



Peter Cunningham

Interviewed by

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25 October 2018

At the

WCIT Hall,

32a Bartholomew Close, London, EC1A 7JN

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Archives of IT

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Welcome to the Archive of Information Technology. It is the 25th of October 2018, and we are in the Livery Hall of the Worshipful Company of Information Technologists in the City of London. I'm Richard Sharpe, and I've been covering and researching the IT industry since the early Seventies.

Our contributor to the Archives today is Peter Cunningham, and he established, in 1974, a very important company, but it is apparently unsung. According to the History of the Software Industry by Martin Campbell-Kelly, the pre-eminent historian I think of computing in this country, he said, 'Perhaps the most enduring legacy of the 1970s, and the focus of the second half of this chapter, was the classification of software products. It is easy to overlook the significance of this development, but consider trying to find a library book without a catalogue. Industry information providers such as ICP and INPUT, which Peter Cunningham founded, played an important and largely unsung role in this process. Much as the World Wide Web could not function effectively without search engines, the software industry could not have existed without intermediaries to facilitate information and searching.' So now Peter Cunningham, it's your chance to sing about your praises, and to put it on the record. And it wasn't only software you were looking at in INPUT, it was also services I understand.

Absolutely. Yes.

[01:30]

You were born in Wales. Your father was in the RAF. And you happened to be brought up as well in London with a Jewish family that looked after you.

That's it.

And, that apparently gave you an international, a multicultural, and a tolerant perspective on life, is that right?

I think that's very well put; much better than I put it earlier. That family was an international family with Egyptian and Italian roots. My parents had met in Egypt. My father had travelled with the RAF, went through Dunkirk and, and North Africa

and many different things. Spoke Arabic. And, yes, so I grew up in a very tolerant and international environment. That gave me a wish to travel, and to work in different places, and also, to be honest, I didn't really like the British structure and system. In fact, when Barney Gibbens told me I should join the Worshipful Company of Information Technologists that they were founding, I said, 'Barney, give me a break.' (He always called me 'Cunningham', and I always called him 'Barney'.) I said, 'Barney give me a break. I've tried to escape from all this stuff. Why should I...' He said, 'Cunningham, join.' So I did.

So you joined.

[laughs] And here we are today. Anyway, so what background can I give you?

[03:00]

Well, you went to school in London then, mostly.

I did, in Stamford Hill, went to a Jesuit grammar school, St Ignatius.

Right. Your parents were Catholics then?

My father was very Catholic. ... That is another international side of things, he was born and brought up in in what was then British Guiana. My great-great-great-grandfather emigrated, was a trader and he emigrated from Glasgow in about 1860 to British Guiana. So my father was born there. So, I've always had an attachment to the Caribbean as well. Yeah, we essentially had a, I'd say a fairly strong international relationship, you know, going right back to that point in time.

So the Jesuits, give me the boy, I'll give you the man. That was their slogan was it not in teaching?

Yeah, if they got you by seven years old, they had you. And the Jesuit education system is fantastic, because logic is very important to them. I always remember, one of the qualifications that one of our teachers had to get was to argue in Latin about the

atomic bomb. So their intellectual capability's very strong, to be able to do that kind of thing.

[04:27]

Anyway, I did reasonably well at school, and then went to Imperial College, in physics.

What drew you to physics?

[pause] It's logical. It's analytical. And, I think most of all it's interesting. I was just at Imperial College yesterday, having some discussions with the natural sciences people. I mean the stuff that they are in... Maths and physics is the basis for everything. It doesn't matter whether it's chemistry, biology, botany, anything you want to do in science and engineering, you've got to have maths and physics. And, computing's a bit different, that's mainly about logic, but maths is also about logic. From the age of fourteen I just did maths, physics and chemistry. My children are much better educated than I am, because, they went through the American system, and the American system is much more generalist. A few exceptions, Caltech is, is possibly the only real exception to that. And quite honestly, I think the American education system is better than the British, because of the generality. You specialise so early here, and so you're so narrow. I studied under three Nobel Prize winners, and my third year physics at Imperial was postdoctoral level in most American universities. But that's all you would know. And today it's very important to, instead of having these stovepipes, you need to have a much more cross-discipline approach. Anyway, that's another subject. So I went to Imperial.

No, it's a very important subject.

Graduated, 1964.

[06:19]

You were too young for National Service, were you?

Just missed.

Just about.

Yeah, and I also just missed being drafted in the United States too, so, [laughs] I was very fortunate.

And you looked to the computer industry.

Absolutely.

To then the British computer champion, ICT.

Correct.

Why did you do that?

I needed money. [laughs] I had a state scholarship, and, I usually spent it by halfway through the term, and then had to sort of, ring up a few debts. I've still got my bank account that I formed in 1960 actually. I would continually get overdrafts, and the bank manager would say, 'Hey, you need to, [laughs] stop.' I needed money quickly when I graduated. And, the computer industry was just starting; there were a couple of articles in the press about computers and what the future might be. I went for some interviews, and ICT offered me a job quickly, as a systems programmer, and they were just getting into the third-generation computers with the ICT 1900, which was a Canadian. It was actually a Ferranti-Packard computer that they had picked up from Canada and transferred it over here.

[07:33]

In 1964 ICT announced the 1902, the 1904, the 1905 and the 1906.

Correct.

And they ranged from £105,000, you could only purchase them then, not rent them...

Right.

...through to, the 1904, £260,000, to the 1906 at £700,000.

Right. But you couldn't get delivery. [laughs]

No. You had to wait a long time.

Yeah, the 1904 I think was the one that we worked on. It was just a paper tape machine.

[08:05]

Right. As a systems programmer, you were writing operating systems, or what?

We were in Putney Bridge House South actually, and, we had a team of people that were writing the basic operating system. David Jupe was the guy who ran it. There was another guy, Tony Hetherington.

A side issue that I was talking about yesterday at Imperial College is that the male-female distribution in our programming class and then also on the floor where we worked, was 50-50. Absolutely. In my early days in the computer industry we had 50-50 men and women, Yeah, 60 here 40 there, 40 here 60 there. And it's always amazed me how, as you go up the tiers in the industry, it became more and more male dominated. It's a huge issue and one I have worked on. IBM was a great client of ours and a lady called Barbara Boyle Sullivan was a good friend who put the equal opportunity programme for women into IBM. John Sullivan, her husband was an executive of the Computer Sciences Corporation. It has always amazed me that that distribution did not continue up into the higher levels of the industry. But again, that's a separate subject.

Why does it amaze you? What is... What is...

Well because the talent was there as you can see from Steve Shirley and others.

Well it was patriarchal wasn't it.

[sighs] [hesitates] Yeah. I... Well, there are a bunch of reasons. I mean I, I talked to Barbara about it a lot. I once made the statement that I'd much rather hire a woman programmer than a man. I still have the scars on my back [laughs] she gave me. She said, 'Yes, because women pay more attention to detail, they're more consistent, they're more, they're steadier. The men are always looking for the next thing.' That goes back to the psychology of the men as hunters: they're always going out looking. Whereas the women essentially were the protectors of the environment. They had the children to look after and maintain. They were the steadier component. And this is true. If you think of the men in the industry, they're always hunting for the next opportunity, the next thing. Anyway, it's a really important subject, and it's one that's always been very important.

