

An Interview with
LAWRENCE WELKE

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Conducted by Thomas Haigh

on

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Charles Babbage Institute
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Abstract

Lawrence Welke played a critical role in helping to define and advance the early software industry through publishing *ICP* (International Computer Programs) *Quarterly*, a subscription-driven catalog of software products that soon evolved into an advertising-driven software directory. Welke discusses his early work at IBM and in the banking industry, and how these experiences led him to form ICP. He reflects on advertising and marketing in the early software services and products industries, and the evolution of these trades in the mini and microcomputing eras. He also details the growth of ADAPSO and its significance to the software industry's development. He concludes with remarks on societal impacts and the future potential of computing technology.

Preface

As part of its preservation activities, the Software History Center (SHC) worked with Dr. David Allison of the Smithsonian Institution's National Museum of American History and Dr. Jeffrey Yost of the Charles Babbage Institute to plan and conduct a number of oral history interviews of early software company founders and other key industry contributors. On May 3, 2002, in conjunction with SHC's ADAPSO Reunion meeting held in Washington, DC, SHC arranged for 15 individual interviews by historians well qualified by their knowledge and interest in computing history.

The following people were interviewed together with the name of their interviewer:

Bruce Coleman, interviewed by William Aspray
Richard Crandall, interviewed by Paul Ceruzzi
Gary Durbin, interviewed by Philip Frana
Martin Goetz, interviewed by Jeffrey R. Yost
Bernard Goldstein, interviewed by David Allison
John Keane, interviewed by Martin Campbell-Kelly
Ernest E. Keet, interviewed by Philip Frana
Frank Lautenberg, interviewed by Paul Ceruzzi
John Maguire, interviewed by William Aspray
Joseph Piscopo, interviewed by Thomas Haigh
Lawrence Schoenberg, interviewed by Martin Campbell-Kelly
Charles Wang, interviewed by David Allison
Robert E. Weissman, interviewed by Paul Ceruzzi
Lawrence Welke, interviewed by Thomas Haigh.
Sam Wyly, interviewed by David Allison

Each interview was tape recorded, transcribed and edited by SHC, the interviewer and the interviewee to ensure clarity and readability without changing style or flow. The original tapes along with the edited transcripts were donated to CBI, which placed the edited transcripts on the CBI website.

**ADAPSO History Program
Larry Welke Interview**

Thomas Haigh: This is an SHC ADAPSO project oral history interview at the Monarch Hotel in Washington, D.C. on May 3, 2002. I am Thomas Haigh and I'm interviewing Lawrence (Larry) Welke. This interview complements Larry's Anecdote on the founding of his company which appeared in the *IEEE Annals of the History of Computing* (V24:1). Larry, what first attracted you to computer-related work?

BACKGROUND

Lawrence Welke: I don't know whether I was attracted to it necessarily. I sort of fell into it. I was working for GE as a management trainee for one of their companies in Milwaukee and I was assigned the task of building a punched card system for job shop control. And this was before computers were really in the market. So I began working with punch card procedures and found that I could think about it and I could work my way through designing punch card systems. It was sort of fascinating. I don't know, I wouldn't say that it's an engineering knowledge or anything like that, but it's just logical, step-by-step, you know, building block – that type of approach to solving a problem, and it was fun. So that's how I got involved in it and then as a consequence of getting involved in that, then I got to know the IBM salesman for the GE account and he encouraged me to make an application to IBM, to go work for IBM. This was when IBM was a much smaller company, obviously.

Haigh: And this would have been about 1955, wouldn't it?

Welke: Let's see. Yes, about 1955. I got out of school in 1954 and I worked for GE for about three years. Yes. Around 1955 or 1956, someplace in there.

IBM

Haigh: At IBM did you do systems analysis work?

Welke: Yes. That was my first start into trying to study a business process and structure it, step-by-step, you know, this is what happens in order to proceed with a process.

Haigh: And initially at IBM you were continuing to work with punch cards?

Welke: Yes. Well I think I was hired primarily because they were about to announce their 650, one of the first commercial computers that they were going to make. So I spent my first year with them, nearly a year, just doing training, just learning punch card procedures and then learning the 650 and how to program and structure applications and all that sort of thing. But it was really to get me to the point where I could program the 650 and develop applications for their clients and I loved it. I've always looked upon IBM as my masters degree because I learned so much about the business by dealing with them and business applications.

Haigh: So, once you were in the computing field it seems that you switched between a number of different roles and I guess at IBM you must have progressed somewhat during seven years, moving from systems analysis to sales work then to data processing management at a user company like JC Penney, then other consulting work. Can you say something about how easy it was to move between these roles and whether that was something that was common in the data processing field at that time.

Welke: Well, it probably was easier moving from the systems analyst role into sales than it would have been to do the reverse because they expected the sales person to be a pretty good systems analyst, to know what they were getting themselves or their client involved in. So it was an easy progression to make. What motivated me primarily was I saw my friends in sales making more money than what I was making, and I figured I could do that too. And I can do it better. So that's what got me into the selling aspect of it.

JC PENNEY

And then moving out of IBM, again that was a pretty much a personal thing. My family life changed because I got divorced and that was not a very good thing to have happen at that particular time from a company standpoint. So, JC Penney had bought a company in Milwaukee to get into the catalogue business and I knew the fellow that owned that particular company. He hired me and paid me a pretty good salary to come with him and manage the systems and the programming effort that they were doing to bring up the new catalogue operation for JC Penney. Now the problem on that was I might have done systems and programming work, and I might have sold it, but I didn't know the first thing about how to manage 93 other people who were doing it and I fouled up rather badly. Because I didn't know any of the principles of management, and supervision was something that I was unfamiliar with and didn't know how to exercise. So it was a very short career at JC Penney. I just sort of lived out my contract with them for the balance of that year and then took a job in Argentina.

ARGENTINA

Well, the job was in Chicago, but it was going to be an assignment that got me into Argentina. It was going to be a consulting and not a management job, but it was going to be automation because it was the largest electric utility south of the equator that happened to be owned by the Argentine government. The World Bank had lent the Argentines 95 million dollars to do something with this utility about three years before I got involved in it. And what caused me to get involved was, the Argentines had just gone back to the Bank and asked for another 95 million, and the Bank asked, "What did you do with the first 95?" And they said, "Well we really don't know." So the bank suggested that they set up a decent record keeping system and consequently they were bringing in computers and managing them and all that sort of thing. And that's what I got involved in down in Argentina for a year and a half. And at the end of that time, it wasn't my choice, I was brought back to the United States and I had to find a job because it was the end of the assignment.

INDIANAPOLIS BANK

So that's what got me into working for a bank in Indianapolis. I had no banking experience necessarily. I did have the sales experience and they wanted me to get involved in starting a customer data services business for the bank. This is back when banks were just getting into the service bureau business and in fact offering data services to their correspondent banks and to their commercial customers, payroll services and stuff like that. And so I started that department for them and from there I formed International Computer Programs, the publishing company. Because I was looking at what could we do, what kind of services we could offer and was being told by the programmers that they couldn't possibly create those programs as quickly as I needed them. So I said, screw it, we'll just go out and buy them from somebody else who had already done it. See, banking and I guess insurance maybe as well because they were so heavily regulated by the government made it very convenient because you did banking in one part of the country the same way you did banking in another part of the country. As long as you were a federal bank you had reporting regulations that you had to adhere to. Same thing with, well insurance is a little bit different because it was state regulated rather than federal. But the basic principles remained the same. And I think that's where software as a product really began getting some traction in the marketplace with those controlled industries.

