satisfy the needs of our clients. I had these other technicians who wanted to do things their way. The Culprit lacked a very critical capability called file matching, most people didn't know how to write a program to do file matching. It turned out to be more efficient

with five people – this is the theory of unanticipated results again – we were more efficient with five people than we were with nine people. Because we all pulled together, and we added these capabilities to Culprit, and so on. Before I did the cut back I came up with a new version of Culprit – and this is what was really critical to our success. I noticed that some of our customers were using Culprit for auditing purposes. I said, what does an audit software package do? I didn't know. I got a brochure from Arthur Anderson, looked down at the capabilities of the software, or what they should be, and it matched perfectly with what Culprit did. So I came up with a new version of Culprit called EDP Auditor; it was Culprit with a different name. I just changed the name of the documentation of Culprit. But we also came up with a library of audit routines that we wrote in Culprit, statistical sampling, verification notices, and that kind of stuff. And I also created an EDP users group, the first ever. I knew these guys didn't know how to do... they like to tie to each other. So I put together an EDP group; the first meeting we had eighty people. We also provided them separate trainings, longer, more detailed. We also provided them separate technical support, independent of their data processing. So when they are going down to the assistant programmers, the assistant programmers couldn't blow them away. We could tell them that the guy was full of bull, they should be able to get access. So we gave them something very important, independence of the data processor; we gave them integrity of the audit. All of that gave us another product that we sold to banks and other financial organizations, but through a different window. And so we would sell to the auditor department this product for \$15,000, and then they would produce results so impressive that the chief financial officers would be saying to the data processing guys, "How come these guys in auditing can do in three days what you guys

take three months to do? What's the story?" And they would so embarrass the data processing department that they would get the Culprit version. So what we couldn't sell many of at \$10,000 we were now selling a lot of at \$20,000. So it's really as simple as that. But that's how we turned the corner. And now by 1972, we're making money.

Yost: Are you selling on a national basis or is there a large geographical concentration on the East Coast?

Cullinane: Oh no, we're selling on a national basis, actually international. But we still only have fifteen people. And we develop versions of Culprit, EDP Auditor with access database management systems like IDMS and stuff like that. We were in business to satisfy the needs of our customers. If someone wanted something, we put it in the contract as an extension of a product, things like that. But most importantly I also created - which I think no question was a first - a mandatory annual support fee. I just used 10 percent, but a lot of people eventually... In the days when I started you had optional maintenance: you got a product for \$20,000 and if you wanted maintenance you signed up for that. But maintenance was bug-fix. I said, no, we're not, bug-fixing is just one component; it's seven days a week, 24 hours a day job. There's user group meetings, there's upgrades, and so on. And I said it a thousand times that any purchase of a software product was a great insurance investment, this annual support fee, because what you wanted was a company in business that would provide you with support. I say this unequivocally, when I joined the software industry, it had more the reputation of the guys in the 60's who had traditional programming services companies: open contracts,

promised more than they could deliver, under-priced, all that stuff. So the industry had a terrible reputation of being populated as a bunch of fly-by-night operators. So coming in - focusing on customers today is a way of life for a lot of companies, but that's something the American industries had to re-learn in the 80's and 90's. But in the software business in the 60's, wow. Our focus on providing great support and training and all that. So one of our competitors Frank Dodge would refer to our customer basis as a cult, and that we earned. So that anything we came down the pike with, they were interested in buying, they knew. Any letter I would get from someone complaining I would call that person; the guy would be shocked that I, President Cullinane would actually be calling. I would set in motion this necessary response by going down and talking to the head of support. Then sometimes a couple weeks would go by and I would get another call, and I'd say, "Oh God, don't tell me we didn't follow through on this." And it was just the guy calling to thank me, stating that everything was running so well, etc. Well, when that guy would move onto his next job, and the issue would come up to define a database or whatever, we had a lock on that business. Simple, but we did it really well.

Yost: You saw it as the service companies, hardware producers, and smaller companies that contributed to the industry's poor reputation, or was it other software product firms?

Cullinane: The manufacturer's themselves had a terrible record when it came to software. Software was going to go away. Software was going to be on chips someday. They were in the business of selling hardware. They delivered a Honeywell 800 to a customer, American Mutual Insurance, and it sat in a glass room for a year while Computer Science

Corp. was developing the fat compiler; they were a year late. That will give you an idea of the kind of history of this stuff. There's a million of those examples because people were doing stuff that was new; they'd never done this stuff before; they never appreciated the complexity of doing something like that.

Yost: In e-mail correspondence I had with you, you mentioned that you were not heavily involved with ADAPSO, and that this organization perhaps saw the Cullinane Corporation as an outsider. Can you speak to that issue?