In my company, we had a balance of executives, not because we chose to be diverse, they're just simply the right people for the job. We had three women and four men as our directors. It was a natural thing to do. Actually, a couple of times we had more women than men.

I don't believe in diversity for diversity's sake. I think it's a total mistake. What I believe in is the advantages of diversity, you put together a team where you have different capabilities, and you meld those capabilities together to make the most effective team. That's for the benefit of everybody that's involved. Anyway, it's another side issue, so...

No, it's not a side issue at all. It's, it's central to our work, and it's quite staggering that the position of women if anything has gone backwards in this industry hasn't it.

[11:28]

I totally agree. Yeah.

Anyway what did I do at ICL? My role was to write sort merge programs.

Oh right.

Now, this may sound very archaic, but this was before disk drives. We had magnetic tape systems. XSMN was my sort merge program. There was an American magazine, the *Journal of the ACM*, , that has an article about the different kinds of sorts you could do: read-reverse polyphase, and, a bunch of stuff like that. This one

article in the ACM journal was kind of like, our bible [laughs]. We looked at it constantly.

Merging: if you sorted two files and you needed to merge them, the whole issue of how you went through the merge process had to be addressed. Anyway, that was my specialty.

And what sort of method did you use?

I can't remember.

Right.

[laughs] Actually, it was very interesting. I used the same concept later on. If you're sorting, you take one thing to sort first, like your first name, and then you sort secondly by your second name, and then the third you sort by the city and so on. These are just different sorts. So which sequence do you go in? Do you go first name first, or do you do the last name first? Or do you do the city first? Well it turns out, the optimum is to use a combination approach rather than 100 per cent sort of the first term followed by 100% of the second.

I actually used the technology later on in the United States when I was writing programs to sort television and radio diaries at American Research Bureau. The idea is not to do anything 100 per cent first, and then the next one and the next one and... The idea is to do a combination, which is what we found out to be most efficient process.

And did you use the shell sort method?

No.

No?

Not that I remember.

I remember being taught it, and I was just amazed. It was just a revelation to me...

Oh that's interesting.

...to see the sorting process.

Yes. Well you were a little later than...

I was a little later.

Yes.

Yes, that was, early Seventies, and learnt...

Yup.

And then of course, it just, the penny dropped. There are so many ways in which we have to sort things.

Absolutely right. Yup.

There's a list of programs, a list of, the stuff you've got on your computer, has been sorted for you.

[laughs] Well now of course you can search, which is, which is the huge change in all that business.

And so, the computer companies then were, there was already minicomputers on the marketplace, just about.

Not in '64.

'64? Mm... Yes, I think you're right. Oh, no. PDP-1 1960. But, but but, that's, that's...

Yeah, but it wasn't...

Mainframes really.

Yes, it was...

And they would be shipped with an operating system.

Yes.

Your utilities for sorting and merging.

Yes. And reading cards and paper tape.

And, and readers, yes. Yes.

And printing.

And printing.

And printing is a big deal.

And, maybe, we hope, a compiler and/or interpreter...

Yes.

...for FORTRAN. And obviously an assembler.

FORTRAN... I can't remember exactly when we got... The first thing we had was PLAN which was one language above assembler language.

Did you write yours in PLAN, or did you write in assembler?

Assembler.

Right.

I only stayed at ICT for about eighteen months, because we were not getting paid very much. I think I was being paid £400 a year and then I found out that I could earn twice that. I went to a company called McClintock, Mann and Whinney Murray (MMWM), which was three or four accounting companies that had got together and needed a computer organisation.

We were doing Autocoder on 1440s, and that was the first time I had come across a disk. I always remember having to write a date program in one sector for storage, which was 120 bytes I think. The only way to do it and keep it in one sector was to use instruction memory. You had to overwrite instructions. You'd start the program, and then you overwrote the starting program with data storage in order to be able to do your calculations. It was a time when memory was so scarce, both storage and processing, that you used every byte.

The 1900 series was a 24-bit based computer, whereas IBM had already switched to the byte concept. There were two architectures then: a word concept or a byte concept. Eventually the byte concept worked out. But the word systems were actually pretty interesting. The choice has always been interesting to me: Martin may cover it: how the world changed because of very simple decisions like word or byte. ICL had the 24-bit word, or Control Data was the 36-bit word, and IBM went to the 8-bit byte. Honeywell I think was 8-bit byte as well. But just very fundamental changes.

I think Harris had eighteen bits didn't they? Harris had a range of computers.

I don't know.

I kept on asking them why, and they said, 'Oh well, we think it's better.'

Well you had English Electric here as well as Marconi. There were all these different structures. I often wonder what happened when they sat down and said, 'Well how many bits do we want to have in our...?' 'Oh we choose that.' [laughs] I think the decisions in the industry were often not logical, they're emotional.

Mhm.

This is something that flows through the whole software and services industry. All the executives I've known, often made emotional decisions, and then tried to back them up by logic. Led to some very interesting discussions where we were coming in as an analyst and an observer, and trying to be unbiased about our opinion. As Martin points out, we were building structures that people could use in definition of the markets that they were in for communication with the financial industry, which was totally ignorant. In some cases it still is in this country: technology and the support of it. That's again another subject. So where are we?

[18:35]

OK, I was a systems programmer, and then I went to McClintock Mann and Whinney Murray.

And this was a consulting company.

Yes.

And, basically using the expertise of these accountants to earn more business, as consultants and helping other people implement systems?

Well for example, some of our clients at MMWM were the shipping consortia. The shipping companies get together because if you're going to ship goods from Australia to the United Kingdom, you have local ships that pick the goods up, deliver them to a central port, and then they'd go from central port maybe to Hong Kong, and then from there to UK. The different shipping lines form these consortia and arrange for how do they work together. There was an Australia-North America consortium that we wrote the software for.

They would have do the accounting for this using a firm like Ernst and Young or Whinney Murray. (A lot of the accounting companies were Scottish in origin, as were the trading companies. That is another story.) The accounting companies worked for these shipping companies who needed to have systems designed, in order to process the information. That's how we got into doing it. It was good.

What was the platform you were writing for then?

It was Autocoder, on 4040s, IBM 4040s. One of the reasons I left ICT was it didn't have the drive at the management level. The managing director had made the statement that he didn't think computers were going to come in in a big way for, another ten or 20 years or whatever it is. Just when the 360 was getting going.

Right. IBM launched this range of computers called the 360, which had the same peripherals up and down, which was plug-compatible, had much the same software, although there were two different operating systems developed.

That's right.

And, that was launched in, when? '68.

Er... No. It was earlier than that.

Earlier than that.

Yeah yeah, because we were...

'63.

That's right.

1963.

Yes and that's why ICT got the 1900. ICT was basically plugboard oriented; they used Hollerith's plug board machines. We learnt how to do plug computing in training on the 1000 or something, which was their primary level machine. That was when the managing director said, 'Oh the plugboard's not going to be replaced by a computer.' He was still pretty backward. The reason ICT was so driven to get the Ferranti-Packard from Canada was that they saw IBM with the 360, and ICT only had the 1300 as their machine, but it wasn't a third generation machine. It's kind of interesting

chronology; they got the Ferranti-Packard in order to make the 1900 in order to be competitive with the 360. MMWM got a 360 30 as well, but I don't think I did any programming on it as I then went to the United States.

[21:54]

Then you went to US.

Right.

To a new company called MSA.

No, I went to...

Didn't you?

