



Roger Graham OBE

Interviewed by

Martin Campbell-Kelly

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At

Gaston House

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I'm Martin Campbell-Kelly, and today is Wednesday the 19th of August 2015, and I am interviewing Roger Graham, who is a software entrepreneur, and we're conducting this interview at Gaston House near Bishop's Stortford, which is where Roger lives.

So, Roger, my first question. You were born in Harrow in 1939, then after primary school you went to Mill Hill School in London. Well, tell me something about your parents and the schools that you attended before you went to university.

As you say, I was born on the 10th of May 1939, five minutes before midnight. My father was a director of HJ Heinz in the UK, the 57 variety company, and his father was the chief engineer on merchant ships going round the Horn in the late eighteenth century. He was born in 1903. My mother came from Hull, and she was born two years previously, and she was the daughter of a successful entrepreneur who started very humbly from a family of barge operators, a bargee on the River Humber in East Yorkshire.

[01:28]

Now you lost your father at an early age. Tell me how it affected you.

Yes. Four years after I was born my father died, of natural causes, of illness, not because of the war, and that was obviously quite life-changing for the family. I had an elder brother, five years older, and we lived in Kenton, near Harrow, in Middlesex. There was a lot of pressure on my mother to move back to her family home in East Yorkshire, but she resisted that strongly and said, no, she wanted to stay with her boys and bringing them up near London in Harrow. Obviously the absence of my father was very material. I think I might have had a better feeling for sport, which I've never been very enthusiastic about, and certainly as a performer, he was a good cricketer, and I'm sure he would have helped me along that particular pathway. But, rather than that, I got more interested in books and in interesting things of one sort or another. I did a lot of home hobby work, making small aeroplanes, making models of this, that and the other, making balloons, these Chinese balloons that would float in the air, those sorts of things during my early years.

[02:56]

Tell me about Mill Hill School.

Well I went to Mill Hill in 1952. I managed to get what they then called a Middlesex County Scholarship. As a result of the 1944 Education Act, Butler and others proposed, and it happened, that boys who really couldn't afford, their parents couldn't afford, to go to a public school, but should have the opportunity to win a fully-paid scholarship, nearly fully-paid scholarship, to be at such a school, and Mill Hill had such an arrangement. I actually won that scholarship, but the headmaster said to my mother, 'Well it's much more beneficial if you take the Middlesex one, because ours won't pay nearly as much.' And I think my mother paid £15 a term for my boarding school, I think in an era when the boarding fees were only about £450, but nevertheless much more than we had to pay. I enjoyed Mill Hill. It was a great success for me. Academically, I skipped the first year and took my, in those days, O levels, when I was fifteen, and then moved on to do maths, pure and applied, and physics in the sixth form. I also had a pretty active life, because, while sports were important in public schools, I ran societies and clubs and programmes of one sort or another, photography was a big one as well for me, and all of that. And we had the Queen visit us in my last year, and I had the privilege of shaking her hand and being one of the monitors of the time who escorted her round the school.

[04:42]

Well now, tell me about moving on to Cambridge University. And, you got a scholarship with English Electric at the same time. Tell me how all that happened.

Well, on my last day at Mill Hill a letter arrived from Fitzwilliam College saying that they were granting me a place. I had passed the Mechanical Sciences Tripos qualifying examination, which was a special exam, to read engineering at Cambridge. And of course, I went up a year after I left Mill Hill, I went up in 1958, matriculated as they say, start your, your period at the university. And, Fitzwilliam in those days was a, no more than a house opposite the museum where most of the students were living out, not in fine college buildings as Fitzwilliam College has today. It's a new-build, built just over 50 years ago, on the Huntingdon Road. I had a super tutor; we had very different political views then. He was a man who was very clearly a

socialist, an expert in thermodynamics, but we got on frightfully well. And, I quite enjoyed the engineering there, but it was quite clear to me that I had other interests of which, aviation was important because I managed to get in at the last moment in the university air squadron. I also was very, got very involved very early on in politics, of all hues, because I was a member of most of the political parties, as one should be when one's young, although I was primarily involved and became an officer, indeed vice-chairman, of the Conservative Association in Cambridge.