ICP DIRECTORY

Haigh: So your original exposure to the idea of a computer program directory actually came at a meeting of the American Bankers Association.

Welke: Yes.

Haigh: How important do you think these industry-focused associations were in the development of data processing? Why was it in the end that the most important user groups and publications seemed to focus on data processing as a whole rather than particular industries?

Welke: Probably because it was an emerging market and there was no one industry that was large enough or adapted to purchasing software quickly enough to sustain any one company or any one product for that matter. So you had to go out and cover the entire market. You had to try to be all things to all people because you didn't know who was really going to be able to buy or who was going to cotton to the idea. Geoffrey Moore wrote the book *Crossing the Chasm* where he talks about the five different kinds of buyers – innovators, early adopters, early majority, late majority, and then laggards. And he says any new product has to go through that entire cycle and then is replaced with an updated or a new product or another product, a new technology, what-have-you. Back when we first started that whole idea of putting out a catalogue for software products, we were at the point where the whole market was filled with innovators and early adopters at best. There were no people who had any experience with buying. There was no marketplace there. The people that we were able to talk to were what some people referred to as the lunatic fringe. I mean they would try anything because it's new, it's different, because what the heck, what we're doing now isn't working all that well anyhow. Let's see if this works. There are not that many innovators or

early adopters in the world, in any marketplace. So you had to spread yourself pretty thin and look in every crack and nook and wherever you possibly could to get somebody. It was a fragmented market to say the least.

APPLICATION SIMILARITY

Haigh: You yourself had done work previously in banking, in mail order business and at a utility company. Across these different industries, when you moved from one to another or when you looked at how data processing was managed in different industries, were they fairly similar in progressing in the same direction or did you see a lot of divergence between industries and how they approached data processing?

Welke: Between industries, in my experience at that time, there was always a big difference between how any one industry handles any one business process or application, but within that industry there was great similarity. I can remember back when I was with IBM I was given a prospecting territory of gray iron foundries and there were eleven of them in Milwaukee at that particular time. I wound up selling the majority of them, but each one bought IBM equipment to do the same business processes that everybody else was doing. So it was just sort of a copycat. I did it for one company and you could literally take that same application and lift it and put it in the next company, right down the line.

And to a large extent that is still true today and even more so. I think you find business processes being duplicated regardless of the industry that it's in. People are more willing to change their process if by automating it they can reap some benefit at this point. But I think it's the software products that have caused that to become a truism at this point. Back then we were still at the cutting edge because people still would look at an application and they'd say yes, but we do things just a little bit differently here. So we had to change this and change that and leave everything else the same, but these three things we had to just modify. And then somebody else would come along with a different three things that they wanted modified. So I think it was a learning process on the part of both buyer and seller in those days.

A PIONEER CULTURE

Haigh: People remember the early decades as a pioneer culture. Do you think this is an apt characterization? What did it mean from your perspective and in what ways did software companies differ from other professional service organizations in the era?

Welke: I think it's a very apt term – a pioneer culture. If you compare it to any other era that was labeled pioneer. You know when the first Englishmen or Europeans came over here the majority of them did not know how to build a house or till land or raise crops or do anything that they were then confronted with doing. Well that was pretty much the same thing that we had with this whole software industry thing. Even up to the point where IBM unbundled, IBM had the responsibility of defining, or took the responsibility of defining the problem that would then be analyzed and have a program built for it. Now you have independents. Well, how do you do that? How do you convince somebody – how do I convince you that I know enough about your business although I've never worked in your business before, so that I can automate a process that you've been doing for twenty years.

Well that's like building a house and I've never built a house in my life. Right? So it is a pioneer environment. We were plowing new land in effect. We were coming up to people in the software products business particularly, but even in the professional services business who were confronted with problems that they never had to confront before.

Things such as basic fundamental business problems. If I write a program for you and you pay me for it, who owns the program? Do you or do I? Or can I write the program and let you use it but I retain the ownership of the thing. Well nobody had raised the question before. How do you price something like that? Better than that, how do you price it the second time you sell it, and the third time and on and on. How do you maintain it? Do you charge for that? Is that customizing? Is that per hour? That whole set of business disciplines was something that no one had done before and consequently it was really pioneer work on the part of anybody that was doing it. And obviously that's why people were making so many mistakes in doing it. I mean the majority of firms, I can't support this with fact, but my recollection would be that the majority of firms that started say in 1967 and 1968 died before they saw 1970. Because it looked like a good concept but when you had to write it down on paper and try to make it work, it didn't work at all. So you had to do something else but you had spent all your money.

Haigh: So why was software so hard to sell during the 1960s? Were all the objections that customers might make just prompted by ignorance and conservatism, or were there sound technical and business reasons for them to be wary?

Welke: I think it was both sides on that one. On the one hand it was new dirt that we were tilling and on the other hand, businesses had never looked at this whole question of – can we outsource the development of a business process, which is really mission-critical to our operation? Can I trust you to program my payroll system? And if you screw up, my employees don't get paid. I don't know whether I want to take that chance. Alright? Because I had never done it before and I don't know that any of my friends are doing it so why should I do it? There was a high-perceived risk on the part of the buyer, and with good cause in many cases. Some of these business plans that people were doing were almost as bad as the dot coms in the last couple of years. You look at them and you say, gee that is never going to work. I mean, it's a bad business proposition. And a lot of them were just bad business propositions. So it worked both ways. For every success there was a horror story that could be used to counter balance it.

ICP SEMINARS

Haigh: One of the points I found very interesting in your IEEE Annals article was the seminar series that ICP ran in 1969 while struggling to come up with a viable business model. And that included speakers such as Herb Grosch, and I find that the role of these almost celebrities in the data processing field very interesting. How well did the major figures in the data processing community know each other? How did ordinary data processing managers view them--did having someone like Grosch there guarantee a crowd?

Welke: I think we sort of fell into it on those. No, the audience did not personally know the various individuals that we would put up on the stage. But they recognized either their company or their function or in some cases, the personality behind it. And they were eager

to meet these people. Everybody had at one point come across Herb since he was at the National Bureau of Standards. And it was a key position obviously in the government at that time. We used Gideon Gartner back when he was with Oppenheimer. I forget the attorney that we used up in Chicago. But again it was a name that people would recognize because they'd seen it in the newspaper, that kind of thing. So they wanted to meet these people, but at the same time they wanted to come to the seminar to find out who else had come to the seminar. If there was one thing I think that ICP and for that matter ADAPSO in large part, contributed to the growth of this industry it was the opportunity to meet your competitors on a somewhat stable ground you know, or non-threatening turf. I'm not going to meet you in the lobby of a client where we're both competing. We can sit and have a beer and talk about what you did or what I did or what our people did, right. Because it was a case of you know, the two presidents can talk to each other about how their sales staff might have been too aggressive or not aggressive enough or etc., what their business practices were. And they could be friends although the people down on the street might not be all that friendly from a competitive standpoint. But it gave them an opportunity to meet.