No, so... No, I went to a company called C-E-I-R.

C-E-I-R, sorry.

Yes.

I've jumped ahead.

Yes. C-E-I-R originally stood for Corporation for Economic and Industrial Research.

Ah yes. Yes.

It was set up by a Brit, Dr Robinson, who had gone to work in the United States during the Second World War.

Why did you go to the US?

I had this international view, wanted to travel. I had got married, and we were having a kid. So what am I going to do? The computer business was mainly American. Even

the ACM journal for the sort/merge stuff was American. So if I'm going to be in this industry, it would be good to go to America. At the time, there were advertisements in the paper from this company hiring programmers to go to the United States, and they did the interviews at the Royal Park Hotel by Hyde Park. Anyway, I talked to my wife Pat, and said, 'Well what do you think?' 'Oh,' she said, 'whatever you want.' So I went for some interviews to see what would happen. Of course the salaries just seemed, God, outrageously high. I think I was earning £1,000 or something a year, and the jobs they were advertising were \$8,000 a year, which at the time was a lot of money. I looked at the American papers, and could see what was going on. I got offered a job by Xerox in Rochester. That would have been about June, July '67. Then of course Xerox went through one of its periodic downturns and cancelled. It wasn't just me, it was a whole bunch of people, and they cancelled our jobs.

The guy who interviewed me said, 'Well look, there's this job in Washington DC.' I said, 'OK, where's that?' [laughs] So I went over there with C-E-I-R. When I landed, I thought that New York was the capital city of the United States. [laughs] Just shows the lack of education that we had in terms of the world. Yeah. So, but...

[24:10]

'67 to '72 you were there.

Yup. Yes.

This is an interesting period for the industry, well every, every block of time is an interesting period for the industry...

Yes.

But a particularly interesting period because, in '67 Digital Equipment Corporation launched the PDP-10.

Yes.

A rather interesting and very important machine.

Very important machine, yes.

The United Kingdom had 2,252 computers, 55.4 per cent US made. So the US was really getting in.

Yes.

And IBM had launched new operating systems for medium and large systems.

Yes, that's right. DOS.

DOS, and MBFT.

Yup.

And a rather interesting company was founded focusing on memory called Integrated Electronics, that we know as INTEL, in '68, the next year, by Moore and Noyce.

Yes.

[25:05]

In 1967 you moved to the United States.

Yes.

Why was that?

Well basically, I wanted to go where the action was, and the action in the computer industry was definitely in the United States. I mean even in my sort merge program I was using an ACM journal article as our bible. Because of the international background that my parents had, and the family that I grew up with had, I wanted to travel. I felt there was more opportunity outside Britain. Britain was still very class-conscious. At Imperial College we had a very international community, New

Zealanders, we had a mining school, so you had a lot of South Africans, and Australians, and, we had an engineering school. Engineers in Britain were forever looked down on, which was a mistake. Engineers in the United States are always the key to their growth. The Scottish engineers really created the railroads, shipping and other engineering activities where they were really strong. But Britain was still, as I say, class-conscious. I think it's still pretty class-conscious actually, less so than it was. But, anyway, so I wanted to get out.

You wanted to get out, and you moved to the US, and you were paid about \$8,000 a year compared with £1,000 here.

[laughs] Yes.

And you were then a software development manager.

Yeah, I went to C-E-I-R in Bethesda, MD and did some stuff on the 7090s. C-E-I-R had a subsidiary called American Research Bureau that did radio and TV audience measurement research. Arbitron, as it now is, is a New York Stock Exchange listed company. It was located in Beltsville, MD and I went over there to program on 7090s and 360s. I became pretty quickly assistant manager for a programming department of about 25 programmers.

Then Control Data Corporation took over C-E-I-R; that goes back to your comment about the PDP-10, and my comment about time-sharing. C-E-I-R started to use an XDS-30, which was a kind of rival to the PDP-10, to build a time-sharing system. Control Data Corporation desperately needed a time-sharing system. They didn't need C-E-I-R for its government contracting, they didn't need ARB, but they did need the time-sharing system. So they bought C-E-I-R.

They decided they were going to move C-E-I-R away from IBM to Control Data computers, to the CDC 6000 and also the CDC 3500 or something like that. My job was to convert the 7090 and IBM 360 software, or, really upgrade it to work on the Control Data Corporation databases.

ARB used to collect twice a year a million diaries. They'd have, a million households in the United States fill out these diaries, hour by hour, reporting watching television, or listening to the radio. We had to process the answers to those diaries: which

station were you watching, what programme were you watching, etc. The reports that were produced became the bible for buying and selling advertising on TV spots, radio spots. Advertising agencies bought them, advertisers bought them and stations bought them. It was a very big business. Its competitor is Nielsen.

Right. Yes.

Arbitron, ARB and Nielsen did both radio and TV. Now, Arbitron primarily does radio and Nielsen primarily does TV, they've come to an arrangement.

This is a large amount of data you're dealing with for that time.

Yes, absolutely huge.

A huge amount.

Yup. I ran the conversion program; did the conversion over to the Control Data systems. However, Control Data was a Minneapolis-based organisation, and I knew the guys that ran it, and, they were sort of semi-governmental. It was like, if you were this age, and you had this amount of experience, this is the amount of money you get paid. Well I found out that several programmers who were working for me were getting twice as much money as I was. So I had a discussion with them about that. And, they said, 'Well, this is our standards, this is our procedures.' And at the time Control Data wasn't really interested in ARB as it then was; it was a sort of side thing down here. So I said, 'OK, I'm leaving.'

[30:04]

I left, and that's when I joined Management Science America. MSA was out of Atlanta. They were trying to get to about \$100 million, which was the sort of, the magic number to go public. They came into Washington and bought four service bureau companies. They were spending money like you couldn't believe with the idea that they would get up to 100 million and go public, and then they'd all make a fortune, and it would be all lovely. The trouble was there was a recession in 1970 in the computer industry and MSA decided to go bankrupt.

I was a manager by then in the Washington office. My business was primarily commercial, not government. I did some work for AOPA, the airline pilots' association, and I was putting in systems for textile companies in Lancaster, Pennsylvania and elsewhere. I had three or four big clients.

The President of the company came up from Atlanta and said, 'Look, you're making money. You've got a choice. You can form your own company, you can join another company, or you can stay with us. We're going to go into Chapter 11, it's just a matter of time and then you'll just take your chances'.

We sat down at the conference table and said, 'What shall we do?' None of us had run a company before, and we were all in our twenties. It's like, mm, well let's see what happens. Other companies would come round to buy us because we were profitable, we were growing, we were doing some good things. There was a company that approached us that was a company out of Los Angeles that had set up a UNIVAC 1108 time-sharing service to rival Computer Sciences Corporation's Infonet. The guys had come out of CSC and formed this organisation. We said, 'Yeah, that's exciting, you know, it's time-sharing, they've got a good image.' So we joined them. MSA went into bankruptcy.

[32:20]

Then three months later this company went bankrupt. We were all in our twenties, so all our pay cheques start bouncing, which means our rent cheques, our car payments, everything else starts bouncing. We sat around the table again, and said, 'Now what we do?'

'OK, well let's form our own company. What we'll do is, we'll go to each of our clients, and say, 'Give us a cheque, as of today, for the work we've done, payable to the company that we were a part of that was going into bankruptcy. Then we can continue our work with you.'

