



## **Oral History of David A. (Dave) Duffield**

Interviewed by:  
Luanne Johnson

Recorded: January 11, 2001  
Incline Village, Nevada

CHM Reference number: X5310.2009

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## David A. (Dave) Duffield

Conducted by Luanne Johnson

**Abstract:** David A. (Dave) Duffield talks about his experiences as a serial entrepreneur founding first Information Associates, then Integral Systems and then PeopleSoft. He describes how each firm was founded as a result of recognizing a market need and covers the process of transforming Integral Systems from a firm offering custom software services to a software product firm. He reviews the differences between a software services company and a software product company, including the need for upfront financing when starting a product company. He also talks about the importance of technology platforms as a driver in creating new and better software products.

[Editor's Note: This interview was conducted in Mr. Duffield's home in Incline Village, NV.]

### Personal Background

**Luanne Johnson:** Let's start by talking about your family background.

**David Duffield:** I was born in Cleveland, stayed there six months, then my folks moved to Ho-Ho-Kus, New Jersey, and I consider that my home.

**Johnson:** So you grew up in New Jersey.

**Duffield:** Grew up in northern New Jersey. And was very fortunate. I had super parents and the school system was excellent, so I received a good education. The town I grew up in was also a terrific place to be a kid.

**Johnson:** A small town?

**Duffield:** Very small town, where I could just walk to school or the ball field. I had a typical middle-class upbringing, and a bit of an entrepreneurial gene or two. I remember selling Christmas cards, growing and selling flowers – gladiolas – and charging too much for them, mowing lawns, you know, all the things that kids do.

But I attribute my foundation to my folks, the school system, and a good community with a strong police force.

**Johnson:** Were there entrepreneurs in your family?

**Duffield:** No, my dad was a pretty smart engineer. He suffered from a lack of a college degree that kept him from going forward. But he was good with his mind. So I would call him an entrepreneur of sorts. He built the first TV in our community, and our living room must have had the coolest sound system in the state.

**Johnson:** I'm finding that very few people did come from that kind of background. It's like the generation of people that started the software industry in the 1960s and 1970s came out of a corporate mentality background and just created a whole new thing. It's very interesting. Some people have doctors, lawyers, or other professionals in their background. There are some exceptions like Gary Durbin [founder of Tesseract] who grew up on a ranch so there was an entrepreneurial aspect to his background. But he's one of the rare ones.

So then you went to IBM?

**Duffield:** First I went to Cornell, which prepared me well for my adult life. I pitched for the baseball team, played in a band, and got a great education. Then I went on to IBM as a systems engineer. I was fortunate to be at a company like IBM with its focus on customers.

I remember seizing opportunities to do very entrepreneurial things at IBM. Like when the 1130 was introduced, I just embraced it personally and converted hundreds of programs from the 1620, its predecessor, to this new machine. I wound up receiving the highest IBM award for systems engineers for doing that. And, again, it was not because I was asked to do it. I just thought it was a good thing to do, a lot on my personal time.

**Johnson:** And IBM seemed to be quite open to that.

**Duffield:** Yes, particularly in the branch offices.

**Johnson:** Where were you located?

**Duffield:** In Rochester, New York. It was an excellent branch with outstanding management, especially David Kearns – I don't know if you remember him.

**Johnson:** Oh, sure. He went on to Xerox.

**Duffield:** He did. We had very good management.

### **Founding of Information Associates**

**Johnson:** So what made you decide to leave?

**Duffield:** I was working with local universities for IBM with the person who later became my partner at Information Associates. He was the salesman and I was the SE, consulting programmer, customer helper, and everything else. We got involved with another fellow at IBM who is a very, very bright mathematician. He had figured out a way to solve a problem most people don't think about – exam scheduling at the colleges. Every college has this end-of-term problem of scheduling all the students for their finals.