When we first brought the Association of Independent Software Companies, AISC, under the ADAPSO umbrella, there was a meeting that I orchestrated and we held it in Denver at the Brown Hotel and we had, I don't know, twenty-five or thirty people there. These people were all presidents or CEO's of their particular companies. They had never met their competitors. They did not know the other twenty-four. They'd read about them in the press, they'd seen the advertisements. Maybe they had seen pictures but they had never met these people before in their life. That was a *major* breakthrough because they found out that their competitor didn't have two heads, wasn't ugly, that all the bad things that you always think about a competitor weren't true. I think that was the kind of thing that made ADAPSO very successful as well because we had that neutral ground that we could meet on.

PROFESSIONAL SERVICES AND SOFTWARE PRODUCTS FIRMS

Haigh: So more than anything else ADAPSO was just a place where people could talk to each other. While we're talking about that then, what was the relationship between the first software firms – those providing contract programming work -- and the somewhat later emergence of firms whose primary business was selling packaged software?

Welke: That's interesting. There were a couple of companies who were in the professional services business first and because they saw this thing called product come into existence tried to be in the product business as well. And I don't know of a single one of them that ever made the transition successfully. It just doesn't work. They are two different businesses. It's like saying if you're really good at lawn tennis you'll be pretty good at ping pong because it's still a ball and a paddle. Wrong. It's a different game. And product has a totally different cost set-up, different revenue streams, different equations on how you run the business from professional services. A lot of the people that were in the professional services business figured well, when the contract for what we call now staff augmentation, when that contract finishes, if we don't have a place to put that person right away, we will put him on developing a product. What the heck. And we'll make good use of him. Well you can't do that. It just doesn't work because then as soon as you get another job you've lost the product development and what happens to the product? Well you've promised that product to some audience and now you're not going to deliver it. So you're going to get a

bad reputation and right from that standpoint you're not going to be able to offer the support and the training and the education and everything else that goes along with product. So if I think over the years it's just been identified as a different business. When we first started in ADAPSO everyone was just under the label software. I think it took maybe two, I don't think it was more than three years before that was split between professional services and product, because we recognized that we were talking about different kinds of problems. The problems for professional services were totally different from product. And vice-versa.

Haigh: So the two kinds of business couldn't be carried out really by the same company. How about the sources of packaged software – did many good packages start as in-house developments or custom jobs or were they planned from the beginning as packages?

Welke: The really good ones started from scratch as product. In the late 1960s we did try that, for instance, Bob Head at Computer Sciences and Marty Goetz at ADR. A lot of different companies tried to take an existing system that was in operation at somebody's place and then modify it or generalize it to build it into a product. It didn't work. Competitors came along and said rather than do that we're going to build it from scratch, and as a consequence they were much more successful. But at that point we had to divide the market from a vendor standpoint into systems on the one hand and applications on the other. The systems people were the first ones to build from scratch because nobody had done those things before. There was nobody that they could take an existing system from and modify it and build it into a product. They had to start from scratch. And when everybody else saw how successful that was as a business model and as a way to build a company, it was a given that you should do that regardless of what kind of a software product you were doing. So I think that made the change.

SYSTEMS AND APPLICATION SOFTWARE

Haigh: In reality do you think that systems and applications software could be marketed and produced in the same way as each other?

Welke: There again, maybe it could be but as it turned out and this is probably why it isn't, there is some fundamental difference between how you build and support and for that matter sell an application as opposed to a system. Whatever the application is the client is already doing something for that business process. Might not be as good, might not be as fast, might not be as economical but he's already got a process in place. Whereas a systems software or a utility of some kind is a brand new tool. It's a new discipline, it's something that you probably haven't done up to this point. Consequently I come in and I don't have to worry about what you're already doing in-house. You're not doing anything on my particular problem. I'm solving a problem that you've got and didn't know how to solve yourself. So, it's different marketing, a different sale and consequently different support as well. A business process is more likely to change more quickly than a systems product or a utility because the business itself evolves and is changing, forcing that change for the software. Whereas the utility is not changing unless the technology changes. Now however you're in the situation where the technology is changing faster than ever and Joe Piscopo and I were talking coming in from the airport, that it's a different business than what we grew up in even five, ten or fifteen, twenty years ago. It's a totally different way to conduct business.

Haigh: So would they have to be sold to different people within the company if the application is addressing a clear business issue, whereas the systems software would be more infrastructure or something that would help the data processing department itself work more effectively?

Welke: Absolutely. Again, another advantage of selling utilities and systems software is because you only have to deal with the DP manager and the DP manager, if he says yes – he's going to go to his boss, and his boss doesn't have the foggiest notion of what he's talking about anyhow. So he's going to say, okay Tom, if you think it's good we'll get it, right? And that's the end of it. Whereas if it's an application, I've got to sell the end user. I've got to sell the end-user's boss. I've got to sell the financial people. I've got to sell the operational people that interface with whatever it is that I'm bringing in. So there is a whole host of people that I've got to deal with and satisfy all of their needs. And the odds of doing that are just a little bit more difficult than selling one guy.

PURCHASING APPLICATION SOFTWARE

Haigh: Do you think it's true that data processing managers could be reluctant to purchase applications just because they had a not-invented-here idea or they thought they could do a better job?

Welke: I think back in this period of time that we're talking about, there's no question that DP managers were very, very threatened by packaged software. To promote our company and the entire concept I used to go around and give presentations to the various professional organizations like Data Processing Management Association or Association of Computing Machinery and invariably at the end of the presentation somebody would raise his hand and say, why should I buy a software product because if I do, what the heck do I do with all my people? And I would say, fire them. And they'd say, well I can't do that. I'd say, why not? Well because I don't want to. They were not looking at it from the standpoint of will this improve company performance or my department performance or anything like that. But even now there still is that not-invented-here syndrome with the techie crowd and I think there always will be, but now things are moving so fast and there is so much demand for innovation and new information technology that these people know they can't do it themselves. They can't get everything done that management wants them to get done. So they have no alternative but to buy. And that makes it much more professionally acceptable, right? Some of these people were also I think threatened from the standpoint of, if I bring your product in that means that probably that you know more than I do and I don't like that.

Haigh: Would you say that those problems were equally important with systems programs and application programs or were people in the systems area more willing to buy systems programs?

Welke: Well I think they were much more willing to buy a systems program because they had not thought through how to do what some of those systems programs were doing. There was really some pretty clever technology that was being brought to them. Whereas with applications, well I mean we've always done accounts payable or general ledger or payroll or whatever the heck it is, so it's different from that standpoint.

Haigh: Actually, another question that comes to mind with that is how well on the user side were people making the transition from punch cards to computers. Would you say that a lot of the data processing managers were still stuck in the punch card era?

Welke: I think they were stuck in whatever the system was that they were using. A change that has occurred from my viewpoint, at least in business, is that there was a time when people looked upon their business process as being a competitive advantage over somebody else in the marketplace; whereas now if they don't use a business process for accounts payable is it going to give them a competitive advantage? Give me a break. Maybe there is some technology and a new business process that will give me a business advantage, but I'll probably have to buy that process rather than invent it myself. That's pretty much an accepted philosophy I think at this point. It was not back then. So again, I think the IT managers, the DP managers were much more likely, much more open to buying systems software than applications, less threatened by it.