Cullinane: ADAPSO had its evolution as a computer services company. C-E-I-R was a big part of that. There was a software section of ADAPSO. ADAPSO wasn't software. So I didn't have a high regard for ADAPSO to begin with based on the fact that they were computer services. I always felt that in the early days it was more like a little insider group. I didn't travel at all, because I didn't have to, so I wasn't going to meetings like this and socializing with the guys in my industry. One of the few times I did, I enjoyed it and I made friends; I was just in the business of staying alive. The other thing is, we seemed to be up-front on a lot of this stuff on what we were doing. So why go to a bunch of competitors and share your ideas, because you're going to get them right back at you. I went to one, way back when, up in Lake Forest. That's where I met Joe Piscopo, and Pansophic was just starting, and we were just starting – that must have been in 1969 or something like that. ADAPSO was always trying to get me to join over the years. It was nothing personal, It was more like John Imlay and those guys, it was their little thing. I was really shocked once; I was asked to speak at a San Francisco ADAPSO meeting, and

the guy that introduced me was a guy that replaced Piscopo. He said people were afraid of Cullinane. It was really shocking, but in retrospect we started out in report generator, then we got into database, then we got into integrated database, then we got into applications. And if you think about it from their perspective, the competitors think of our customer base being a cult, we acquired McCormack & Dodge's general ledger system and accounts payable system and we wrote it, we acquired MRP 2 system and we wrote that. So we, without even thinking about whom we were competing with and looking at it from their perspective, were becoming a real power house in software. We were a single source, you could buy it all from the Cullinane Corporation. To me it was just a natural evolution as we built all this, I never thought of the impact. So I was shocked to hear other companies' fear of us, but in retrospect I can understand where they're coming from.

Yost: What about the DPMA, was that an influential organization to Cullinane?

Cullinane: Not at all. Again, I go back to the 60's – DPMA was more guys that were on service bureaus. There were lots of service bureaus. So you wouldn't meet at a DPMA meetings, contemporaries of mine, you'd meet more at ADAPSO – there was a software subsection of ADAPSO right?

Yost: Right.

Cullinane: You'd meet more of your peers there than at DPMA. No, I don't ever remember being involved with DPMA, other than speaking. The guys that would be members of that would be directors of service bureaus or guys that ran computer centers. We'd sell to that group but I was not a member of it.

Yost: With EDP Auditor who were you primarily competing with?

Cullinane: In many cases we were selling against the Big Eight auditing firms who would say, "You should be using our audit software." But we were technically far superior to anything that they had to offer. It was more of marketing: getting in, getting access, demonstrating, all that kind of stuff. So it turned out that we had a powerful report generator built for doing lots of things in data processing. When you moved over into the audit world, the technical competition was much less. We had more powerful technical people. We understood database management systems and telecommunications and lots of issues like that which would have been hard for our competition.

Yost: Was your name and were your products widely known or did you spend a lot of time and effort and money in marketing?

Cullinane: Again, it's fifteen people, so one of the ways we did this was - The first advertising we ever did was a full page ad in the Wall Street Journal: "Why Re-invent the Software Wheel?" that was kind of announcing Cullinane Corporation, and it cost

\$30,000 dollars which was roughly 10 percent of the money we had in the bank. Think about if I had raised \$3 million dollars a month ago and just spent \$300,000 dollars on an ad, and you could understand the impact. But we ended up getting enough consulting business and related business out of that \$30,000 dollars to equal \$30,000 to pay for the ad. We kind of sent a message to the industry. But when we finally got to the product part of it, I figured the best way to bring some competent people in front of many people was to use the seminar approach; we used it extensively. We would have seminars on EDP Auditor and do demonstrations for them. And actually what we would do is have them fill out the forms that produce a report by team. During lunch we'd key punch the thing and produce the results for the afternoon. So it wasn't so much advertising – we'd go to bank conferences on systems and audit, a number of them. You'd get a booth, ten by ten, and that way we'd cut down on costs. I would lug this sign on to the airplane and they'd get mad and they'd put it in the hatch. And I'd show up at five minutes to 1:00pm at some bank automation conference in Miami and hang the sign on the post there and put out some brochures and stand there for two or three hours - incredibly boring day. I'd meet a few prospects and have a seminar while I was there. So it was sort of classic sale of software. And then go back and make a presentation and so on and so forth. But major pictures, well, EDP Auditor: we have a version for the audit department, we have a version for the data processing department; you don't have to buy two different systems, the same system will handle both requirements with separate support. It was a compelling argument. But we did compete with Informatics MARK IV and so forth.

Yost: When did you develop IDMS and can you describe its importance? Did that originate with General Electric?

Cullinane: It did. I was invited to speak to an ACM conference, I was on a board panel. And a month or two later I was on a plane with one of the panel members, and he said that he had recommended me to BF Goodrich. By that time I was not interested in selling other people's products; we had turned the corner with our own products. But I just follow up on things, so I called BF Goodrich. They said, "We hired this consulting firm in New York." They had just done a study on EDP Auditor software for somebody and they had recommended our product, so they knew us. So I said, "How come you never mentioned us to BF Goodrich?" And they said, "You don't know anything about databases." I said, "What are you talking about? I got guys that work for me that know a lot about databases." "O.K. Maybe" So that's how thin this thread is here. The more they looked at what we had to offer, our past experience, the more they liked what we could bring to the table. So they recommended to BF Goodrich that they engage us to sell their IDMS. Which, quite interestingly, goes right back to the original intent of Cullinane Corporation, to re-package it. So this was a bet-your-company decision. So I had a couple of guys go look at it. One knew Cincom's TOTAL and one knew IMS. They said, "Gee this is a much better product, it's really good." So it was a bet-your-company decision on my part because here we are going to be with IBM and Cincom and others, with fifteen people and a database. We acquired that March of 1972 and we had to work on it for nine months in order to integrate it with IDMS and develop a generalized communications interface and come up to speed. I think that we had committed to sell twenty of them in