**Johnson:** Everybody has conflicts because all the students have different schedules.

**Duffield:** Exactly. Everybody has conflicts and you don't have an infinite number of days to schedule these things. So he figured out a way through math to build a conflict-free exam schedule and, which is the tricky part, doing it in the minimum number of time periods necessary. Anybody could do it if you had infinite time periods.

At the time it ran on a 7070 at the University of Rochester. We adapted it to PL/1 for the University's new System/360 and, being a programmer at heart, I did the front and back end, reading all this stuff (punched cards, eventually magnetic tape) in and then writing the report, but not any of the real calculations. He did all that.

We had limited success locally for our IBM customers, but I felt the product had broader appeal. So I decided, on my own, to promote this thing. I wrote a letter, made up a return postcard, got the book from CUMREC (College and University Machine Records Conference) with the names of all the college registrars and just flooded the market with these letters to see if people would be interested in it.

We got some responses, so I picked a few of them to follow up with. This was when I was still at IBM, but I'm giving my work week to IBM and on weekends, I'm writing these letters and doing all the follow-up.

**Johnson:** Typical dining room table operation.

**Duffield:** Exactly. I decided to spend my summer vacation in 1968 visiting these people to show them the reports, talk about how it worked, and see if they might be interested. Enough *were* interested, so I told my partner John Robinson, "I'm going to start this business. Would you be interested?" We were a very good team, and he did want to be involved, so we started

Information Associates. Its initial product – well, it wasn't a product, it was a service – was exam scheduling. I guess the first year we sold to maybe 20 or 30 colleges.

I was selling and providing the service in conjunction with the IBM mathematician. And John was in Rochester starting a body shop programming business where we and others would write code for dollars. While I was selling these exam-scheduling services, he was selling me as a programmer to the University of Rochester, and I wound up getting assigned to a project at the university to build a new payroll system from scratch.

So half my time was spent coding some of the programs for the payroll and half of it selling and servicing the customers for exam scheduling. Over time, the exam scheduling really never made any money, but it generated a good name for the company. What was successful was the Rochester payroll system. Around the time we were finishing up that payroll system, we got an RFP from Rutgers which had heard that we were working with higher education customers. They needed a payroll/personnel/budgeting system.

**Johnson:** Well, that's interesting. So even though the exam scheduling system didn't make any money itself, it established you in a market.

**Duffield:** Yes, in higher education. That's what our specialty had been at IBM.

**Johnson:** Okay.

**Duffield:** So our background was higher education, and exam scheduling created credibility. Then with this success with the University of Rochester payroll system, we had another product. So I responded to the RFP from Rutgers.

**Johnson:** And you're going back and forth at this point in time being the marketing guy and still doing programming.

**Duffield:** True.

**Johnson:** And my guess is that felt perfectly natural to you at the time.

**Duffield:** Absolutely.

**Johnson:** You didn't have any hesitation about getting out and doing the sales calls or any problem sitting down and creating the response to the RFP?

**Duffield:** No. I was a little intimidated by the RFPs at first. Before I got into business, I was never that good with English, writing in particular. But I worked hard at it, and to this day, I'm a stickler about grammar and one of the toughest editors I know. It has to be something you just want to do -- improving in critical areas to be a more well-rounded person.

Over time, I became less essential to the exam scheduling business. We brought in people to take over major responsibilities so I could focus on other things.

**Johnson:** Since that was a service, it was an ongoing account and you could bring somebody in to take over a particular set of accounts.

### **Founding of Integral Systems**

**Duffield:** Exactly. The guy we brought in did a fine job. A better job than I would have done.

So we were awarded the contract at Rutgers, and at the same time my partner and I had a falling out, for various reasons, and we both decided to go our own ways. At that point, we had nearly finished a financial accounting system for colleges and universities, so John remained in Rochester to market that system. It wound up being the most successful accounting system for colleges and universities and probably still is.

**Johnson:** So that product is still out there?

**Duffield:** Yes, it's still out there. But Information Associates was acquired by somebody -- I'm not sure who -- then MSA bought them.