THE CHANGE IN THE ICP BUSINESS

Haigh: In the early 1970s ICP's focus shifted from a subscription-driven catalogue to a software directory to advertising publications, and the one that you talk about that's important, especially in the beginning, is *The Skinny*. Why was the advertising driven model more successful? How could advertisers make money from people who weren't interested enough in software to pay for a subscription?

Welke: We used to say around the office that it stems from the basic fact that the seller has a greater need to tell than the buyer has to know. I think it's a fun question because maybe it stems from the American philosophy that came out of, oh, who was the millionaire who built all the libraries?

Haigh: Carnegie.

Welke: Carnegie. And I would hear people say, information is supposed to be free because if it wasn't supposed to be free, why did God let Carnegie build all public libraries, right? And I can go to a public library and get everything I need to know for nothing so why should I pay for it? So if you want to let me know something about software and the new things that are happening in the market, I should be able to know that for nothing. Whereas the seller had a very definite ax to grind in getting to a defined audience and to the extent that we could give them an audience of people who were interested in buying software because they had signed up for the magazine, even if they didn't have to pay for it, that was enough of an indication. You know trade magazines have dealt with that equation for years and years and years. Almost all professional magazines are controlled circulation. You get them for nothing - in engineering or construction or science or whatever it may be.

SOFTWARE ADVERTISING

Haigh: That's true. So I suppose, in a way, it was a conceptual leap from being something like an analyst's newsletter that you would pay for, to thinking of yourselves as a trade publication.

Welke: Exactly. We gave absolutely no analysis of whatever was put in our magazines. Whatever was in that purchased space was totally up to the vendor. They defined the product. We started out by trying to control it, I have to admit. We said give us nouns and verbs and conjunctives, but no adjectives. Right well hell, you can't police it. So we gave up on that pretty quickly.

Haigh: And the software firms that advertised – was it the first time for most of them, or had they been advertising elsewhere already?

Welke: No, they had not been advertising and they didn't know how to advertise. People would say, how do you describe, how do you draw a picture of a payroll system? What do you show? How do you do that? We would go back in the very early stages, I was trying to set up sales training classes and people would say, we don't need sales training. We need our leads but we don't know how to advertise. How do you do that? Show me an example. Do we just put a diagram of our program? And I said, no, nobody's going to pay any attention to that. But if you look back at some of the publications, even those in 1981, that's ten years after the period that we were talking, look at some of those ads. I mean they are really primitive. For instance, Westinghouse, that's a Fortune 500 company, you'd think somebody in there would know, but it was in every sense an emerging discipline.

Haigh: Did they maybe have the idea that data processing managers would respond better to small print and technical bullet points than they would to glossy pictures and advertising copy?

Welke: Absolutely, no question. There was a general understanding that the software was going to be bought by a technician anyhow. So you write or you create an ad, something that is attractive to a technician, which is technical descriptions, and they'll understand it. So it didn't make any difference if the CFO didn't understand the first thing of what he was reading. But the ad was not created for him anyhow, it was for the technician. You're right on on that one.

THE SOFTWARE PRODUCT BUSINESS

Haigh: IBM's decision to unbundle in 1969 is often seen as a key historic shift, yet in your IEEE Annals article you suggested that, while unbundling may have been important, the market for packaged software emerged really frustratingly slowly after that. Why was this so slow and how great do you consider the eventual impact to have been?

Welke: It helps I think if you divide between professional services and software products. I think the unbundling was extremely important. I don't know that it turned out necessarily the way IBM wanted it to turn out. I was not ever privileged to know their inside thinking but it seemed like they really wanted to establish a revenue stream from software. They were not out to create a software industry, an independent software industry, which is really what happened. But I think it's the dynamics of the American entrepreneurial spirit more than anything else. When some people inside of IBM or Univac or Honeywell or any of the big seven at that point, saw what was happening with people like Fletcher Jones, for instance, who started Computer Sciences and got fabulously rich, or any of the professional services firms, they sat back and said, I can do that too. And they could and began leaving.

There was a great exodus of some very, very top IT talent from IBM in particular as a consequence of the unbundling. But these people were leaving so that they could form their own companies and get rich in the process. So the professional services firms grew and the service bureaus grew much more rapidly than the software product business. We still had too many business issues that had to be resolved in software products whereas professional services, you could model that after attorneys or CPA's or engineers, all of whom were doing professional services, charging by the hour and collecting more than what you were paying the person doing the job. Somebody once told me, if I can make ten dollars an hour off every employee that I hire and place, it's a pretty simple equation of how to get rich. Well, software product is a little bit more complicated than that in order to get rich. There are thresholds that you have to pass and development work to do and a bunch of things like that.

Haigh: That's true. I mean people today would understand, the packaged software business as being one where fixed-costs are very high and variable costs are very low, and so it's a business where each niche just tends to finish with one or maybe a small handful of major players. Did people understand it that way or did they just think in terms of, if I can sell ten or fifteen copies of this then I'll make some money?

Welke: Absolutely. The barriers to entry were always considered very low for getting into IT professional services certainly, and for products as well. The market has changed at this point now where it is not so much a matter of what kind of a product it is that you have developed, but what is your distribution capability for that product because we do have some dominant players that you have to recognize in the market and if you're just a two-bit little start-up, you know, two guys in a garage, how do you get shelf space? It's a challenge.

Haigh: How did your own thinking shift as you moved from the original identification with computer users, because that was where you were coming from and where your income was originally thought of as being – to a new closeness with software suppliers?

Welke: It simplified the business greatly, as I look back on it now. But even at that point, it gave us the opportunity to focus on a much smaller community of people. There were just a couple hundred people to begin with that were in the software product business. A couple of ICP people were assigned to do nothing other than read every magazine and newspaper that came out that had anything to do with technology and spot the company names that were new or different, that we had never heard of before and add them to our database. But that was slow growth. And we could stay on top of it. We always knew who they were, where they were, and I could make a point of getting in front of them to tell our story of what we were doing and why they should get involved and all that sort of thing. Whereas with users, I mean they were all over. Where are they and who are they? There was not only more of them but more differentiation between all of them as well. So it was an amorphous group to try to get to. And I enjoyed the people who were doing the vending. They were the vendors. They were more the marketing types than the technician types, and I've always enjoyed marketing and sales people because I think they are creative and clever and inspirational, all of those fun things that are so easy to identify with.

WELKE AND THE SOFTWARE COMMUNITY

Haigh: So it seems from the various stories that people tell, the way that they refer to you, that you came to be quite a central member of the software producers' community yourself.

Welke: Although we never produced any ourselves.

Haigh: Yes, but they think of you definitely as being part of that group. So why do you think that was – was that an intentional business strategy, and what skills or things about you do you think led you to do that so well?

Welke: I attribute a lot of my business success to an ability to talk, to speak. I learned that because I was born with a crooked arm and as a little kid I'd get into fights and always lose. And when you stop to think of it, you know, if you lose, you're a wimp, if you win you were a bully, and if you ran away, then you just didn't count. So I didn't want to be any one of those three. In very short order, and I don't think I was conscious of it, I learned how to talk my way out of a fight and I even found that I could make people cry or I could make them laugh. And if I made them laugh, they would be friends, you know, or they would look more kindly on me despite the fact that I was pretty much of an ugly, little crippled kid. That wore me well through high school and through college and into business life and I think maybe that's why I enjoyed getting into sales because it was a matter of an ability to talk and the pleasure of talking.