the first year. I think by November we hadn't sold any, but by December we had sold twenty or more. If you want to go back to the history of IDMS, it has this kind of circuitous route. It originally was developed at GE as IDS. GE sold a computer to BF Goodrich with IDS on it, and IBM sold a 360 to BF Goodrich. Somehow as part of the deal, BF Goodrich got rights to convert it to another computer of IBM and add whatever enhancements it wanted. So that's what they did, and they in turn named it IDMS. It wasn't like they just took this product called IDS and that was it. They were on the Codasyl committee, and they added lots of good things to it in the process. And they also used it extensively, so it was an extremely solid system. I think when we got it, it had about 30 thousand lines of code; by the time we finished, it was like 3 million. We spent millions and millions on enhancement of products. The beauty of IDMS was that it was absolutely proven, it would run for months without a bug; so that was extremely helpful. We had to take it from there: people at different teleprocessing like CICS, we had to have a way of interfacing with those, so we came up with this concept of generalized communications interface. I saw it as a product, like a Coca-Cola machine, a database where you could add different products with it, including our Reports Generator and the EDP Auditor Software. And then we had developed an online query system, and our own communications capability, IDMSDC, our applications development facility. Once we had developed the applications development facility, then we were able to acquire these applications and re-write them and make them state-of-the-art online. So we started out as a little \$1500 product company and then by the mid-80's you could buy a fully integrated product line for \$3.5 million dollars. Just to give you an idea of how far we'd come.

Yost: By that time were most of your customers buying a series of products?

Cullinane: Every single one of them were buying, in essence, the complete range of what we had. We were becoming a one-stop shop. We bit off an awful lot, and we had some problems getting them all done, but by and large they all worked and worked extremely well.

Yost: The Conference on Data Systems Languages Committee (CODASYL) came out with a database standard in the middle 70's. Was IDMS the first product that responded to this standard, and how important was that?

Cullinane: That's absolutely critically important at the time because that's how we sold it. We used, again, the seminar approach. IDMS was the first CODASYL compliant database management system for IBM computers. We advertised: we would set up a seminar in New York City at the Harvard Club; there'd be seventy people in the room and maybe ten people would be interested in this, and maybe two or three of those would end up buying it. That was enough to keep us growing at a rate of 50 percent a year, both in sales and profits through the 70's. So that was initially an important selling component that we focused on.

Yost: Were other companies growing as quickly? I know some software product companies grew rapidly but it doesn't seem to me that there were others that, over time, continued to grow as rapidly as you were.

Cullinane: Well we continued to do that for thirteen years in a row, in both sales and profits. Yet the volume actually hadn't become that enormous; you have to remember we are starting to make money at \$500,000 dollars in sales, and to me that was really big, and then you get to a million, wow. You remember horizons and survival, and all those kinds of things – it was a different era then in terms of survival and making money, and so on. We went public in 1978 and I think we had sales at \$8 million. So you can see, even though it's not huge by today's standards.

Yost: When the IBM System/360 came out, Did IDMS have an advantage over Cincom's Total?

Cullinane: No, I don't think so. Cincom was way ahead of us in the database zone. When we came into the market, there were about five other database companies in there. So for us to – fifteen people to take on database. And you got Cincom, IBM, and you got other people, and so on. So we were kind of last in. We had encountered lots of marketing theories, we just didn't know enough I guess. Cincom seemed to sit on their success. IDMS turned out to be a much better product than we had a right to expect. It was a better product from what the customers were saying. But, also, we had this focus of doing what the customer wanted, and being responsive. Whereas Cincom kind of had this, "We're

IBM” attitude. So we were able to take advantage of that without realizing it. Our first battle was just to get on the list of people being evaluated. They were evaluating five companies. If we could ever get on that list of five, I said, you’d find us moving up the ladder. Nevertheless, we still lost a lot of business to IBM. I’m amazed that as many people, huge companies, went with this little fifteen person software company, in competition head-to-head with IBM. In retrospect it was just amazing.

Yost: Can you describe the decision to take your firm public, and what you saw as the opportunities and risks of doing so at the time.