[06:43]

Now, you were studying engineering, and you also had a scholarship with English Electric. Tell me, how was the mixture of academic work and the industrial?

Well they were quite separated. In those days the idea of a one-three-one, one year of industrial apprenticeship work followed by three years at university and one year after, was quite de rigueur, it was common practice. And I had, much earlier on, been to Metropolitan-Vickers at Trafford Park, traipsed across the railway tracks with 23,000 other human beings, probably the largest industrial complex that then existed, and of course, which is absolutely no more today. I went there, and I also went to Stafford, to English Electric, and I decided on Stafford, because I liked the environment in Stafford, the quite wide variety of opportunity there of work or experience there. And, it was a bit nearer London, et cetera et cetera. So, I went there, having got entry there, and lived in a place called Dunston Hall, which is the home of the then Chancellor of the Exchequer, Peter Thorneycroft, and had been converted into a hostel. And I lived in prefabricated buildings, a bit like wartime really, and there were about ten or twelve boys, and they were all men at that stage. There were a couple of girl apprentices, but that was the, the mix. But they lived in the house. And these dormitory arrangements, which I don't think you would get away with these days, when you consider what student accommodation is like, but we lived there. And I worked in the factory, which was about, oh, 20 minutes away on a bus or motorbike or whatever. I didn't own my own motorbike. I learnt to drive there on someone else's car. But that, that was all that. And I worked, as I say, they did everything there, so I worked in the turbo-alternator development department, we were involved in some new style of engineering using hollow, hydrogen-cooled turbo-alternators. In those days we were up to 100 megawatts. Well today, not that we

build turbo-alternators today, one of the extraordinary things is that, while IT has gone like this, that whole infrastructure, manufacturing operation, has declined, and whether it will be railways, which English Electric made, aviation, which of course they made in those days, now part of BAE, domestic appliances, all of that has gone, and heavy electrical engineering is as of nothing, and these huge turbines, steam-driven turbines, are no more. So I was involved in that. And then I got involved in some of the lighter work, semiconductors and things of this sort. So that was a good experience.

That was a full year, before you went to Cambridge?

A full year.

[09:50]

Yes. So after you graduated... Well, tell me what class of degree you got.

I got a 2:2, a very poor degree. [laughs]

And then, and then you did another year at English Electric.

No. I decided to not go back. They offered me what I thought was a derisory plan for my development. I was leaving university in 1962? No, '61. And, I was 22 years of age, and they said, 'By the time you're 30 you should expect to be a foreman on the shop floor.' They then said, 'Well of course, we really think you will be more suited to the sales role in the company.' And so I looked at Stevenage, where they were making the Bloodhound and other guided missiles of that era. And I went to see personnel and other management there, and concluded I'd much rather be involved in manufacturing, designing and manufacturing, real aeroplanes. I had met the Masefield family, Charles, who was a near-contemporary, and of course Peter was the boss, had been the boss of British European Airways, had become an entrepreneur himself, and put together a company called Beagle, which was a combination in that era of the then small aircraft manufacturers in the United Kingdom, and I went down to Shoreham, which was its headquarters, to be part of the design team on their new aeroplanes. And immediately I was there, I was initially put in the weights office. I

had done some work myself on the pricing, they'd just been to Farnborough, and I said to the managing director down there, 'Your prices, I can show you, are not viable,' [laughs] and immediately they put the prices up, by nearly double, to be comparable with competitors in America, the dominant alternative source of such small aeroplanes. And then I got involved in various departments, finalising in aerodynamics, where I got involved in computers at Farnborough, an early Elliott I think it was, but it may have been a de Havilland propeller. They made computers, and one of the interesting things about the very early era of computers, in the late Fifties, early Sixties, companies like aviation companies were in the business of manufacturing small specialist computers, simulators of one sort or another. This particular simulator was good at analysing aerodynamic flutter, which, as its name implies, is when the structure of the plane starts vibrating, and sets up an undamped vibration, which can basically destroy the structure of the plane. And I appointed quite early on, mathematics it was, being processed on a computer, and it was a analogue computer, it was not a digital computer. So we were reading dials. And the deal was to try and get the dials to be stable and not vibrate. Well the bottom line was, we couldn't. And it was a good indication that the plane was unsafe. Well we managed to get it to Farnborough in that year, 1962, and I carried on working on it. And eventually I got fired, because the company was in financial difficulties, and, I left at the end of January 1963. But on my final day, in came the chief test pilot, Pee-Wee Judge, a very famous, well-known light aeroplane pilot, and said, 'Roger, Roger, where are you? It's done what you predicted.' And there's nothing more satisfying, to find that all the mathematical work you've done, and the computer and so on, were proved to be correct. And of course then they called me back, I went back as a consultant, about three or four times what I was being paid by them before, but I told them after about six weeks, 'This is impossible. It can't be done with the current structure.' And so I left, and, looked for another job.