We did that; we all went out to our clients in a week, or a few days actually, and got the cheques. Now we had a stack of cheques in the middle of the table. The Manager of the office said, 'OK Pete. You go out to Los Angeles and what we want is a cashier's cheque for the total amount owed to us for our pay cheques and expense cheques. Then you can give them these cheques, which are, in total, a lot bigger.'

I got on a plane, flew out to Los Angeles. I went down to their office in El Segundo. I heard the chief financial officer talking to people on the phone say, 'Well, I can pay you five cents on the dollar.' [laughs] . Eventually he came out and I said, 'Look,

I've got these cheques. But I'm not going to give them to you [laughs], unless you give us a cashier's cheque for what you owe us.' He said, 'Well no, you can't do that.' I said, 'I can.' [laughs] He said, 'How much is it?' I told him the amount. 'How much do we owe you?' I told him the amount. He said, 'OK.' We went downstairs to the bank [laughs], and I signed over the cheques and he gave me the cashier's cheque. Then I got a red-eye back to Washington. When I got back to Washington everybody was sitting round the table waiting. I came in, threw the cheque on the table and then went home to bed.

[34:19]

While I was gone they had formed a company; JW Goodhew and Associates. The first president was a guy called Bill Goodhew from Atlanta who was our manager. I only had \$1,700 to put in so I got 17,000 shares. Well a couple of the guys put in \$4,000 each, so they got 40,000 shares each. Turned out that was 80 per cent of the company.

We went out and we kept on doing our jobs. Bill came in to my office one day and said, 'Pete,' he said, 'I'm going back to Atlanta. You're the new president.' And I said, 'Well what does that mean?' [laughs] It's like, what do you do? He said, 'Well, you, you know, you're now the president. You work it out.' So, I took over as President of this company at that time. I ran it for, about, I guess a year. We were growing, we were making money. But the two guys that worked for me, that had 80 per cent of the company, said, 'Mm, we think we can do a better job than you can.' While I was away on vacation they had a palace revolution. When I came back they said, 'What do you want to do?' I said, 'OK, well, I'll sell my shares back to the company, and, I'll go off and do some consulting.'

I left. And three months later, six months later, the company went out of business, because, they couldn't run the company. It went out of business with money in the bank, with contracts, with good people. It was, it was the weirdest thing. I've often thought what would have happened if I had stayed with it.

[35:51]

I went on to do some consulting, I worked on a Presidential commission. Lyndon Johnson had set up the Presidential Commission on Marijuana and Drug Abuse. Bill Clinton may never have inhaled, or Obama or whoever it was, but everybody in Washington at that time smoked. I played rugby with Dean Rusk's son who was Secretary of State, and he only smoked cigar size marijuana. Everybody who was

coming back from Vietnam smoked it. People in Britain don't understand, but the late 1960s in Washington DC was a tumultuous time. Washington was a southern town, and there were a lot of black soldiers, airmen, sailors coming back who had been in Vietnam, and who essentially felt, rightly, that they were equal. You still had segregation. There were the Martin Luther King riots; we had tanks and armoured personnel carriers on the streets of Washington. And you had, of course, the Kennedy riots.

Anyway Lyndon Johnson set up this study and it had got into trouble. There was a \$3 million budget, of which they had spent two and they had got nowhere. It turned out that in the office that we had at MSA there were a couple of people in it that really understood the whole medical industry. We had spent a lot of time in medical systems, health systems, etc. Congressman Flood, who was the most powerful congressman at the time, and his aide Steve Elko, got me involved, said, 'Can you help us?' So I said, 'Sure, I know some people who can do the research to answer the Commission's questions like: 'Does marijuana lead to hard drugs? Does marijuana lead to more crime,' et cetera et cetera. We knew how to do the research and I got the guys involved in doing it. They did the research. The results were that marijuana did not lead to more crime, any more than alcohol. The recidivism rate with marijuana was less than with alcoholics. Marijuana is technically not addictive, because it doesn't change your blood chemistry. Compared with smoking and drinking, marijuana was less harmful as nicotine and alcohol are addictive. The result was that the Commission report to the President recommended that marijuana be decriminalised; but the President had changed by the time the report was delivered and the recommendations were not followed. Steve Elko and Congressman Flood went to jail, [laughs] which was another whole story.

[38:17]

I did a bunch of these studies for the Red Cross, Federal Trade commission, etc.. But we decided it was time to get out of Washington. I got on a plane and went out to San Francisco, California where I called some people I knew, and said, 'Hey, do you have any work?' I left Pat at home in Washington., I got a couple of jobs, one was evaluating the California Medi-Cal system. EDS was the contractor, and they were ripping... I won't say they were ripping off. They were making an incredible profit on the system. My company had written the Model Medicaid Management

Information System, so we knew quite a lot about Medicaid and Medi-Cal. I did a project on that and EDS lost the contract to Lockheed.

[39:04]

There was a market research company called Quantum Science Corporation in Palo Alto., They said, 'Do you know anything about software?' I said, 'Yeah, I know a bit about software.' They said, 'Well we've got this client, Comshare, in Ann Arbor in Michigan, and they want to know what the market is for a particular piece of software.' It was database software actually that worked on DEC PDPs; PDP-10s or 20s. 'Can you evaluate this, see what the market is?'

Rick Crandall was president of Comshare and he eventually went on to run Dun and Bradstreet. Kevin Kalkhoven was another executive who ended up running a company called JDS Uniphase that had a market cap of \$100 billion at one point. So a bunch of really good people.

I did the project and reported, 'Yes, there is a market for it. It's a good piece of software. Unfortunately, if you want to have a go at it, it's got to run on IBM systems.' They did not follow up.

Quantum Science was primarily looking at technology, the semiconductor business that was growing rapidly with Intel, National Semi, LSI Logic, Varian and all those companies that were in that community in Palo Alto. They already had a guy called David Jung who was running a software services unit inside Quantum Science.

Quantum Science said, 'Ah, well, why don't you join us?'

[40:45]

I did. But then they brought in a new president, an American who had been in England. I did not think he was right for the job. I had run a company already and did not think he should be in that job. We had this discussion where I said, 'Look, I'm not working for you.' He said, 'Well,' he said, 'I'm the president. And, it's you or me.' I said, 'Well I guess it's me.' [laughs] I left and went home to Pat, and said, 'Well, I think I'll, I'll form my own company.' Which I had always wanted to do anyway.

Why?

I wanted to be, make money, and be independent.

Is that a massive drive for you?

No.

OK.

No. [pause]

Although you made ? three times.

Very... It's interesting... Well there's an interesting answer. The drive is to do, to take advantage of an opportunity.

OK.

If there's something that should be done, and you can do it, and, you can make money at it you should do it.

Right.

So, I'm not into charity or, and things like that. To be successful in America you've got to make money.

Yes. OK.

Here, it's, get a peerage or something, which is a huge distraction in Britain. People go so far and then they think, well, I can get an OBE or an MBE or, a peerage, whatever, and then they get distracted. Do Bill Gates, Zuckerberg, Larry Ellison and Tom Siebel, want to do stuff like that? They don't, they just want to keep driving the business on.

OK.

That's a whole 'nother cultural thing.

[42:20]

So in 1974 you formed INPUT.

Yes. I went home and told Pat I'd formed INPUT, and what I'm going to do is, market research and consulting for the software and services industry, which at the time worldwide was about a \$10 billion industry. And I reckoned it was going to be much larger. Now it is over \$1 ½ trillion, depending how you define it.