Cullinane: My company was founded on the premise of going public. We had investors that owned 40 percent of the company, that was always the potential payback for them and for myself. We were in business to make money, it wasn’t a religion. So the opportunity to go public, we had to take advantage of that if it did arise. It turned out one of our board members was very knowledgeable in the business: he was fairly close with Hambrecht & Quist. Six months earlier, December of 1977, we were the first software company that Greylock Management ever invested in. We were the first software company that Hambrecht & Quist ever took public. And there was great interest in the industry; because we were the first software products company that ever went public, so what we did and how we did it was going to set the tone for the others that that would be in the wings in the years to come. So I let Greylock buy some shares in December of 1977 because I knew it was a club; Hambrecht & Quist would take the company public and these other institutions would look to see who was invested; they just did this, it was

a way of life; they'd have you out making presentations and so on. We did the road show, which was fascinating in itself because I had never done anything like that before, and I remember being in San Francisco in the Board room of the Bank of America – well it's more than a board room, it's like the 52nd story under these huge plate glass windows and you could look down over the Golden Gate Bridge and the fog, you could see Alcatraz. So we went public in August of 1978. And the stock, you note, was at 20 dollars per share and went to 28. Then a couple months later it was down to 13. But the critical moment was in February: IBM announced that they had a new computer, the 4300 Series, and IDMS didn't run on it, and that all IBM applications in the future would be based on DL-1. Therefore, every prospect, every customer, is going to be out of the mainstream of IBM application development in the future. This was big problem,. We'd only been public two quarters, and they were just hitting us right between the eyes. I've got a huge, problem! Fiscal year ends in April, and I have to move really, really fast. First of all we got IDMS running on the 4300 Series in one day, one set of instructions. I remember so clearly going down to New Jersey with Bob Goldman, who was my Chief Technical Officer at the time, meeting with customers and prospects. It became obvious that we had to do something with IDMS and DL-1. So we were committed to create an IMS escape facility. In other words, if IBM ever came along with applications based on IMS, we had interface that would allow any company to use those applications with IDMS. And then it was pouring rain that night, and I went to the Newark airport, and things were locked up in Boston. I said, "I'm not going to sit in this plane, Bob do you want to come with me?" Bob says, no "I'll stay here." So I rented a car and drove home. I don't remember driving from Newark to New Haven, literally, I was thinking so hard. And then it hit me in New

Haven: What's the difference between IDMS and IMS? We created this thing called Active Data Dictionary in response to our customer's needs. So what I was going to do was move the competitive factors from database to the dictionary. I said, that was the solution. So I get back home and we introduced this new release of IDMS, we described the active dictionary-driven database management system. The first active dictionary database system. One thing IBM can't do, is that they can't lie. If their product doesn't do something, they can't say that it does it. So we changed the whole focus from database to the dictionary. Then I had seminars, and we were bringing in all our customers and prospects, and Bob Goldman and I would give these presentations of our IDMS dictionary-driven database management system. I remember we had to go to Fort Wayne, Indiana on some prospect and on the way out we put together a slide presentation- this is Wednesday- and then Thursday we gave it to our media guy, and Monday he had a slide presentation of IDMS: the dictionary-driven database management system. I sent copies out to all our regional managers, telling them that they were to use this presentation. A week or two later I called up a regional manger in Chicago, Andrew "Flip" Filipowski, and he said, "Well, we're using some of it..." I said, "Wait a minute, I didn't put this together so you could use some of it." And I put together the only "Thou Shalt" memo I've ever written: "Thou shalt use this presentation exactly the way it is." But what Bob Goldman and I did was we put our seminars together around the United States with customers and prospects and I again made this pitch using this slide presentation. It was so affective that all our sales people bought into it as well. And that's when I learned that selling a sales force sometimes is harder than selling a customer; it's very difficult to convince those people to do things differently. So to make a long story less long, we

were able to turn the situation around and unlock some of those prospects and we made our numbers on April 3rd. So we continued to grow at a rate of 50 percent in sales and earnings. That was no small accomplishment. We use to lose a lot to IBM, but now with this new pitch, we went from losing four-out-of-five to IBM to winning four-out-of-five against IBM. Because now we knew how to take IBM on. You go into an executive presentation and say, “The difference between our software and IBM’s is that ours all works together, it’s all driven by the dictionary, security issues, and all that.” They’d say, “You mean to say that IBM’s doesn’t?” and I’d say “No, just ask them when they come in.” So when IBM would come in they’d say, “Is your software dictionary-driven?” and they’d say, “No.”, “You’re saying it doesn’t work together?”, “No.” In other words, we would give them the ammunition. IBM just made us better, survival of the fittest, necessity is the mother of invention, or whatever you want to call it. But that’s a very defining moment. We go from a nice little software company doing very well on the fringes, to now taking on IBM head-to-head, and doing it extremely well. At the same time we’re fighting wars with Cincom and Adabase – because Adabase is a different product, they’re focusing on queries. IDMS is really a transaction oriented, run your business kind of network, high performance system. It’s not originally designed for queries. But we’re always overlapping.

Yost: What prevented IBM from developing a dictionary management system? Was it arrogance?