[14:16]

Right. Well you eventually ended up at IBM in 1963. But, tell me how you got from Beagle to IBM.

Well I never signed up on the dole. [laughs] I was going to, but I decided that, I really would get a job quite quickly, and I was actually offered a number of jobs. I

was offered a job by Freddie Laker. [laughs] His line was, 'We've never had anyone like you in the company, but we need someone like you.' And he offered me the most money, £1600 per annum, to join him, but I didn't join him. Texas Instruments offered me a job, at about £1450, as a product marketing, salesperson, for their avionics, and at that point Texas were big in avionics, but didn't continue in that business. I was offered a job, of all people, by Coopers Mechanical Joints. Most people have never heard of them, but they make about eighty per cent of all the gaskets that go into motorcars. None of that. I was offered a job at IBM at £1100 per annum, and the best decision thus far of my life. [laughs]

[15:24]

So, must have had quite a meteoric career at IBM, and eventually, after less than three years, you became the account manager for Ford UK, at the age of 26.

Yes.

Well tell me something about how you, your sort of, early years. What happened before you became the account manager for Ford?

I think the first thing to say about IBM, and why I joined them, of course I quickly realised that this was a field which was happening, the interview was impressive. They were, they were absolutely different from English Electric. English Electric, the head of personnel there would say to you, 'I can tell by the time someone has walked across the room to sit at a desk in front of me whether he is someone I want to employ.' On the contrary, IBM asked me, 'Tell me about yourself.' So they listened. And, of course, asked questions as well. But I felt that there was a real interaction. Their training, which I went on, virtually on day one, at Lodge Road it was then, was superb. The initial course was six weeks, and in that course, in those days, punch card devices were the computing of the day, with computers downstairs, big ones, 7090s were in Lodge Road as well, but only very big ones and quite a number of middle-range, 1401 was a great computer of IBM at that era, there as well. But in the first course, a lot of the training was still on punch cards, because a lot of their customers had them, and they were switching them to 1401s. And that was all done very well. And, I went through a whole series of courses, but I was put out with the clients, and I

got involved, first job, funnily enough, was Texas Instruments, and won an award for writing a program on an ancient punch card calculator. But be that as it may, I then moved into the motor industry environment, first with ENV, an engineering gearbox company in Willesden, and then I moved out to Vauxhall, at Dunstable, their spare parts operation. I became a bit of an expert on stock control, I used to lecture around Europe on those sorts of things, and then, I said to them, 'I want to go to America. I'd really like to go to Harvard Business School.' Well one of my chums, who joined the same day as I did, he went to Harvard Business School, but they said to me, 'We want you to go to Ford.' So I went to Ford in America in 1965, for about eight months, and, went to Detroit, Dearborn, which is outside Detroit, where they're headquartered. Worked in IBM offices. It was a very mixed experience, that. IBM were in serious trouble with their new System/360 computer, which had software which was difficult, but apart from that... And they were losing business, and had a lot of troubles with Ford, and the IBM people who worked at Ford and in the account management environment were having a tough time.

[18:55]

Now, you left IBM after four and a half years in 1967, and you joined this much, much smaller company, Management Dynamics. Well tell me why you left IBM, and...

Now I believe that Ron Yearsley introduced you to Management Dynamics, and the two of you formed a friendship and partnership of very long standing. So, fill in some of the details.