Computers are like the engines in a car. They're totally useless, unless you have software and services to make them work. The whole idea was that we would build the company around that. And, anyway, kind of interesting.

[42:53]

So, you had mastered being a manager of other people.

No.

Had you? You really didn't master it?

No.

But you were, it was in your title.

Yup. It was a very funny. Even when I was in Washington, I had this problem. I was, 25, 26 years, 27 years old and I was managing this department of 25 people. The guy I worked for did the upward communication and I did the downward communication. But I had a lot of problems in managing people. I went to a communications (communications meaning relationships) course delivered by a woman who was American, but had got her PhD at Oxford. I came up to her after one of these lectures and I said, 'Look, I've got this problem. People who work for me are scared of me. I'm only, this age, and I've got people who are 35, 40 working for me. Why are they scared of me?' And she said, 'Oh it's easy. In England, you're taught to never show emotion. You don't cry, you keep a straight face. You're analytical.'

Your background is very analytical, very data-oriented. In America, we aren't like that. We're taught to, be a stream, be a flower. You know, be emotional. Somebody will come in to you and say, 'I've got a problem. It's not a big problem.' You will say, 'Give me the data. Give me the facts.' You will have a straight face. They will say: 'Well it's not a big problem. We can fix it' You: 'Just tell me the data.' Then they feel threatened and get defensive. But Americans say, 'Come on Richard, it can't be that big. Tell me about it.' She said, 'At the end of the meeting, they may go out trembling from your meeting. At the end of the meeting with the American, they may fire them, [laughs] but they'll feel normal'. It was a very interesting observation. It's something I've never got around.

OK.

I'm always very clinical, analytical, objective.

Right.

And that doesn't work in companies. To be a really good manager you need to be empathetic. It doesn't mean sympathetic, but you need to be empathetic, in my opinion. But good managers are not often good entrepreneurs!

[45:12]

In 1974 we've got microprocessors coming along, 16-bit microprocessor from National Semiconductor for example.

Yes.

We've got, Ethernet has been developed by Metcalfe.

Yup. Yup.

We have IBM with a new database, the DLI. And, absolutely crucially for you looking at software, we have IBM from the beginning of 1970 selling its software, unbundling it as it is called. Instead of giving it away, they now are going to charge for it.

Absolutely right.

And they're going to charge for things like, for their teleprocessing monitor, something that people hardly think is important but absolutely vital piece of software that's hardly ever discussed, \$600 a month.

Yes.

So you were stepping into a field that was now beginning to explode with products and companies coming into it. They had already been through a cull, had they not, in the 1970s?

Oh, well there was always a cull.

There was an enormous, massive cull.

Yes. Yes. In '70, you had a, a problem; in '74 you had a problem. Remember the inflation rate and the misery index where you had unemployment and inflation at very high levels.

Right.

In the Seventies, there were problems but they were also a dynamic time. The whole relational database RDB,, SQL coming out.

Yes. Well System R, the experimental relation date, with the SQL language from IBM, was launched in '74, after the work of an English mathematician called Ted Codd in 1970, in the IBM labs.

Absolutely. Codd. And then he left IBM and formed another company. Larry Ellison started Oracle. The interesting thing in database is that almost all the database companies were within 70 miles of Palo Alto including IBM's San Jose labs. The only major exception was Adabas that came out of Germany.

Mhm.

But all the others

Ingress.

Ingress was there, Oracle, Symantec, Informix and IBM in Santa Theresa, 60 miles south of San Jose. All those database, relational database departments were in the same area. So yeah, so that was a very exciting time, and we were right in the middle.

[47:44]

Who was your first customer?

Computer Sciences Corporation.

Right.

And they...

Your old company.

Gale Lepard their corporate market research manager called me up and said, 'Pete, I want to know how much these three companies are charging for their analysts'. She said, 'We don't want to be identified as the originator of the study, but we're happy to share the results.'

I called up the three companies, said, 'Hey, I'm doing a study. I'll share the results with you.' ' And everybody wanted to know what the prevailing rates were. She gave me \$300 or something.

One of the issues was, what kind of company do you want to be? Do you want to be a consulting company, or do you want to have recurring revenues? Quantum Science Corporation had set up these subscription services, and I thought that was a brilliant idea, and there were other companies that were starting to do it as well. Gideon hadn't started his company Gartner but had the same idea.

IDC had started in '64.

Well, yeah but they were, they actually... They, they... That's right. They started first as a research company, and then they added *Computing*, and *Computerworld* was of course their big, big publication.

ICP 1967.

Yeah, that's Larry Welke.

And the Yankee Corporation in 1970.

Yeah, Yankee wasn't really very important in our area.

No.

Gartner was the main competitor. Larry Welke was very instrumental, and very focused purely on the software products industry, whereas we were much more focused on the services side. The original idea of INPUT was to service both the buyers of systems and also the vendors. That worked for the first few years, but then Gartner really took over the whole buyer market.

Right.

In terms of being a manager, Gideon came out of Oppenheimer and he knew how to use other people's money. I had no idea how to use other people's money. My view was you use your own money. Gideon and Gartner "lost" a lot of money in order to build a salesforce. It wasn't regarded as an investment, it was an expense. Definition

in the services business of losing money versus investment is very different. It's not like in a hardware company, where you've got to build parts, you've got to buy machines. In a services business, you have to hire people. There's a lead time before you start to get a return on the investment in people, but it was not regarded by the financial community as an investment, but as an expense. What Gideon knew how to do was to raise money from Oppenheimer and a few of the other financial organisations, and he used that to expand his business. He was focused primarily on the user or the buyer community. We found it very difficult to compete on both sides, because we were financing it ourselves. We ended up focusing on the vendors and not the buyers. Eventually that cost us, because, Gideon could go to a company and say, 'Look, we know INPUT's a very good company, this is what it does,' (At the time we were probably the best in the world at forecasting the future of software and services business.) 'They're very good. But, if you buy our service, you get access to 5,000 buyers.'

Yes.

In a company, the market research budget is relatively small, the marketing budget is an order of magnitude bigger; and the sales budget is, an order of magnitude bigger again. Gartner decided to focus on accessing more the marketing and sales as opposed to just the market research side.

Right.

[51:51]

That was much later. So initially we did a study in 1974, '75 of the impact of the recession on data processing expenditures. Remember the terminology; now, we talk about information technology, but essentially at that time it was EDP or ADP.

Yup.

It was different terminology, you would remember. We published this study and I got a bunch of subscribers to it; people I knew, and others to whom I sent out little brochures.

People like, who?

People I knew.

People you knew.

Yeah, Gale Lepard,, Bruce Anderson at ADP and people like that at IBM and other companiest. Very importantly, Ross Perot's company, EDS, and UCC down in Dallas, Texas. That's a whole other thought. Dallas was probably a more important centre for services than New York or Los Angeles, certainly more than the Bay Area.. I got some subscribers to sign. I put out some publicity on it, and the *Wall Street Journey* picked it up, and there was a column called 'Heard in the Street'.

Oh yes.

You may remember. Charles Elias picked up our little piece, which said, 'data processing expenditures, were going to go down because of the recession'. Because we had the data. This stirred up a hell of a row and IBM and all the other vendors said 'No, no, no, no,, it's not, it's going down, it's got to go up.' Well actually, of course it did go down. And, because it affected stock prices.