Cullinane: We developed a dictionary, we used IDMS as the database manager for the data dictionary, which was a very smart thing to do, and we did it in six months and it was hugely successful. I don't know why... I had gotten calls about dictionary from some of our customers and prospects. I had brought up the dictionary to our staff, they said, "Oh no we don't have time to do that. We have other things..." Well, I figured a way around it. So I put a deal together with Arthur D. Little. So we had them pitch this dictionary, which was a passive dictionary, to our customer base. You could tell there wasn't a lot of interest. So then we talked about the concept of an active data dictionary. So now you have a couple hundred people in the room and when you asked how many people want a dictionary, everybody raised their hand; and when you ask how many people want an active dictionary, a hundred and eighty people raised their hand; and how many want a passive dictionary, twenty people raised their hand. To me, from a marketing point of view, that's a powerful, powerful message, and was a powerful message to all our staff. So it went right to the top of the list of things to do. It's amazing we did that thing, not just in six months, but in three months. I think, to this day, it's the most complicated IDMS application ever developed. If you look at the record types and so on, it's very complex, but it was on the foundation of this very solid database, so it all worked. So the IDMS DB and DC were now one product, even though we sold IDMS DC, it was really their protocols. And we could bring up a network in an hour, whereas with CICS, it would take you all day. So we produced, once again, and I suspect to this day, quite possibly the most sophisticated software in this regard, in the world; a smaller company with really outstanding technical people with the freedom to do what is necessary to be done based on what the market is dictating, and creating environments

where they see that. I was the agent of change in this; IBM didn't want to do a dictionary. I did this deal to get around them, but in the process of presenting it you could see that the audience definitely preferred one approach versus the other, and they were convinced. I couldn't convince them but the customers could; that's being customer focused. In a big company, that whole process, how important it is, probably wouldn't have taken place.

Yost: When you were marketing this, to what level of the company were you taking it?

Cullinane: That's a very interesting question, because if you go back to our earliest day in our program library update, you're talking to technicians, systems analysts, and all that kind of stuff. In those years of Culprit and EDP Auditor, you'd sell it to the head of auditing or some miniature programming. As years went by we went walking up the executive ladder. And I can remember clearly, to this day, we're now getting to the point where we're selling a million dollars worth of software. And the director of data processing, CIO, whatever you want to call him, he couldn't make that decision to save his soul. So you see all this great interest and then, suddenly, nothing. I once said to one of these guys, "Do you think the CEO of your company would be willing to come and listen to a presentation by me on information strategies, information technology of the 80's and 90's?" He said, "Yes, I think so." Well, great, I'll come in and it will be a CEO to CEO presentation, so I won't be using all the vernacular of the computer nerds. And so that's the first time it happened, and then I invited other people, and then it became a way of life.

Yost: Was this with IDMS or the dictionary-driven version?

Cullinane: The whole concept. In some cases it might be just strictly database, and in other cases it was database plus the applications like the MRP-2. Just say the deal was worth a million dollars; so what they would now do is fly into an airport, which is ten minutes from our offices, a limo would pick them up, and they'd arrive by ten. It was always the same, they didn't want to go to lunch or anything like that; they wanted to have a working lunch with sandwiches, and I had beautiful board room. Then I would come and give this pitch. I'd say things like, "This technology is very sophisticated, very good and really worth it. There are some things you could do, like screw it up. Make sure you put someone in charge that you don't know what else to do with, that's the way to really screw it up. But if this is really important, put somebody that's really good in charge of it and the implementation of all this technology will all go well and we'll support it." Somebody would say, "How much does this cost anyhow?" I'd say, "Oh, a million dollars." And they'd say, "Oh gee, sure" It was like nothing. These guys are running billion dollar ventures, a million dollars was like nothing to them. There was a time when we'd get like ten visits a day. Some of them were people who had problems and would want to come and see you. Other cases, it was a competitive situation; we ended up winning nine out of ten of those. People would come and they would be leaning our direction, then there would be people on the fence, and other people would be leaning in the other direction. So we moved up the executives all the way to the vice president - the president of engineering or CIO or vice president of finance. A lot of these people had jets, so they were in by ten out by two, it worked out great; it was so easy to do.

Yost: In 1983 you were the first software products company to be listed on the New York Stock Exchange.

Cullinane: That's correct.

Yost: Can you discuss the decision to be listed and how this impacted the company?

Cullinane: That was pretty simple, it's different today, but in those days your stock couldn't be purchased by a large segment of the community, mutual funds, pension funds, if you were not listed on the New York Stock Exchange. So by being on this very prestigious thing it opened up lots of buying power for your stock; that's the rationale for that.

Yost: Was it traded over the counter previously?

Cullinane: Yes, that's correct, it was NASDAQ. So that was a big deal. We were located next to a rail station on Route 128; we rented a club car, got all the board members and their wives, and took them to New York. The next day we went on the floor of the New York Stock Exchange. It was a new listing, there's a whole thing they go, and then the first trade of the day is made in your stock. So you see, in this case Cullinane, it goes across the world; somebody bought a hundred shares in London. So that was a big deal.

Yost: Was there a need to have a far greater focus on quarterly results after the company went on the NYSE? Can you describe how that changed management of the company?

Cullinane: It does change management, they don't like to admit it, but it does. And don't forget, we have twenty-nine quarters in a row where sales and earnings were in excess of 50 percent , and that's more than seven years. Just think if we did this now, it would be going until 2010, so that's a pretty long run. We did it every quarter. But the focus does get to, "are we meeting these numbers?" You start every quarter with a clean slate in the software products business. It's not like your in the service business and you're servicing someone and you're trying to increase sales by 10 percent or 5 percent, and you know you have a lock on a certain amount of business. In the software products business, you play this Russian roulette every quarter. Meeting those numbers becomes a way of life. And depending upon the quarters and time of year, some are easy and some you have too much business, and others you fighting to get it up to the last day. It's a tough row to hoe and it does change the focus, as the gain gets bigger and bigger.