And I used that to build the company in many respects as well. I used it on behalf of the vendor community by holding seminars and conferences and doing the public speaking to professional groups and always the message was to check into this whole thing called software products and, you know, experiment with it or spend some money on it– try it. It makes sense and it's for the good of the company and your industry. I'd say stuff like that. So I was very supportive of the industry. Plus the fact that very early on we made a couple of business decisions. For instance, we would not invest in any company that did business with us because we didn't want to show favoritism in any way what so ever. We would never go into business against them. We were invited a couple of times to do something that would have placed us in a position of owning a software product or having a major interest in it and I just didn't think that was right. And everybody knew that so that they knew we were independent and that they could come and talk about whatever the hell they wanted to talk about and they would always get an independent, non-judgmental discussion out of me.

Haigh: So you were the only well-informed guy that everybody else knew that they could trust?

Welke: Yes, I think that was a large part of it.

WELKE AND ADAPSO

Haigh: You've spoken before of the influence of ADAPSO as a place where people could come together and talk. I wonder if you could just talk about how your own personal

involvement with it came about and maybe what were the most important other things that it did as it evolved.

Welke: Well I think it started because I got involved in the Association of Independent Software Companies and they were not as well organized as they could, should or ought to be. They had no support as far as administration or anything like that. After talking about it a little bit we said, well there is this thing called ADAPSO which is really service bureaus, it's not software but maybe we could tie in with them and they could give us the administrative help to run this thing and then we can build it from there. So it was because I had been, I was already a member of ADAPSO at that time. Everybody, there were only a dozen people or so, all turned to me and said, well you know the guys at ADAPSO - talk to them and see if they would even be interested in the whole thing. So it fell to me to orchestrate the initial contact with ADAPSO and then to make the proposal and then to organize that first meeting in Denver to find out if we could get enough people together. And there again, it wasn't just a matter of getting those twelve people in the Association of Independent Software Companies to join ADAPSO. We wanted it to be bigger. Because I said, you know if we've got twelve why not get twenty-four or thirty-six. Let's see how big we can build the thing. But because of all the other stuff that I was involved in, I was the only guy that knew everybody. So again, it fell to me to do all the contacting, the invitations, and conduct the meeting as well. It just sort of evolved. I was fortunate in being at the right place at the right time. It was luck more than anything else I think mainly.

GROWTH OF ADAPSO

Haigh: So that was how the two main groups came together. Now one of the things that people have said, informally, is that ADAPSO changed as it shifted from more of a general club where people got together and talked, to where there were sections and committees set up to work on specific programs in different areas. I wonder if you could just talk a little bit about how that changed the character of the organization.

Welke: Well, in part it is almost analogous to the break up of the USSR. Think of it in those terms. We came in, the software group came in, as a separate section. There had been no separate sections in ADAPSO up to that point. This was a special interest group, and in very short order we grew that to be a very large section within the ADAPSO organization. At the same time, IBM had come out with the System/360 that led into the time-sharing industry as well as the professional services so that group of people in time-sharing said, you know, we're a different kind of service than data centers and we think we'd like to have our own section as well. So it turns out that ADAPSO began forming or splitting up into separate little enclaves or groups of special interests and in fact, that was triggered I believe because of the software coming in and succeeding as a separate group and yet being a very active part of the overall IT industry. It was a different business and yet it was related so closely and a lot of the people within the larger organization were customers of the software product people as well, or even the professional services people. So it was, you know, one hand feeding the other in many respects as well. It all seemed to work together.

Haigh: Do you think the fact that the industry as a whole was growing so fast gave ADAPSO a more cooperative character than most trade associations?

Welke: Absolutely. No question about it. And the fact that it was new and it was exciting and it had some new and exciting people in it as well. Everybody was a genius in some special way because they had come up with a brand new idea or a new thought or a new concept or a new approach to the market and they were respected for it. It was an exciting time, no question. But there was also the need to know and solve the common business problems as well. You will hear about it at some of the sessions tomorrow I'm sure, where they are talking about some of the things that ADAPSO undertook like we came out with a contracts handbook which was huge - several volumes of how do you write a contract for any kind of software product, any kind of time share service, any kind of professional service. What are the elements? What do you have to cover? How do you price? What are the price algorithms, not what are the prices themselves. So there was a lot of sharing going on.

ADAPSO CONTRIBUTIONS

Haigh: Previously you credited ADAPSO with a major role in establishing concepts that we take for granted today about maintenance, upgrades, support and pricing. How did these ideas evolve, and do you think that the way that they came about was the only way that could have worked, or do you think people could have easily come up with a different set of ideas?

Welke: I think the ideas would have come about one way or another. I don't know that they would have come about as quickly or as all encompassing as they did from the trade association. The trade association provided a very unique focal point for these people to get together on a non-competitive floor and openly discuss alternatives that could then be formalized into best practices. So I think the trade association contributed greatly to that overall process. The outcome probably would have been the same, it just would have taken a lot longer time to get to that point because sooner or later a business process either wins or loses. I mean either it works or it doesn't and maybe there were a lot of people who didn't fail because there was a trade association.

Haigh: How about ADAPSO's more formal programs to try and address specific topics, for example, government policy. Do you think they played an important role in the end in areas such as that?

Welke: Oh absolutely, no question. Initially ADAPSO was up in New York and in short order they moved down to Washington, recognizing the need to be close to the federal government. They recognized how large a part of the IT industry the federal government is, as a user as well as somebody who would threaten legislation if we didn't adhere to fair practices and control ourselves as well. So I think it was a good move to come to Washington and then we immediately began interacting with government. I think we've probably interacted more now under ITAA than we did under ADAPSO, but even then, even back in the days when we had Jerry Dreyer as the executive director there was a lot of work, a lot of contact on the hill that the attorneys for ADAPSO were able to negotiate and get us involved in. So that was very helpful. No question.

Haigh: Can you give an example of what you think a couple of its most important achievements might have been in that area?

Welke: I don't know that it was a significant achievement but I think we always were able to get our flag waving as far as the anti-trust case against IBM. I think we got some legislative attention a long time ago when we first began arguing that the big CPA firms should not be in the consulting business and doing programming for their audit clients. I don't know that that ever got anyplace because the big CPA firms were always able to lobby their way around what we were proposing. But we at least, we got some education done on the hill as a consequence of that. I don't know that I can really give any more good examples.

Haigh: How about formal programs in other areas aside from the government lobbying?

Welke: I think the big things that we did always were the two-time a year conferences that we held where we always had how-to sessions which were basically how do you conduct business. But there were also issue questions that came up as well on things like, bringing in foreign help or outsourcing work to foreign countries, regulations as far as contract employees, are they employees or contractors and do you treat them differently tax wise and that kind of thing. So there were always those kinds of subjects as well and in those meetings we'd always try to have some kind of a public figure who would talk to an issue other than something that was strictly operational. So we would focus on the larger economic issues or political issues and because we were in Washington we could invariably get a speaker from government to participate with us.