Yes.

And... Anyway, so it got publicity.

That really earned your bonus surely.

Well, it was publicity, good publicity. Then we did a study on remote batch processing, something you may not remember, but, remote batch was replacing the walk in service bureau.

Mm.

And then we started a subscription service.

And was that also called remote job entry, or is that...?

No, we just called it the future of remote batch processing.

OK.

There are always different terminologies in the industry. Going back to Martin's comment, we always focused very clearly on what is the market. The definition of the market is, who's paying. One of the issues in the industry is pass-through. For example, Computer Sciences Corporation will get, say, \$100 million of revenues. It pays maybe \$5 million each to Applied Data Research, Computer Associates and other for software. And they in turn spend with other It companies. There's a tree effect. One of the problems that the industry has, particularly the financial community, is they just add up the revenues. They just add all the revenues and say, this is the size of the industry. Well today that's really a gross distortion, because a company like Amazon, and forget the retailing side of Amazon, but the AWS side, are spending money on technology, which then is added into the size of the market. Consequently the market as reported by the financial industry particularly, and secondly, often by the media, is always much bigger than it really is.

Uh-huh.

[55:19]

Because of pass-through. We spent a lot of time on definitions.

Next we started a subscription service to look at the companies in the industry.

Right.

We would interview the companies, build a profile of them, and sell those profiles. We also started to think of a market analysis program, which was to look at the markets for software and services. At the time we had Software Products divided

into systems software, and applications software. In Processing Services, there was time-sharing services, or what we called remote computing services, batch services and facilities management. Next Professional Services, which would be consulting, analysis and software development. It was a very simple structure. Well that very simple structure, as Martin rightly points out, just exploded downstream.

Because then we start to cut it by industry, using the classification system the US Government used.

Later we applied the market analysis program structure to the office systems markets that were developing. If you may remember, that was when the word processors were coming out, with Wang, CPI and all the others.

Yes.

That was when the minicomputer revolution really came through in the late Seventies, and the Eighties.

[56:45]

Yes. Did you foresee the PC coming?

Yes.

You did?

Yup. In fact, we not only saw the PC, we forecast the future of the hand-held devices. We had a guy from IBM that had joined us as an analyst, a really good guy, and we had these discussions about what the future is. We had a classic chart that showed the mainframe, then the mini, etc. Also, what the mainframe function would be, what the minicomputer function would be, what was then the microcomputer function, and then what we called the “nano-computer”, which was going to be the, the simple, handheld device. At the time we didn’t know what it would be, because of course, there was no battery technology, and there was no screen technology. The main reason we can have an iPhone today is not the chips and the memory, it’s battery technology and display technology.

But you did see the PC coming?

The microcomputer?

Yes.

Yah.

Did you see, and what is your comment on the fact that, it wasn't quite seen at the time, but it became very evident later on, that this in fact turned the whole industry upside-down.

Absolutely.

Because it was no longer, the big hitters were no longer the vertically integrated companies from chips out to holding the customer's hand, because they had bought blue and they were never going to be fired. It now became... Well this architecture is not actually IBMs architecture anymore; it's an Intel, it's a Windows architecture on Intel, wintel.

Yeah, but it wasn't even that. There's always this argument that goes on in the industry about consolidation and one system. The European Union constantly gets it wrong. They think, oh this industry is going to be dominated by this one thing. Well it never is. The industry keeps fragmenting and fragmenting and fragmenting. There are more operating environments today than there ever have been. There are more communications environments than there ever have been. But they're all distributed in different ways.

[58:56]

There was change on the vendor side. But the bigger change was on the buyer side. Because of what the microcomputer did. Think about what happened with VisiCalc for example, which with the microcomputer killed timesharing. I remember going to Digital Equipment when they were just setting up a time-sharing service. One of their executives tells me to this day, I got him fired – well he went somewhere else, but he said I got him fired. Because we went in and made this presentation that said, time-

sharing's dead. Literally, we used that terminology. Just the year that time-sharing had its biggest revenue base ever. The main uses of time-sharing were spreadsheets, spreadsheet analysis, some messaging and some word processing. Here you had all the word processors coming out for, but most importantly, VisiCalc. I don't know if you remember VisiCalc.

1979, VisiCalc launched.

Yes. Dan Fylstra was the president. We thought at the time VisiCalc was going to be the biggest software company in the world. But the problem was, it didn't own VisiCalc, that was owned by another company, and VisiCorp was mainly just the distributor.

The big change was now the central time-sharing group, whether they were buying outside services or they had their own system, often using an IBM 4300, and they were offering services entirely on a time-sharing basis. As happened with the Internet initially, departmental people, were also buying these systems, and offloading work from the time-sharing companies.

We had a picture of the central data processing unit as a castle that had a drawbridge. Occasionally they would let the drawbridge down and they would let the, the users come in. And the DP Department would say, 'You can get access to our computer now. You've got to pay for it, and we'll, you know how much. We're in charge.' The minicomputer started the revolution, because departments started buying their own minicomputers when they could often without the central data processing people knowing, which was another issue.

This accelerated when the microcomputers came in. People just kept buying them, and they shifted stuff off the central DP. The EDP managers would go, 'No, you can't do that. You can't... You know, you're not allowed to do that.'

So we had this picture of the castle with the users outside with their guns (the guns were the minicomputers and the microcomputers) out shooting at the castle. And the walls crumbling.

We thought eventually the central data processing department will cease to exist. We used the analogy of electricity. When electricity first came out, big houses, factories, government all had their own generators. When the networks spread and took over, those things just went out the window. Computing is just like electricity. You should

be able to plug in the wall or connect to wireless and get what you want. Who's providing it, well you know, who cares?

[1:02:28]

And this period from the later Seventies and particularly the early Eighties was a particularly turbulent period, not only for the PC, but also for this new architecture that was being talked about, client server. And that was really hammering the mainframe was it not?

Yeah. But then you realise that at some point in time the mainframes were also servers.

Yes.

There is an interesting phenomenon in the computer, information systems or information technology industry (whatever you want to call it), in that people talk about an 'or' situation; you have this or that. It's never been an 'or' industry. It's always been an 'and' industry. You have this, and you have that.

Look at how long it took punch cards to disappear. They gradually slid down. They don't suddenly go away. Some things do, but very rarely. One of the reasons is of course, the software that runs this stuff. You can't suddenly, [clicks fingers] change software, it just doesn't work. Because the transition process that you've got to go through, the re-engineering of your customer interface, whether it's an internal customer or an external customer, the people issues involved, the organisational structural issues involved, the human issues involved in the changes always take much longer than people think. That's one of the big reasons why companies like Accenture have been so successful, because they can look at the impact on the business processes as well as the impact on the technology.

[1:04:13]

And by this time, ICL is going through yet another crisis which proves eventually to be terminal for it.

Yes.

And it's scooped up by Fujitsu.

Yes.

Was there anything left, British of you, that said, oh, that's a pity?

Er...

Or did you just see that as inevitable?

I would say, there's nothing British about it. Because you had the same situation in France, in Italy, in Germany. Germany probably came out best. Siemens did very well for a long time. It had SAP and Adabas and, a number of other significant companies. I'd say that Germany did better than Britain. The disappointment really was, Britain had such a high capability in software, and, never quite made it. I mean you had Hoskyns that eventually ended up going to Cap Gemini; you had CAP, FI, Autonomy and others that all disappeared. Many of these companies were not in the software products business per se, they were primarily in the professional services business.