Yost: Was it less enjoyable for you to run the company?

Cullinane: It's an awful way to run the business; you just get through one quarter and then two weeks later...it's no fun.

Yost: Around this time you also changed the name of the company. You were beginning to scale back on your involvement?

Cullinane: You always have official rationale of why you do things, and there's probably other things you never acknowledge or admit. I had been in the software business for almost 25 years, and I'd done it all. Also I'd read that if entrepreneurs stay around too long they run into trouble. So that's what I did, I made a guy president and I became Chairman of the Board, and I changed the name from Cullinane to Cullinet, because I wanted to re-capture my name. I didn't want someone else in control of it with my name on it in the years to come that I didn't have any influence over. I thought, "net" because everything was going to work together in the future, I wasn't thinking "Internet" per-se. But intuitively I could see that we were linking our customers, we could do it all.

Yost: It was the networking together of databases?

Cullinane: Yes, exactly. I would say that at that point in time I made a big mistake; and that is, when you're either in or you're out – when you sort of hop in ... If I had to do it over again I would have leaped out entirely and sold all the shares like Mitch Kapor did. I'd be wealthier today, and I wouldn't have had to come back in the company eventually. Some people would say, "Well if he had left it would have been better." So, I don't know, you can get different views on that. But since it's my view, I have control in this moment.

Yost: Was it in 1983 that you did a pre-announcement of a product for the first time?

What was that in response to?

Cullinane: I think what's really happening around this time is all of a sudden, Cullinet software – people have become so aware of it. So now we've become a force like Microsoft, and now we've got all this PR attention; we've crossed the line, whatever that line is. So I didn't see it as pre-announcement or any of that jazz. I'm trying to think of it from the perspective of other people - to me we were feeling heat from the relational database side, and we felt we had to do something dramatic. I don't know whether to call it pre-announcement or what, but we came up with this relational version of IDMS. And then we had this very aggressive marketing campaign which said it was the end of the hardware era and now we're in the software era. And also we get to linking to the personal computer and our relationship with Apple. So we had all the stuff put together. So we had this big announcement and we had these big ads, and we had briefed all our major customers on what it is we were doing, but confidentially and I guess no one leaked. So we went down and we had this teleconference; we had ten cities, like three thousand people, It was a big deal, and we made the whole pitch. On a positive side, it held the market for two years; we continued to grow at 50 percent a year, profits and earnings for two years after that. But that then set in motion lots of other negative things that we may or may not have handled well. It's, again, having one foot in and one foot out. It's getting off track. We lost some of our good senior people, that group that was like an internal sounding board. For almost ten years we hadn't made a mistake; we 'd done everything right. Then all of a sudden we're doing stuff, that's more market driven than anything, in order to maintain this growth rate. That's the best way I can describe it.

Yost: Was it in response to being late to the relational modeling?

Cullinane: Oh, I think so. Relational and SQL, all those issues were extremely easy to solve in retrospect. Why we didn't is still a mystery. Because people were asking me about SQL and there'd be meetings, and top people were there. There were easy answers, why didn't we just... We had historically out-positioned the competition. I use to think about this all the time. If you looked at our record, you'd have to do this every two years. They were just starting to catch up with you and then you'd put them on the defense again. When I finally got into it down the road, I met with our Chief Technical person, and the fact of the matter is that we'd fallen back into the same crowd that almost drove us out of business initially. And every single company, I don't care if it's IBM or Wang or a thousand other high-tech companies that were successful at one time, eventually people get into a mode of building technology the way *they* feel the customer would like it; this is what the customer wants to buy. That's why we almost went out of business, way back when, with Culprit; because we weren't adding the features, like file-matching, that the customers wanted. And when I got rid of those people and replaced them with those that cared about the customer's needs, the company eventually took off. Here, we fell back into the same trap: you had people who loved IDMS, it was their baby... but there were solutions; the issues of open system architecture, and SQL and COBOL generators, and anything you want, and getting anybody the right to use our applications with DL-1... There were very good and easy answers to these issues. We'd still be in business today if we'd followed that track. If you let enough time go by, you put yourself into a bind, and then I made some bad management decisions as well.

Yost: So technically, taking IDMS, converting it to a relational model wasn't as big a deal?

Cullinane: I don't think so. I think what was a bigger marketing deal was ...we could have had IDMS, and we eventually did require an really advanced relational database management system. There were lots of strategic moves that we could have made without getting ourselves involved over whether IDMS was relational or not with Edger Codd and all those guys. That's really bad marketing strategy. And part of it has its origins in IDMS/R and that announcement, but these things you can't really separate them out; there's an interrelationship. Then eventually, again, I was on my way out, and I brought this management team in and we had \$50 million dollars in the bank, and they burned that acquiring companies that weren't very good, and all the rest of it. So that's a whole new subject. In the course of Cullinane Corporation getting from where it was back in 68's to the 80's ... thousands and thousands of software companies disappeared during all of that time for similar reasons, or reasons they couldn't cope with in the marketplace. It's kind of easy in retrospect; I think we would have had to take a hit on the numbers and all that kind of stuff, our value would have dropped dramatically, but we would have worked our way back. Our software is still being used all over the place.