**Johnson:** Oh, okay.

**Duffield:** I think John Robinson wound up being John Imlay's [CEO of MSA] right-hand person, particularly for higher ed. I believe MSA then sold it to SCT (Systems and Computer Technology), which more recently was acquired by SunGard.

So, anyway, we went our separate ways, and I took the university payroll system down to Rutgers. We worked out an arrangement where John and Information Associates would remain in the accounting and scheduling business, and I would retain the university payroll system. And we agreed not to get into each other's markets for a period of time.

**Johnson:** I assume you also had to work out all the legal arrangements with the university that you wrote the payroll system for.

**Duffield:** Correct.

**Johnson:** Did they expect to get royalties for your sales of the system?

**Duffield:** I don't think they ever viewed it as a software product. They viewed as a contract that we performed for them, which was typical in those days.

**Johnson:** Do you know where the InSci payroll came from?

**Duffield:** I don't.

**Johnson:** That was the one that Dale Learn [founder of InSci Systems] wrote as the internal payroll system for IBM. And InSci took it with IBM's blessing. When I found that out, I thought, boy, if you ever want to shine a spotlight on how little value IBM was putting on software at the time – this was in 1965 – consider the fact that they said, "Oh, sure, go ahead."

**Duffield:** There you go.

**Johnson:** Of course, InSci ended up rewriting it because a software product has such different requirements from a custom system, but it was certainly based on everything they had learned in designing the payroll for IBM

**Duffield:** Well, we ended up doing that with the Rutgers system too. I don't know how much the University was compensated for our use of the product because that was prior to my partner and I going our separate ways. But they were paid something, and we wound up re-writing the thing anyway. Part of it was good. Most of it wasn't. Plus it was payroll only, and Rutgers wanted a personnel and budgeting system too. Ironically, we ended up replacing both the University of Rochester's and Rutgers' systems with PeopleSoft's many years later.

So that's how Integral Systems got started. We formed it around the Rutgers University payroll, budgeting, and personnel system. And I moved to New Jersey.

**Johnson:** I think of Integral as a West Coast company.

**Duffield:** It was eventually. It was founded in Piscataway, New Jersey. But I'm a salesman and also a techie. I was at Rutgers for two years working on the project and simultaneously sold to two organizations in Philadelphia, a community college and the University of Pennsylvania. So I moved to the dorms at Penn...

**Johnson:** You did?



## Integral's Contract with the University of California

**Duffield:** ...and did that project for another year and a half. Then it was turned over to other Integral people. I next sold the system to the University of Utah, and my partner at Integral sold it to Colorado, so those were customers four and five. I moved to Utah for two years and did the project. He pretty much moved to Boulder. Then the University of California system sent out a bid for a nine-campus design. I did the sale there and won that, then moved to Walnut Creek, which is close to Berkeley. That's where we stayed.

**Johnson:** I remember that. I haven't thought about that in a long time, but I remember when that request for bid went out. That was when? 1976?

**Duffield:** Yes, 1976.

**Johnson:** That was before Bill Hixson joined me in my company, Argonaut Information Systems, but we were partners on several contracts, and he told me I should bid on that project. I felt it was too big a project for Argonaut to take on, but Integral couldn't have been much bigger than Argonaut at that point. You must have had to staff up pretty significantly when you won that contract.

**Duffield:** We did. We had a very talented lady on staff, and she and I basically did all the leg work for the projects. But, yes, that was a complex project. The design itself was tedious. We had to get all nine campuses to agree on something they'd never agreed to before. But finally, they all blessed the design, and we ultimately got the contract to make it happen.

**Johnson:** Those were separate phases? You first got hired to do the design aspect because of your background with other universities?

**Duffield:** Right. But we unintentionally made it overly complicated. One of our mistakes was trying to fight a political issue. The academics didn't want a bi-weekly payroll; they wanted a monthly payroll because that's the way that professionals traditionally got paid. But the bi-weekly payroll had the support of the administration and was the right thing to do. It was simplest administratively.

So we chose to fight that battle which, in retrospect, was the wrong thing to do. We should have just given them what they wanted. It could have been a much shorter project.