The situation is a lot better now as there are real leaders developing in the UK although none at a global size. Be interesting to see what happens and if they stay independent.

Yup.

And ICL didn't move quickly enough, but also they didn't have the financial resources. The issue often is the ability to scale. In order to scale in software and services, you've got to have investment. The investment industry in Britain was way behind the curve. And if you think about it, certainly when the American companies started, the investment companies started to come in. You had GA, Accel partners, Greylock and people like that really started the industry expansion.

Today I think you've got a better financial environment than you used to have.

ICL had a huge global operation and it had the ability to use that to force it to move faster in the network space. It didn't really adapt quickly to changes. It was relatively slow in its adoption and adaptation rate, as was Bull in France.

Bull was a pretty slow organization that had a very aggressive services organisation. Digital Equipment, the American company, virtually had an independent software and services group here in Europe that was very strong. There was a battle between the services orientation in Europe and corporate, the bosses at corporate headquarters for Digital Equipment who were still very hardware focused.

The Seventies, Eighties were really turbulent! Well it was a wonderful time for us, we enjoyed it. [laughs]

You enjoyed it.

Because, whenever there's change, there's opportunity. It's when things are static that it gets a bit boring. But for us, when there was a lot of change, it's like, people would come and say, 'What do I do about the client/server?', 'What's the impact going to be?' Or, then the microcomputer, or then the Internet in the early Nineties, because that was the next generation of change that came through.

[1:07:55]

You wrote a book about outsourcing.

I did.

Now, you've mentioned already facilities management.

Correct.

Which is where people would run your computer for you, somewhere else.

Initially Facilities Management was to manage the facility.

OK.

EDS, or somebody like that, would put people into Blue Cross/Blue Shield and take over the running of the computer system at that facility. That's why it was called facilities management.

Right.

We changed it; we said, 'No, that's really the wrong terminology. You really should use 'Resource Management', because, it doesn't matter where it's being done, as you're managing the process.'

Then we split Resource Management into Operations Management, where the vendor ran the plant as it were, and Development Management. EDS essentially was in the operations side, Andersen Consulting was more in the development side.

Yes.

But then, of course, they started to blend. EDS would start to say, 'I can do the whole thing for you.' That led to what we felt would be most valuable which was Business Process Operations. There would be tiered levels:

At the base level, you just ran the base operations or development. The heavily computer processing oriented activities could be done outside, or anywhere basically. It's this utility concept of being able to plug into the wall. We called it Utility Processing.

At the second level, you put them together.

Then you started to run the business operations side of things. For example, ADP and payroll. They almost became a Business Process Operations company, because they'd take over some of the HR functions; they would take over some of the benefits processing, as well as the payroll side of things.

Then the industry terminology went from Facilities Management to Outsourcing that was a term that was used in the US federal government. I've never felt that was the right terminology, because 'Outsourcing' means that it's completely outside, whereas in fact, in all these contracts there's a team effort. There's internal and...

Well you hope there is anyway.

No, there must be. Because otherwise...

It fails.

It fails.

Yes.

You've seen in a number of the things that have happened in the United States. There have been billion-dollar developments that have failed. AT&T had a billion-dollar development activity that failed, and over here you had the NHS system that failed, but that's another story.

[1:10:54]

It's been put to me that, it's been put to me by other people that, outsourcing was basically the revenge of the finance director. The finance director used to have some degree of control of this thing called data processing, and then it got far too complex, and too much jargon was being used, and the finance director was just, oh! just, gave up basically, and, data processing even demanded a man on the board, their own man on the board, instead of reporting through the finance director. And the finance director said, 'OK. [laughs] We're going to cook your goose by outsourcing this stuff.'

A certain amount of truth in that. But that only works when you're looking at cost reduction.

Yes.

OK? It doesn't look at revenue generation.

OK.

OK? I'd say in Britain, the information systems organisation reported longer to the finance director than in the United States.

Right.

It moved more quickly there. Now I personally think this idea that you've got to have an IT person on the board is a nonsense. What you need is a good manager, and it doesn't really matter where they come from; that is a little bit of the General Electric management principle here.

You asked me the question earlier on about whether I'm a good manager. I'm a reasonable manager, but I'm not a good manager. (By the way good managers are not necessarily good entrepreneurs and vice versa; think Steve Jobs!)

What you need to run the information systems activities of a company, is somebody that can deal with the internal organisational activities of the company and the external organisational activities of the company. It's never the finance director. It's not the operations manager. The information systems activity of a company interfaces with suppliers, it interfaces with customers, it interfaces with people at every level in the organisation. That is a unique system. Now you can say that, well the financial system does the same thing; it interfaces with suppliers, interfaces with customers, and interfaces with the people. But its mandate is different from the information systems mandate. The finance activity is predominantly reactive, and for a long time the information systems activity was reactive. Whereas the real opportunity, as Amazon has demonstrated beautifully, is in being proactive.

OK.

That's another discussion.

[1:13:38]

Sure. In the late 1980s there was great concern about the productivity of software development.

Uh-huh.

And there is the development of CASE, computer-aided systems engineering.

Yup.

And there's a big fight between either complex systems or prototyping, so on. And IBM tries to do something, and completely fails: the systems application architecture.

SAA. Yup. I'm not sure that it completely failed. Because it is like Y2K that we can talk later about. What happened is that it caused people to think.

Right.

Often in the industry, just getting people to think about issues is valuable. There's always been an issue about software development going back to Brook's *The Mythical Man-Month* book. Agile Development today, for example is a continuation of that discussion.

The concept of specifications for large applications development where you slit your wrists and signed in blood that this was what you wanted is ridiculous. Because the technology and application of technology is moving; it is constantly changing.

Therefore, you don't know what you can do when you start. In 1999, nobody, nobody forecast that we would sit here now with a device that had what was the equivalent of supercomputing capability in your hand. Nobody. Yet you were signing contracts for five-year development processes, where you didn't know what you were going to be operating on in five years' time. So, it's impossible to have fixed specifications for major systems development.

I've always said that systems development is biological, it's not mechanical. The whole concept of artificial intelligence is another area. It goes back to *Terminator*. The first robots in *Terminator* were mechanical devices. The last robots in *Terminator* were biological.

Mhm.

To me, software development is a biological process, it's a living process. If you try to take a snapshot of it and freeze it, it's impossible. That's what was happening all the time in software development. Of course, the consultants loved it. The consultants made a fortune out of the NHS thing here, because they just had these contracts that

were non-biological. You were trying to deal with medical systems in Fife the same as you wanted to deal with medical systems in London. Totally ridiculous. What you want to have is a biological capability where you have a system that is adapted to the 500,000 people in Fife, or whatever it is, and another system in London that's dealing with the ten million people that are here. They must communicate with each other. Anyway, that's another story.

[1:16:53]

Talking about making money.

Yeah.

The services side made a huge amount of money out of what has been called the scam of Y2K.

Fostered by Gartner.

Fostered by Gartner.

Oh absolutely.

[laughs] You point the finger, do you? J'accuse.

Absolutely. They scared everybody.

And it was scary, was it? It wasn't necessary?