ICP MILLION DOLLAR AWARDS

Haigh: The ICP million dollar awards – they were an ICP thing – but it sounds also as though they're something that the ADAPSO community was deeply involved in. How did that work?

Welke: That started with a research firm that specialized in data processing and computers called Quantum Research out of New York. And I knew one of the fellows there. I had been in New York and gave him a call, asked him if he wanted to get a beer. And he said sure. So we met and he said, so you're still fooling around with that software thing? You know you're not going anyplace with that. That's a nothing industry. And I said, oh, is it? And he says, yes. He says, name a single product that has ever reached a million dollars in sales. Nobody has ever done that. So consequently, it's trivia, it's never going to amount to anything. I thought about that. I went back to Indianapolis and set the troops to work and came back with the fact that there were twenty-two companies and twenty-nine products that had passed a million dollars. But I figured that if we didn't know it, and we're dedicated to the software product business, then nobody knows it. So we basically put together a little program to give everybody that we could think of an award recognizing that, and then use the next ADAPSO meeting to present those awards and get a little bit of publicity for them. So we tied it into ADAPSO to begin with and then it very quickly grew to the point where it was looked upon as a competitive thing to the normal ADAPSO conferences and it just didn't fit in. We used ADAPSO for the first two years I think it was, to give the awards and then after that we spun it off and did it apart from ADAPSO. But ADAPSO was always right with us on the thing. We co-mingled the affairs in many respects. But it was a way of giving some recognition to the industry and again, promoting it for the benefit of the

vendors, the industry, but self-serving as well in all honesty because it generated advertising revenue and clients for ICP.

MINICOMPUTER SOFTWARE

Haigh: The original reason that you were prompted to launch the awards was that software wasn't being taken seriously by industry analysts or by Wall Street. At what point would you say that they did start believing that software was a real industry?

Welke: I think it began developing some real traction by the time that we got to the mid 1970s--1974, 1975, 1976, in there. By this time also you began seeing the emergence of minicomputers, Digital Equipment, Data General, and they also got into the software product business as soon as they began realizing that you could calculate a payroll or do a general ledger on a PDP11 just as easily as you could design a building or a machine. There was growth in that area but because people who were working with PDP11s were not necessarily accountants, they were engineers, they were more likely to buy a package for accounting so it just sort of evolved very quickly there. And that was part of the whole development process as the industry was growing. People would be asking if you could do that on this machine as well, you know. And it gained some credence I think because of that proliferation into the new platform of the minicomputer.

Haigh: Was minicomputer business application software taking off in the middle of the 1970s?

Welke: Yes.

Haigh: What kinds of packages would be most important to minicomputers and were the firms that were producing them similar to the established software firms or were they a different breed of company?

Welke: I think overall it was still engineering and scientific packages that dominated that particular market segment. There were some accounting packages, just general financial packages that were used, but I don't think any really gained a dominant position in the market or anything like that.

Haigh: Aside from writing for minicomputers rather larger computers, would the supplying companies be similar?

Welke: I think for the most part it was people who were concentrating just on minicomputers as opposed to anything else. It wasn't the people in mainframes that suddenly switched over to something smaller. In part it was a matter of the pricing scheme that was involved. If you were selling software for a mainframe you could charge twenty-five or fifty thousand dollars for the software product. But if you were going to sell it onto a six thousand dollar minicomputer, well, people would say, wait a minute. I paid less than ten thousand dollars for my hardware. Why should I pay more than ten thousand dollars for the software? Now there is no logic to that. But that's the way people think. So there was a hesitancy, or a lack of knowledge if you will, on how do you take that fifty thousand dollar

product and bring it down to a five thousand dollar product. So they didn't do it, as simple as that.

Haigh: And the newer companies that came in, would they also join ADAPSO or did they have their own section?

Welke: They did join. The membership in ADAPSO went up very, very nicely. There was a time when, well I'd be guessing to say how many software companies were members. If I remember correctly, it was as high as six or seven hundred. It was a time when software dominated ADAPSO as far as membership and activity.

Haigh: Actually some application areas that I guess would be specific to minicomputers would be early word processing systems and office automation software. No one did that with mainframes really. Word processing packages for law firms, those kinds of markets. I understand those were emerging for minicomputer systems in the 1970s and that was something new, and also turnkey systems, both specific to minicomputer software.

Welke: I think you're probably right on that. There were in effect niche markets that were not rich enough, that's not the right word. At any rate, they were not candidates for mainframe hardware and yet they very definitely could use something smaller than that so they would surface as a profitable market segment for minicomputer software.

ICP PUBLICATIONS

Haigh: And on the ICP side, your article in the *IEEE Annals of the History of Computing* really covers more of the early days; it gives the impression that in the second half of the 1970s you switched to a number of niche publications instead of one overall publication. Can you talk about how the company grew and what that transition involved?

Welke: It was a need that was dictated just by the economics of what we were doing. We had started *The Skinny*. As I explained in the *IEEE Annals* we called it *The Skinny* because it was a skinnier version of the larger catalogue. And after a number of years it was no longer skinny. It was to the point where, from a production standpoint, it would be to our cost advantage to break it down into parts. So we took a look at what was involved in the publication and broke it into segments. I think we started with seven different named segments that we were going to have. They were for separate industries and then there was one for cross industry and one just for data management. But it boiled down eventually to just five. We were able to lower the ad rate because the circulation obviously came down. We would go just to banks and that would be ten thousand bankers as opposed to charging for a seventy thousand circulation and you could charge less, but not proportionately less. You just get it to those ten thousand targeted bankers. Same thing with insurance and that kind of thing. So we were able to drop our rates and yet increase our margin overall on the entire thing, and satisfy the advertisers by going to a more distinct and discrete audience, because they didn't want to pay for sending their banking information for instance to all the manufacturing companies.

Haigh: So, all the niches that emerged were by industry?

Welke: With the exception of that one cross industry niche which we simply called accounting and administration because some of that stuff could fit in any industry, it doesn't make any difference. And then the other one, we had one especially just for systems and utilities which was aimed at the data processing manager.

Haigh: But in the other ones you would see software for large mainframes, smaller mainframes, minicomputers, all grouped together by say the banking industry.

Welke: Yes, exactly.

Haigh: Now one of the interesting publications that in the end wasn't a success was the attempt to offer the *Bottom Line* magazine intended not for data processing staff but for more senior management. Why didn't that work and, in general, why do you think it's so hard to sell technology products in terms of business and management when after all that's where the benefits ultimately come from.

Welke: Yes, but they didn't understand the technology, didn't choose to understand the technology and we just found after doing a very quick but pretty thorough survey of the recipients that eight chances out of ten, the CEO who received the magazine never even opened it, just automatically routed it down to the DP manager anyhow. So we were sending it to what we thought was the right audience but they didn't look at themselves as the audience. They didn't, at that point, want to get involved in computers and data processing. We tried to write the articles for them in their language, in business terms and subject matter that again, we thought would be of interest to them. Somehow we missed the mark on it. It didn't work. We lost a ton of money on it and then in trying to get the audience confirmed, to get them to sign up to receive the next issue for nothing on controlled circulation, we were not able to get the audience to respond positively. We got a lot of DP managers but that wasn't our intent. We already had a data processing management magazine.