**Johnson:** How did you implement the system?

**Duffield:** We went campus by campus. That was the big thing. They wanted a common system for all the campuses but each campus was entitled to some customization.

**Johnson:** Did that include human resources too?

**Duffield:** Yes, some, but it was mostly a payroll system.

**Johnson:** Because what often gets political is the human resources stuff.

**Duffield:** True.

**Johnson:** And so where did it go from there? Integral at that point was doing big-scale projects on a contract basis.

**Duffield:** Yes, but it was more of a consulting relationship. Until maybe 1979 we didn't have a product. We also didn't have any documentation, except the custom manuals from each of the engagements.

**Johnson:** Oh that's interesting.

**Duffield:** Each university wrote their own.

**Johnson:** Okay.

**Duffield:** And we came in with the source code and changed it around and augmented it for new things, but you know, the user manual...

**Johnson:** Was produced by the user.

**Duffield:** Right. And so I decided in about 1979 that we needed to grow up and put together the documentation for a product.

**Johnson:** How did that differ in terms of how you sold that?

**Duffield:** It didn't differ much. It's just that now we had introduced maintenance responsibilities, right? We had no direct obligation for the system at the universities that were early customers after we turned it over to their programmers. We had a kernel, a pretty good one, but then it became the universities' own systems, and their people would work on it. It would become more the responsibility of their people than our people. But as of 1979, ongoing maintenance became more and more our responsibility.

Which wasn't too complicated. One nice thing about the higher education world is that their taxes and payrolls aren't as complex as organizations with offices in multiple locations.

**Johnson:** So did you realize immediately that you needed to start charging for maintenance when it became part of the whole offering? Some companies didn't initially charge for maintenance until they realized how much it was costing them to provide it.

**Duffield:** We knew we were going to charge ten percent, which was cheap by today's standards.

**Johnson:** Okay.

### **Integral Moves Into the Commercial Market**

**Duffield:** That's sort of the way Integral grew. The big event for Integral was when I decided that it was time to start addressing the commercial market. We were higher ed and we dabbled in city/local/state government, but not the big markets that MSA and InSci were in. So I started another company called Business Software. We used the Integral base and added a tax module and security capabilities, which is important for companies in a lot of different locations.

One of the first users was Rainier Bank in Seattle. They had the MSA payroll and InSci HR systems, and I came in with this new fancy online interactive system and wound up winning their business. (I also met, and fell in love with my wife Cheryl – but that's a different story.) Again, I'm back to doing demos, writing RFP responses, going to Seattle to make a presentation, and so forth. So this new company got going and wound up being larger than Integral within a couple of years' time. In terms of the revenues and number of employees.

**Johnson:** And this was a product-focused company?

**Duffield:** Yes, it started as a more product-focused company than Integral. That's correct. Now we were in with the heavy hitters, like MSA. I don't remember Tesseract at that point. The big competitors were InSci and MSA.

**Johnson:** The Tesseract system was very focused on the HR component, right?

**Duffield:** Very true. I think Tesseract became the tough competitor when DB2 really took off.

**Johnson:** I don't think MSA ever had much of an HR component.

**Duffield:** No, it was terrible. But the payroll was strong.

**Johnson:** What was the other company that had a payroll system. It started with a "C"?

**Duffield:** Cyborg. Yes, they were pretty good. Aimed at the smaller and mid-sized companies.

### **Integral Shifts from Services to Products**

**Duffield:** So anyway, BSC, Business Software, got rolling, and I turned Integral over to my partner from New Jersey. He's a very, very bright, hardworking, dedicated person, but he had close to zero personnel skills. So we parted ways, and I turned Integral over to another guy for a while. Then we wound collapsing the two organizations back together.

We standardized on the Business Software product because it now had everything the Integral product had plus a security system and the ability to handle all taxes which, you know, commercial organizations required. The result was that Integral was a formidable competitor in the commercial space and not just in higher education.