No, it wasn't. In fact, we did a bunch of studies that said, 'Yeah, Y2000's going to have an impact, primarily in the revenues for Andersen Consulting as it then was, and, Computer Sciences, and, all the services companies, they're going to make a fortune. But there was actually a huge benefit. The benefit was that in the Nineties nobody had a systems inventory. You talk about the systems specifications and structure but there was no inventory in companies of what they had. Before you can change something, you need to know what you've got.

Yup.

What happened in the '90s was a company like Salesforce (that was a late example) would come along, and they'd go to the sales people and say, 'Look, forget this system that the corporate's doing for you. For 50 dollars a month I can do it for you much better.' So, you had all these applications spread right through companies. External services, minicomputer, microcomputer, AS/400 and PDP applications lying around. The unintended benefit of Y2K was that it forced people to build an inventory of what they had. That enabled them in the 2000s to start to make some of the changes that were necessary in order to focus more on revenue generation rather than cost control.

Did you see the dotcom, or dot com bubble coming?

Well, how you mean... Oh, the bubble.

Yes.

Yeah, but that's really financial. I mean, you would read the red herrings coming out which said, 'We're not making money, and we don't think we're ever going to make money, but buy our shares'.

Mm.

It was just ludicrous. But for us, it was irrelevant. We were forecasting the market for, this or that. Who gets it was not our job; it was not our business. What you had was everybody chasing the same market. The market might be a billion dollars and you'd have 20 companies saying 'We are five million dollars now, but we're going to be a billion-dollar company,' OK. So, hold it, the market's a billion, and there are 20 of them saying they're going to be a billion. It ain't going to work! [laughs] So from that perspective, it would be a bubble. But that was not our job.

[1:20:08]

OK. And if I had a million pounds today, which I'm afraid I don't, where should I invest it for the best return in the future, in the IT sector?

That's a good question. Well I'm investing in private companies now. I started this company, Kinscape with the idea of servicing families in a way that Facebook and others don't.

I would put it into a very focused company. It may be doing, heck, watch sales, or something like that. In fact, there is a company that's started doing that. I'd find a company in an industry that I knew, that was trying to do something innovative, but not too innovative. There should already be companies in that space. Because, catching a wave in the industry is like surfing in California. If you get in front of the wave, it washes over you. If you get behind the wave, you can never catch up.

I remember doing this presentation to Ross Perot, and his gang at EDS and one of the things that Ross had asked for is that I did a set of recommendations. He said, 'Peter, what you always do is, you say, here's the data, here's the analysis. Then we've got to decide what we're going to do with it.' Because I had this thing called a DIK principle. Here's Data, here's the analysis or Information and here's Knowledge. My original view was that we collect data and we do analysis but you know your business, you have the knowledge, so you should use it. Anyway, Ross said, 'You've got to tell us what we should do.'

I came up with this list of things I felt EDS should do. He sat there and said, 'OK. We've tried that, we did this, it didn't work. We tried that, that didn't work. We tried that, that didn't work.' And then I said, 'Well, the problem is, you're ahead of the wave.' He said, 'You're absolutely right.' He turned around to his guys and said 'These are the things we've got to look at again.' Because there's a timing issue. So, when you say I've got millions... Sorry, it's a long answer to your short question.

No.

I've got a million dollars, I've got to invest it. I'd do something that's web-based, very focused, in an industry that I know. Could be, watches, could be clothing, could be recorders. You think about what GoPro has done for example, or Crocs. These are non-IT examples, but they are examples of where there's something they were focusing on that was really narrow that they knew really well and could build on.

There are a bunch of opportunities like that

Actually, another place I'd put it right now is arrived at differently. My son-in-law is the vice-president of sales for a very fast-growing software company in California. He had fourteen sales people when he joined eighteen months ago and now he's got 400. He was meeting with a very large Japanese organization about financing and the guy said, 'Why don't you have 1,000?'. So, if I had a million dollars and I had the right contact, I would put the money in with them or companies like them. The ability to scale is so important now.

Because you've got to know who to put the money in with. You need a channel for it.

Almost, I would not put it into the public market. Public markets are getting less and less important. There is so much money floating around now that goes through private channels. Dell took his company private before it floated again and Musk at Tesla was talking about taking the company private. Because the rules and regulations you've got to go through as a public company are onerous. Being private also avoids the whole relationship with analysts in the financial community that don't know what they're talking about. The money is available. You can pay off your investors, you can pay off your founding employees. You can scale faster as you do not have to worry about the impact of quarterly reports.

So, if I had a million dollars, and I had the right contact, that's where I'd go, into a private company.

That's where you would go.

Mm. A million pounds or a million dollars? [laughs]

Whichever. Whichever. Last question, and it's a very cheeky question. What are your biggest mistakes?

When I started INPUT and started hiring people we grew very fast and we were in the *Inc. 50* of the fastest growing companies in the United States. I hired a guy to run sales and then I hired Stan who had come out of Memorex to run operations, to run our research process. He really knew how to manage. One day he and the sales guy came to me and said, 'Pete, we think you should be Chairman, and Stan should be

President.’ That would have been a really a good thing to do. Because, I was the external person going around making presentations and talking about the future of the industry, and the excitement that was involved. But I needed somebody to run the operation, and Stan would have been absolutely fantastic. But I said ‘No’ and that was the biggest mistake.

And you didn’t do it?

I didn’t do it.

OK.

That was just down to ego, in my opinion. Second mistake was in the late ‘90s. At that time Gartner was becoming a bigger competitor. We were ten million dollars or something like that in size. The issue was what shall we do? Sterling Williams was on my board. Sterling was president of Sterling Software?

He and the two Wyly brothers in Texas had bought Informatics for \$100 million that they built into an \$8 billion company. They sold it for \$8 billion, \$4 billion to CA and \$4 billion to Bell South.

Anyway, Sterling was on my board. I wanted to move INPUT from focusing on the market research budget in vendors into the marketing and then sales budget. Because they’re much bigger. I had this idea that we would have Buyers’ Guides’ where we would essentially take an issue, research it and then identify and analyse what the various vendors were doing to address the issue. We would interview the companies that were in that business but not allow them to say, ‘I’m the greatest xyz company in the world.’ For those that financially supported each Guide we would present their offerings in a standard format that we would distribute to potential buyers.

And you didn’t do it.

Well we did.

Oh.

But it would change the whole company. Sterling and Tanya and the other Directors said, 'Well, develop a business plan.' I did and it would have taken three years and \$3 million to make the change. Sterling said, 'Well listen, I'll lend you a million dollars, payable back in five years. Why don't you see what that does?' Big mistake. Because our old business went down faster than we thought, and the new business went up slower than we thought. I ended up looking at going bankrupt in USA, UK, France, Germany and Japan. It was a real mistake. But, there's a silver lining in the mistake, in that that we cut the company down, paid off all our debts, fired the staff and closed the offices except for one unit in Washington that we focused on. We cut it down to ten people.

And you focused on government business from now?

Yah.

OK.

That then exploded and became very successful. My mistake was not believing my plan. \$3 million, three years. But it turned out to have a silver lining.

I'm glad it had, because Martin Campbell-Kelly says that, you and ICP are our unsung roles, unsung roles in this process of helping the software industry. Well you have indeed sung for the Archives. Thank you very much Peter Cunningham.

You're very welcome. Yeah, I have to say that, if you talk to people in the industry, like Sterling, Ross Perot and executives in other companies, they well knew the value of what we were doing. I'm very happy with that.

[End of Interview]