So it was pretty much at that time that we switched to a much heavier editorial content to the magazines. That was the other way that we were making money in this particular thing. If I had to do it over again, I would have kept *The Skinny*. I wouldn't have changed anything with it, other than maybe I would have broken it between systems and utilities on the one hand and applications on the other. But that would have been sufficient. But the big mistake that I made was adding editorial. I caved into the guy who was running the editorial content part of the business at the time who insisted that it would be just the greatest thing in the world if we could add editorial content. But when you stop to think of how much it cost to put in the editorial content, and that's an unpaid page, when you are accustomed to turning out a 250 or a 300-page catalogue that is all paid, even the inside cover and the back cover. I mean everything except the front cover was paid for, then to sacrifice anything for editorial it has to be awfully good editorial before you could be convinced of it. I allowed that thing to move up and it gradually crept up. We started at about 15% editorial content and finally wound up with about 45% or 50% which was content rather than advertising. Which is still, by most publications a pretty good ratio, but in our particular case, we were regressing. We weren't moving forward.

Haigh: That's true. And I guess that would change who your competitors were.

Welke: Absolutely.

Haigh: So, as you switched more into editorial, what were the toughest competitors for that market?

Welke: Two of them – *Datamation*, which was a monthly magazine; we were not monthly; we were either quarterly or bimonthly. And *ComputerWorld*, which was weekly. Those were always the giants that we competed against. And it's interesting because to begin with we had rented the circulation list from *Datamation* because they didn't look on software as being much of a market. They didn't look at us as a competitor at all because we were just after all sending out *The Skinny* which was a catalogue. I don't know if they didn't realize that it was all paid advertising or, because it looked like a catalogue, you know, it didn't look like it was paid advertising. So, we got away with that for a while, but that caught up with us too.

Haigh: So later they were seeing you more as a competitor?

Welke: Yes.

NON-US COMPETITION

Haigh: And around about the early 1980s it also seemed that there was a lot of worry about the prospect of foreign competitors coming into the software industry and competing as effectively as they were doing in electronics and to some extent in hardware.

Welke: There was very definitely an influx of European companies. The Japanese were never really a factor. They got in with one or two products, but that is about all. And they never established a presence. But there were, at one point there was thirty-three, thirty-four, thirty-five different English firms that had established offices. They didn't get an agent or a reseller but opened offices on their own accord in New York, New Jersey, Boston or Chicago. And they began making some very nice inroads into the marketplace. The American market was always very attractive to the Europeans because their own market was a fragment of what the American market was. I mean the population in the UK is nowhere near what the US is, plus they had a different way of looking at the software product business which resulted in a smaller market than what the American market was. So it was very attractive to want to come here.

But that wasn't the only competition that the industry was concerned about. The other ones that they were concerned about were the Fortune 500 companies that also thought this was a pretty good business to get into. And there was a time when there were more than, I don't know sixty or seventy large companies that had spun off a division or established an entity that was dedicated to being in the software business. Professional services to some extent, but much more the product business. In many cases, because the DP manager said, you know this is a great way for us to make more money, this is a new division, a new revenue source, and was able to convince top management that, look at all these other software companies making money – we can do this too. I don't know of many of them who are still in the business, certainly not the way they were back then. For instance I was reading just the other day in *Fortune* magazine where Boeing is very deeply involved in information

technology, and I think some of the larger companies are, but in a different sense than what they were trying to do twenty-five years ago.

Haigh: But yet ultimately, with a few obvious exceptions such as SAP, it seems that American companies continue to dominate the global software market. Why do you think that is?

Welke: Because we have the largest market and we had the lead in it and we had the technology for the hardware and all of the other things, the infrastructure around the software. And at this point we've got the distribution systems for it as well. We've got the largest software companies that are capable of distributing product. And that's just come about maybe in the last what, six, eight years, ten years outside. There has been that very definite shift where the distribution network is increasingly important to success in the software business.

MICROCOMPUTER SOFTWARE

Haigh: So following from the minicomputer companies, at what point did microcomputer software first appear on the ADAPSO radar?

Welke: When VisiCalc hit the market which was what 1979, 1980, 1981? Somewhere in there it must have been.

Haigh: VisiCalc, I believe was in 1979. And then Lotus 1-2-3 came along a few years later.

Welke: VisiCalc was really the killer application for the micro at that particular point. There was no question about it. And then, from that point on, the large companies doing mainframe software saw this emerging thing happening and figured they had to get into that business and didn't have the foggiest notion of how to do it. I can remember John Imlay who was running MSA at the time, Management Science America, very successfully selling product for twenty-five, fifty and in some cases a hundred thousand dollars a package. And they bought a micro company called Peachtree Software in Atlanta and lost a ton of money on it. I mean he was in the business for about, I think it was more than two, two and a half, three years at the outside and lost at least 25 million dollars every year on the thing. John and I were good friends. In one of our meetings he said, you know there is just no way you can sell a software product for five hundred dollars and make money. He said it's just not possible. We've tried everything and it's not possible to do it. He says all these people are going to go out of business. He says, they can't do it; it's not going to work. And he just gave up on it and sold it off. Sold it off to one of its managers, who has made it into a very successful little business. I don't know if they are still independent. I think they might have been bought by somebody else at this point. But for the longest time they did a very, very credible job selling five hundred dollar Peachtree accounting systems.

Haigh: So if the established software companies couldn't move successfully into the microcomputer software business, did the new firms that sprung up join ADAPSO, did they need the same kinds of things that ADAPSO had successfully been giving larger established firms?

Welke: No. See, that was a mistake that ADAPSO made someplace along the line. We had micro PC companies join ADAPSO and in a sense it was a competitive move of ADAPSO against the Software Publishers Association, which recently combined with the Information Industry Association, so they call it something else. I think it's the Software & Information Industry Association. But at any rate, we were trying to get micro companies to join ADAPSO and this other trade association was trying to get them to join. Microsoft and people like that joined both obviously. But once they were members and we had a significant group, thirty, forty, fifty micro companies that were in ADAPSO, they wanted then to spin off into a separate section and the people who were running the software section helped make this happen, but slowly. Running a micro software or a PC software business is as different from mainframe software or what we normally considered software business as professional services was from running the product business, in a different way. But it was a different set of constraints, economics, cost equations, everything.

Haigh: So you consider minicomputer software as having been a lot closer to mainframe software than either of them was to micro software?

Welke: Yes, absolutely. All of the business principles I think were transferable to the mini but not to the micro. You can take a software product from twenty-five thousand down to ten or even fifty down to ten, but can you take it down to five hundred dollars without making some dramatic changes in how you create the software, how you package it and how you distribute it. And that's what I think was so dramatically different and caused the micro people, the PC people, a totally different set of problems.

Haigh: So they would have had the same issues about how to protect it, how to license this thing, how to sell it and had to work those things out themselves and come up with different answers.

Welke: Exactly, exactly.

SOFTWARE IN THE 1970s VERSUS THE 1990s

Haigh: So looking back then at the early history of the software industry, what do you think the most important differences are between how it was back in, say, the very early 1970s versus how the software industry exists today? And in what ways do you think it's remained similar?