**Johnson:** And really a product company at this point?

**Duffield:** Yes, a software product company. Not like PeopleSoft or SAP or product companies today, but with a product focus.

**Johnson:** Well, that was the nature of software products in those days. If you could keep the amount of customization you had to do under 10%, it was pretty much a product.

**Duffield:** Very true.

**Johnson:** Okay, so there you are with Integral having shifted into a product sales environment, and then what happened?

**Duffield:** Integral became, from my perspective, a little too big and complicated. We just reached a plateau where we couldn't go any further without some major overhaul. I actually was a large part of the problem. There was a lot of in-fighting, and I just wasn't cut out for dealing with political issues. So I brought in my successor -- Brian Aspland, a senior executive from InSci.

Prior to that we took some venture capital money, which was a big event and both a good thing and a bad thing. A bad thing in the sense that the venture capital guy pushed the company toward a big shift in direction. But the good thing was that they bought a lot of my Integral stock, so I wound up with, I think it was \$4 million, which subsequently was indirectly used to get PeopleSoft off the ground.

Brian, for the first year, did a marvelous job. He got the company financially squared away. Dealt very well with the venture capital people. He killed a couple of projects that should have been killed that I didn't. And basically did a good job. He wanted me to hang in there, and I agreed to stay on as the head of new technologies. I had a little group of people, one to start with, and then two or three later.

But I really needed something to do because I was going nuts. So I proposed to Brian that we build an Ideal/Datacom version of the system (Ideal and Datacom were modern database tools provided by a company called ADR). He didn't want to do it because he thought it would be too expensive, so I decided I'd just quit and do something on my own. He really didn't want me to quit, so he decided to let us go ahead with the development I proposed. We took the guts of the database side of the thing and made it work on Datacom and built the front end with Ideal.

### **Implementing the Integral System on DB2**

**Duffield:** We sold it to a couple of customers, but most significantly, we sold it to Kodak, who standardized on our Ideal/Datacom version of Integral's HR system. So that took maybe a year, then I was looking for more to do. DB2 was starting to come out, but customers weren't asking for it yet. IBM had also come out with a complementary product called CSP, Cross System Product, remember that thing?

**Johnson:** No, I'm drawing a blank.

**Duffield:** That was the online version that you could paint your screens with.

**Johnson:** Okay.

**Duffield:** I thought we should implement the system with DB2 using CSP because it was an IBM product. Brian thought it was going to be much too expensive and vetoed the idea. So once again I decided to resign. But again Brian said, "No, you can't quit. You're the founder of this company. We're going to take Integral public and you have to be here for that." So Brian wound up agreeing to the CSP/DB2 development project and gave me two guys to go do my thing.

We started with the product we did for Ideal/Datacom. It was very good, the online part, and we converted it over to CSP, which was the IBM equivalent. Within a year the DB2 version represented 50% of Integral's revenues. So that was a big success. That was also when we started competing with Gary [Durbin of Tesseract]. He was ahead of us until that point.

Now what? I was in Hawaii at Integral's sales excellence club, sitting on the beach thinking about what we should do next.

Windows had just come out. I mean, Version 1. And I felt that we should basically start everything over, embrace the PC and standardize on SQL. I went back and talked to my techie friend, who agreed with me, and we started thinking about how we could work with Windows. But Brian wanted nothing to do with it. He might have, I guess, if it was sort of an add-on to the mainframe system, but he couldn't buy into starting over with a complete rewrite. He believed that the mainframe was where our business was and that was that.

### **Founding of PeopleSoft**

That's when I decided to finally start over with a new company. Our parting was very amicable. I mean, we had lunches together to discuss it. I think Brian envisioned letting us do our thing and then when we had had a little bit of success with it, buying us out.

**Johnson:** What was the date of that?

**Duffield:** That would have been 1987.

**Johnson:** And from then on PeopleSoft was it.

**Duffield:** That was it. Still is.

**Johnson:** OK, let's talk about PeopleSoft now. You'd obviously targeted the right thing. That's where the world was going, but tell me about how PeopleSoft grew. What were some of the obstacles that you ran into?