Yost: With the pre-announcement was there any sense of using IBM's tactics against them? They have been criticized by many for pre- announcing of products and have faced litigation in part over pre-announcements.

Cullinane: I really think that the pre-announcement that was something that was more of a press thing. If you looked at exactly where we were and what we had... I mean, what is IDMS/R? IDMS/R is another product, it's just a relational extension to IDMS. IDMS may have had 3 million lines of code, the IDMS/R maybe had ten thousand lines of code; it's just an added feature. It's not like coming out and announcing something where it isn't even there, and you're going to deliver it two years from now, or not at all. You could demonstrate all that stuff that had to do with the personal computer, if I remember correctly. The pre-announcement kind of rankles me a little, because to say that we are adding relational capabilities to a network database management system that has this fully integrated product line linked out, all these applications – we would have been better off announcing the sequel. Let me ask, if we were introducing the sequel, would that be a pre-announcement?

Yost: No.

Cullinane: Well, to me, sequel and relational, I don't see any difference.

Yost: What were the fundamental challenges as the industry starts to shift towards personal computers?

Cullinane: I think it's really fascinating to witness that era taking place because historically the end user had been blocked out of the computer revolution; it was main-

frame driven, IBM, transaction-processing, IDMS, it was all that stuff. There had been this incredible demand for people getting information out of this so they could run their businesses; knowing that they had a problem and trying to take corrective action. So, going back to the EDP Auditor days: how come these auditors can do something in three days and you guys in data processing, it takes you three months. So now, all of a sudden, the personal computer comes on the scene and people can do their own thing. In some cases they have their own computer terminal; in some cases as time goes by, they can get better access to information, and so forth. In a way it's like the Indians surrounding the wagons; the personal computer has unleashed all this energy that people like IBM and others don't control. The other thing is that the press understands personal computers. They don't understand Cullinane Corporation or IDMS. Wall Street doesn't write a single article on us, only trade publications. So then you get Lotus 1-2-3, and they had good promotional material - so this tremendous interest in software suddenly explodes on the scene in the early 80's. And guys like Gates, and the guy from Apple, [Steve Jobs] they're very good at promoting that bandwagon and being proud of it; they captured the imagination of the media. It's funny, because many people would think that software history started with Visicalc, or the personal computer., and anything that's gone on before that is...

Yost: Unfortunately, some people think it started with Microsoft.

Cullinane: Right, exactly. But that's why what you're doing is good, and I wondered if anybody would ever do it. So now you see, in this little personal computer you have

incredible power there, but at the same time, companies like Microsoft – people don't understand that the monopoly in software is far more pervasive and powerful than monopolies in other industries. And once people have their software, usually they hate to change. And I can see it in my own customer base, we just controlled those customers. So you get all these people, who maybe they're Microsoft software users, and they don't want to see Microsoft's dominant power get interrupted; then you get other people who compete with Microsoft, and they'd like them out of business in a second. So Microsoft is really the ladder-day IBM. It's like Gates read the history of IBM and said, 'That's how I'm going to do it.'

Yost: In the late 80's when Cullinet had some financial difficulties, IDMS was still a successful generator of revenue, wasn't it?

Cullinane: Yes, if you did an analysis, you'd find that IDMS is really generating revenue and making money and that the applications weren't. But then again, you'd say, well, would you have sold IDMS if you didn't have the applications? It's kind of a hard question. But you've got to remember that we have tremendous annual support revenue, 8 million a year.

Yost: These, in your opinion were solvable problems, but you still decided it best to sell the firm?

Cullinane: You get into trouble by making a number of mistakes. If I had done all the things I'd done later in 1986; if I had come in and made the appropriate cuts and re-focused and all that stuff, then we had 50 million dollars in the bank, and we would have suffered some down turns and then we would have turned things around and we would still be going today, I guess. But I didn't, I didn't want to do that, I was sick of doing it. Frankly, I didn't know how to cope with a problem where we were selling a database for \$500,000 and other people were selling it for \$50,000 and some for \$5,000 and others were down to \$500 dollars. How do you generate enough volume with a price reduction like that to meet whatever numbers? It just seemed impossible. So I brought some people in who had real extensive management background, but they burned the \$50 million dollars on bad investments. So then I had to come in in a real survival mode; kick them all out, sell the building for \$10 million dollars in one day, and buy some time, and refocus, and start to sell. We made some profits in the third quarter that year. It was extremely difficult. The people we brought increased the staff from 1700 to 2500; I brought it back to 1700. But what I should have done was cut it from 2500 to 1200. If you go through their whole track record in the 70's, I used to have cutbacks every two years, because you could see the expenses start to get out of hand. So this was not something new to me, but I certainly hated doing it. I was able to do a deal with Charlie Wang for \$300 million dollars. From the investors point of view, those people who held on to Wang's stock, it went up ten times. So that \$300 million dollars ended up \$3 billion. From an investor's point of view, it was a fantastic deal; I wish I held on to Wang's stock, I would be better off today financially. But I was so happy to do it and get it done, at the price I did; I sold the shares and I never really looked back. But we were

number one, and we did it, we did better than anybody else. We were number one in every category; certainly financially we were the most successful company any venture capitalist invested in from 1975 and 1985, according to *Forbes* magazine. But we were also number one in user satisfaction, customer support, documentation, training. And our employees, to this day, feel we were the best company ever in the software business. Look, I made everybody associated with the company very successful; we made a ton of money.