Welke: Well, the industry has evolved to where you have some segments that are dominated, literally owned, by some companies. So the competitive landscape has changed dramatically. Further than that I think distribution has taken on more importance than development and technology. You still have to be very clever in creating the product, but you can have created the best product in the world and that still doesn't guarantee you access to the market, unless you have that distribution network. On the buyer side, I think the buyer has changed to where buying software is no longer a threat the way it had been. It's not an insult to my intelligence if I buy something rather than create it myself. But there is still that feeling on the part of technicians, a lingering not-invented-here syndrome. I'm not so sure that doesn't exist with almost any profession; it doesn't make any difference. The

professional engineer is threatened by some new approach that he didn't think of and that kind of thing. I think the barrier to entry has been raised as well by all those things I mentioned. You still have people who want to get into the business, but it's not as easily done as it had been at one point. And the current economic situation being what it is I think we're seeing a major shift in professional services since it's no longer a demand-driven market where just because I'm a certified Microsoft technician I'm capable of working wherever I want and I can just about ask whatever kind of income I want as well. That doesn't happen. Now I hear a lot of large companies who say we have a short term need for some programming staff augmentation and we'll pay forty-five dollars an hour for it, that's it. And the software companies are saying, we can't make money at forty-five dollars. They say well fine, then don't bid on it. We can get somebody who can.

Haigh: So those broad shifts you identified, high barriers to entry, consolidation, increased emphasis on distribution channels, do you think that those are tied to the rise of microcomputers and client/server approaches or do you think that's the direction that the industry was heading in, even if it hadn't made those major technological shifts?

Welke: I think we would have gone there anyhow, quite independent of the technology. I have grave doubts about some of these so-called big technology moves like client/server, or things like CRM. They have yet to prove themselves as being valuable. I think it is the buzzword de jour, if you will, and the industry is susceptible to that or it seems to be. I'll let it go at that. But we would have wound up here regardless.

SOFTWARE AND THE INTERNET

Haigh: One thing, that admittedly doesn't seem quite as powerful now as a couple of years ago, is the Internet, in terms of changing distribution patterns and opening up new niches.

Welke: The impact of the Internet has yet to be fulfilled or the promise of it has yet to be realized. I think there are a lot of things that we will do and change in the way of process. We're still too involved with using the Internet for access but not for process. There are a lot of things that we ought to be delivering on the Internet that we are not delivering on the Internet and there are a lot of things that we try to deliver through using the Internet where we should just say screw it, that doesn't fit. I mean it's not an information product and it doesn't make sense to try and do that on the Internet. But how we manage the business, I'm looking for major changes in how we conduct business, the business processes, the social relationships and the business relationships by using the Internet more effectively than what we do now. That's going to require a different level of security and a different level of product quality than what we have right now as well. I think we're just beginning to sense how bad that security and quality is and the degree to which it must be improved before we can really move forward with the Internet. Software still has a long way to go before it meets any kind of 6 Sigma quality.

APPLICATIONS SERVICE PROVIDERS

Haigh: Actually, in terms of distribution, one of the big recent ideas has been application service providers, which reminds me that thirty years ago there was the idea that everybody

would be renting applications from timesharing systems. So why didn't that work even in niches?

Welke: Because it's a lousy concept. Because of security, because of integration and because of the inability to interface and also all of the economics around it that has yet to be worked out. And I don't know that people really want to conduct business on an ASP model or a timesharing model. Yes, there will be some things that can be done that way and you can distribute information and build an application and price it and make money on it that way. But I don't think business is basically built that way. I read a paper just yesterday on this whole thing of supply chain management and is that effective or is it not? Is it just a wild idea that somebody is promoting and a great way for consultants to make money but is business necessarily benefiting from supply chain management as it is being defined. The direction of the paper that I was reading was no, if anything, it was everybody doing whatever it was they were doing within supply chain that caused the last recession that we've just gone through. I don't know whether I subscribe to that or not, but it's a different way of looking at it. Are we really moving forward or are we just putting different labels on doing the same thing, only in a different way. I look at dot net service and I say, gee, for all the hype and everything that everybody is saying about it, dot net service may be a great concept but let me see how is it different from ASP and timesharing and all the things that we've tried in the past? Is it just a new label on an old discipline that never worked and because it didn't work we've got to give it a new label and see if it's going to work that way. I don't know.

PRODUCT LICENSE AGREEMENTS

Haigh: I'll finish up with two questions that pick up from those concerns. One is that it's notorious now that if you buy any piece of software there is a license agreement printed in the shrink-wrap package and it says this software may destroy your business. We don't promise that this software will do anything. You don't own this software. All those other things. How do you feel about those kinds of terms and were similar conditions attached in the earlier days in the software industry?

Welke: I have to admit I'm ashamed to be part of an industry that conducts business on that basis. If you're producing a lawn mower that doesn't cut grass, or can ruin your yard, and if I'm going to produce that product and not be held responsible for it, then I shouldn't be producing that product. I should be able to do something that is going to give you a valuable result. And I think a lot of software is getting away with, at the very least, bad business practice. I think that has to change. I really do believe that has to change. Or we're never really going to be able to realize the benefit of something like the Internet and we really ought to. I mean how we can dramatically change what we do, even down to the point of educating our children, let alone providing goods and services by having a reliable network such as the Internet.

IMPACT ON THE WORLD

Haigh: And finally, it seems clear that through your career one of the things that has been driving you is a deeply held belief that computers can make peoples' lives better and

make the world a better place. Looking back and looking at the world today, do you think that they have fulfilled that potential?

Welke: Yes. I guess if I have one misgiving it's that we don't pay enough attention to the "have-nots." But for the people who are the "haves," they definitely are better off with a computerized networked society at their disposal. But I'm concerned greatly about the people who don't have it and what are we doing about it? And I can I get emotional to an extent about this whole Afghanistan and World Trade Center and everything else that has gone on since September 11th. I don't necessarily agree with the administration at all. I look at, you say, what did we spend in the Afghanistan campaign? I heard some numbers that approximated about a billion dollars a day in arms and destruction that that whole campaign cost. You say, now wait a minute, what would have happened to their belief or understanding of America, of the United States if we had spent that kind of money paving roads, building bridges, building schools, providing education for their children, food for the people who are starving to death over there. If we have that much wealth, can't we use it productively? Can't we do something with computers and can't we network their society and give some of the good things that we enjoy and let it be shared by somebody else. I mean if we've got enough money to kill people is that the best use for the money? I don't know. So at some point I'm going to probably get very involved in social issues as far as computers and how we can improve ourselves and a lot of other people by better use of the technology that we waste in many cases.

Haigh: Do you think the government could be doing more to further that domestically as well as internationally?

Welke: I think the government can if you choose to have them take an active part. I think business can do something as well. Business can do a lot - take on a lot more responsibility than what they are doing at this point. I don't believe that the profit motive should be the only motive. There are a lot of other reasons that you ought to be in business and be successful.

Haigh: Well, that concludes all the prepared questions in the areas that I'd thought to discuss - if there is something else that you'd like to say in general or about your career then please do so.

Welke: I've talked to my wife about this. When I look back on it, I've been blessed by being able to be part of this industry. I've had some tremendously wonderful, beautiful experiences and traveled the world and made hundreds of friends. The industry has been good to me. So I'm grateful for all of that. I keep looking for better ways to be able to give something back and I don't know that I'm giving back as much as I should or could or will or whatever, you know. That's it.

Haigh: Thank you.