**Duffield:** I'd have to say there were very few doubts up until maybe 1999. That's a long time.

**Johnson:** Yes, that is a long time.

**Duffield:** The challenge at PeopleSoft was...we had a technology and a business application that users could embrace. This was the first time that they could get a bunch of PCs or a small mainframe or el-cheapo server and didn't need the IT organization. They could do their own thing. We built this tool set, which was really the big selling point, that allowed them to make changes to the database and the screens themselves. So PeopleSoft's challenge was to gain acceptance by the IT organization. Or they would duke it out forcefully with whoever was running the show to prevent this new stuff from getting in. Because they were going to be stuck with it, you know. So that was, I think, the big challenge for PeopleSoft, once we made it into the big organizations.

Obviously growing 100% a year was a challenge. Where do you find people to fuel the growth? But fortunately for me, I'd been through a lot of the personnel growth issues before and knew what *not* to do. So the tough thing was that we were the pioneer out there with all this new stuff and Windows barely worked.

**Johnson:** How did your sales organization deal with that?

**Duffield:** I was the sales organization. In the beginning.

**Johnson:** So how did you deal with the conflict between the IT people who had been traditionally your customer and these users that want what you've got, but the IT staff isn't convinced. What do you do?

**Duffield:** You had to count on the users to do the battle. And the IT people basically got dragged in and, after they got it, everything was fine. You know, "Oh yeah, this is a good tool." They wound up typically taking over the job of maintaining it, but it was a hard sell for a couple of years.

An interesting story...our first customer was Eastman Kodak. They were using the Integral Ideal/Datacom system and were very, very happy with that system. But there was a new guy who was a change agent in Kodak. He worked directly for the CEO. George Hannye. I'll never forget him. He wanted to get all of Kodak on PCs and get rid of the mainframe. Hated the mainframe. This is a 60-some-year-old guy embracing the PC. I'm not sure where Kodak got their PC financial and manufacturing systems but they were missing the payroll piece. So that was what we started with.

The contract negotiation with Kodak was nothing short of extraordinary. Ken Morris, my co-founder, was there with me for the presentation. Ken demonstrated the tool set, which is what had appealed to everyone, and the guy who was in charge of the Integral application on the mainframe called Ken a snake oil salesman. But Ken is the most sincere bit-twiddler type you'll ever meet.

So George said, "Dave, sit down, I want to talk about a contract." And he calls his lawyer in. "Vaughn, come up here, we've got to get this contract done.

"Vaughn, sit down. All right, Dave. How much is this going to cost?"

"\$75,000."

"Okay, Vaughn, put that in the contract. I want four copies, \$75,000 each."

Then he says, "Now, I'm going to need some consulting help to get this thing modified to meet our needs. How much?"

Well, you know, we didn't have any customers at that point, so we didn't have any pricing. So I said, "Okay, \$100.00 an hour."

"All right, Vaughn, put us down for \$2 million of consulting. Now Dave, I'd like the option for an unlimited license for your software. How much?"

"I don't know. How about \$2 million?"

"Vaughn, put that in the contract. And put in the contract that Kodak has two years to exercise the unlimited license option."

"Okay, fine."

And then he says, "All right, Dave. I want a penalty clause."

And it finally dawned on me why the contract negotiations appeared so extraordinary -- he wanted a penalty clause. But then came the most amazing part. He said, "Dave, I want Kodak to be penalized another million dollars if we don't exercise our unlimited license option in two years."

That was the unbelievable contract we got. Unbelievable, for a company with about eight employees that didn't yet have a product.

We subsequently moved to Rochester, New York, which, ironically, is where Information Associates was founded. And the guy who called my partner a snake oil salesman has become a very good friend.