Yost: I noticed from your book a lot of individuals that were at your company went on to other companies.

Cullinane: Yes, and I have no skeletons in the closet, and I feel proud about that. IBM changes, all these things, it goes on. It's hard to do this year in and year out. If you're Gates and your whole life is that great, to me it was a business and not a religion. And if I had to do it over again, in '83 I would have said, "Here you are" to the people I put in charge, or I would have had the board members select somebody and then "Sianara", sold my stock and gone off and to do other things.

Yost: How successful was Computer Associates at integrating the assets of Cullinet's products?

Cullinane: I don't know how the hell CA survived and did what they did, it's beyond me. Because they have so many conflicting products and so many of everything. I must say

that in my meetings with Charlie Wang – and I met Charlie when he first was selling his “Sort –package” [CA-Sort], he came to see me in 1981. I had no problems with Charlie at all, he understood the software business as well as anybody I’ve ever met. He had a hands on small management team relative to the number of employees, and that’s probably why they were successful in a bottom-feeding way of taking companies that were in trouble and basically milking them to degree that they could. So he certainly made himself lots and lots of money with that process. That would be my view on Charlie. In terms of integrating, I don’t know. They came up with SQL – they did some of the obvious things that should have been done. But the software business is a missionary in many ways: it’s great when you are absolutely committed to the customers and the product, to mix them all up like he does is hard.

Yost: You have since devoted your energies to running a venture capital enterprise with a goal of assisting IT business development in Ireland. Can you discuss that a little bit?

Cullinane: Well, I’ve really done lots of different things. Investment in some companies is just not really a big thing, but an important thing. I’ve spent a lot of time creating the Boston Public Library Foundation, which was twelve years ago. It has now raised \$16 million dollars. A very difficult thing to do. I’ve spent a lot of time in promoting Irish high-tech in the United States, on a pro-bono basis. I’ve spent a lot of time advising Northern Ireland in how to create jobs and venture capital, with some success. I’ve helped the peace process; I spent a lot of time in the last couple years using Northern Ireland as a role model for peace in the Middle East. So if you look at what I’ve done in the past ten or

twelve years, a lot of it is using my entrepreneurial background experience on community related activities here in the city or in Ireland or in the Middle East. The venture capital side of it has really been opportunistic; I'm not a venture capitalist at all, but I have two three companies I invested in to help them. So a lot of what I do is using social capital: putting really good people together with really good people. So I found that I work as hard as I ever did with Cullinane Corporation but I get a great sense of satisfaction. That you can really impact something, a library, a piece of Northern Ireland, because you come in as an outsider, an entrepreneur – “ You can do this. This is how you do this, it's going to take five years. But whatever you do, this, this and this, will happen.” And to watch them do that, and thinking about Northern Ireland, it's wonderfully courageous people where lives are even at stake. The software industry has made it possible to have the money. Sometimes you can help with a contribution to help something move forward; and you don't have to go looking for it all the time, so you can act independently. If I sound more enthusiastic about that than selling software, well, it's on the software side, there was no book to tell me how to do something; I had no background in entrepreneurship. I just had to do it, stay alive and get to the next plateau. And it wasn't easy. I would close by saying, when I started out a lot of people said, “You know you gotta cut corners.” If you had to do business other than with integrity, it wasn't for me. As it turns out, integrity is a huge asset; it's not a burden, it's a huge asset. Everybody likes to do business with people who treat them fairly and honestly, or are there when they are in trouble and need help. And so it was always a great, great asset to us.

Yost: Your discussion of the CEO as Chief Customer Advocate, was very interesting.

Cullinane: Yes, it's just that it gets lost in the translation. And that book is interesting because if you read it carefully you'll find that I only mention people who were positive contributors. I try not to say anything negative about anybody. And I'm glad, because I can read it ten years later and it still applies. It's kind of one of those cult things, people keep calling me about it because it was only five thousand copies initially. Writing a book is hard work. I'd sell a hundred thousand shares of stock at \$25 dollars a piece and keep it all; you sell ten books at \$25 dollars and you get fifty bucks. Then you've got to sign all of them and give a speech too, it's hard work. So does that give you enough background?

Yost: Yes, this has been terrific, I greatly appreciate you taking the time to speak with me this morning.

Cullinane: Well, I'm glad we had two hours, and you came in early. It's kind of a long – believe me, it's very difficult starting a company. People come in with a really good idea. Good ideas are cheap. Bringing good ideas to fruition is very difficult. Getting to \$500,000 dollars of sales, that's a huge accomplishment for somebody starting with nothing. I'm going to go back to the history, getting to a million was much easier than getting to \$500,000. As you got bigger and bigger, it got easier. But staying alive when you have five people, and only \$50,000 in the bank, and trying to make the payroll... So, thanks.