### **Impact of IBM**

**Johnson:** That's great. Let's talk a bit about the impact of IBM on your various businesses. The conventional wisdom has always been that IBM's unbundling is what created the software industry. It became possible to sell software once IBM started pricing it separately from the hardware. But when I started interviewing people who were there at the time, they didn't think it was that big an event. The big event was the fact that the 360 platform created a big enough market to make it possible to sell enough copies of a software product to support a company. And the big negative was the fact that IBM had such tight account control that they were able to convince customers that they should not have anything but IBM software in their DP shop. Even years after the unbundling took place, customers were still convinced that one piece of



“foreign” software could screw up everything. Syncsort was one of the very first products that broke that barrier because it was demonstrably so much more efficient than the IBM sorts but it took a long time before it really became routine to sell other software products into an IBM shop. How did that IBM account control affect you in the university environments you were selling into?

**Duffield:** Pretty much no effect. In this particular niche, the DP people didn't turn over that much control to IBM, and I think the IBM people were more helpful than a hindrance. For us, IBM had little effect other than creating the platform that created the market. DB2 has had a huge impact on the directions I've taken, as has Microsoft. With those changes in the environment, you could do new and better things by investing in them.

**Johnson:** What I find interesting is that before Integral made the decision to support DB2, the sales force was asking the customers if they needed it and they said no. But then the DB2 product quickly became the major product for Integral. So much depends on being able to anticipate what customers are going to want even if they can't see beyond their immediate needs.

**Duffield:** Just like that Wayne Gretzky quote – ‘A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.’ The same can be said for businesses -- A good company focuses on building products the customers want now. A great company builds products customers will demand in the future.

### **Funding for PeopleSoft and Integral**

**Johnson:** We haven't talked about how PeopleSoft got funded. Everybody in the 1990s seems to have depended on venture capital but when I talk to people who started companies in the 1970s, they talk about mortgaging their homes two and three times over to fund the start-up of their companies. I often say that that big run up in real estate values in the 1970s financed the software industry because people went out and got another mortgage to keep the company going a few years longer.

**Duffield:** That's basically the way I financed PeopleSoft. I mortgaged our house to fund PeopleSoft for two years until we actually could support ourselves. Later we decided to take a little venture capital money anyway.

**Johnson:** Since Integral started out with services, I assume you didn't have the same need for up-front money because you got paid for the services as they were performed. With the big design project you had with UC, did you get progress payments?

**Duffield:** Oh yes. But whereas we didn't have much trouble with the revenues, earnings weren't great. Yes, we were paying the bills, but there's no leverage until you get the products in place.

**Johnson:** So Integral got involved with venture capital once you had the products.

**Duffield:** We were using computers at Stanford and other machines and services and doing our development remotely, so we really needed our own IBM machine with all the various environments we were supporting --IDMS, IMS, VSAM, Ideal/Datacom, and so on. We were also supporting different operating systems from IBM and HP. So that was the main reason we needed money.

**Johnson:** What else would you like to bring up that would be pertinent to this discussion?

**Duffield:** I was just thinking that another interesting event in PeopleSoft's life was when Integral sued us. At the time, we were very worried because, although we hadn't taken any code from Integral, the implication was that we had, and this made us look bad.

**Johnson:** What was the basis of the suit?

**Duffield:** Well, Brian thought that we were going to confine ourselves to smaller companies because presumably that's where the market was for PC-based systems. But once we started selling DB2 versions of the product, his sales force began complaining about us. So they decided to sue us.

While it was very concerning to be involved with the lawsuit, it worked out OK. By the way, we got our venture capital after the lawsuit happened, so that VC really believed in us. Anyway, the lawsuit wound up being a plus. People would say, "I've heard of Integral, but what is this PeopleSoft company they're suing? I never heard of it. We've got to check out what they have. I mean, if the big company is taking shots at a little guy, we at least better look at it."

**Johnson:** That's interesting.

**Duffield:** Yes it worked out very well. We couldn't have had better advertising.

**Johnson:** Yeah, that is interesting. Dave, thank you so much. I've really enjoyed talking to you and appreciate the time you've spent.

**Duffield:** Thank you. And good luck with your history project.