Well just going back to IBM. I came back from America and was appointed national account manager, which meant I had about 30, 35 people working for me in, I had an office in Warley, the UK headquarters, and computers installed in Swansea in Wales, and in the south of England, and up at Liverpool, at the Hazelwood plant, and so on and so forth, there. And it was a time when the job was to get the new IBM 360 system installed to replace old systems. And this was really tough, because the computer centre for Ford was at that time in its sort of foundry in Dagenham, and they had an application called Warranty and Policy, which took more than 24 hours, it was a daily application, and the problem was, the tapes became unreadable. Why? The foundry. And so, involved with moving the computer facilities actually to Warley, in a country park, which is where their head office became in London. And that was

what we were doing. Finally, I – or nearly finally – I was involved in selling to them new computers for their parts supply operations, which we did by offering them certain services, which were then repudiated by IBM UK's head office, and so I had egg all over my face, as IBM then lost the contract to Honeywell. And I judged that the time had come to do what I really wanted to do, which is run my own business outside a big corporation. I had learnt an enormous amount, and have a huge debt really to IBM for all they taught me, and I might say they taught me a lot about business as well as about computers. And, so, my friend who I had met through politics, we did some research, Ernest Marples and Ted Heath, in the early Sixties, he was an ICL man, we became very good buddies, Ron Yearsley, and, he said, 'Look, I'm working for this company Management Dynamics out at Heathrow House near London Airport, it's a service bureau with a software wing. I've been talking to the boss there, the man who founded it, John Brown, and his colleague Geoff Moss[sp], and they want to have a consulting operation.' So I met with them, and discussions were held, and we started that up. And, we did very well, frankly. We won business, we had, we had a residual contract with Shell anyway, but people like Bristol-Myers, pharmaceutical company, Mercedes-Benz, Norcross[sp], to name three major corporations who chose this little company, which we started from scratch, to work with, to advise them, health[??] as well as [inaud], to advise these institutions, these organisations, these companies, about what they should do with what we then called data processing. And, all those contracts went well. My biggest final one was with Doulton, the great company of Staffordshire which makes pottery and porcelain, sadly no more, but, we did a lot of work for them, defining just how computers can be used in this diversified porcelain company.

[22:55]

So that was, that was all that. And then the company, which had been invested in by Brooke Bond, and we all know that as a tea company, and then Liebig, a South American beef company, they decided they wanted to sell. Americans came in, Greyhound bus company, Greyhound Computing came in, and offered for the company. And funnily enough, the guy who was leading that offer was a chap with whom I had worked in Detroit when I was with IBM there, and someone I didn't actually feel [laughs] I actually would get along with terribly well. So I put some feelers out, and that's how I get to join BIS.

[23:40]

Mm. Tell me a little bit about... Because this obviously is the dawn of the sort of, the computer consulting era. Tell me a little about, what did you actually do when you consulted, for example, for Doulton, how many people were involved?

There were probably three or four people involved. And I was the project leader. I had a very able colleague who had been PA and taught me quite a lot about consulting, and, he appeared in my life in subsequent roles as well, and he was the lead consultant. And what we did was, we went round the various departments of each of the operating businesses of Doulton, which had four or five pretty separate but all porcelain-related businesses. They made insulators for heavy electrical environments, for transmission lines and so on. They made parts for aircraft, and so on. So widely dispersed from the artistic work of designing, painting and producing porcelain for tableware. And, so we would analyse the activities and look at the way in which data could be used and processed, and returned to people to help them manage. In those days it was finance and rather basic stock control, going into the production processes, stock control; even then we were talking about, just in time, quality, things of this sort, involving computing and data processing at that time.

[25:17]

So, you decided to leave Management Dynamics after the Greyhound acquisition, and you joined this new company, Business Intelligence Services, which seems to have nothing to do with computing at the time you joined it, is that correct?

Not quite correct, no. Business Intelligence Services was the creature of two individuals who had worked at Spicers in the paper industry, and they had persuaded a publisher called Philip Zimmermann[sp], who owned Mercury House publishing company, they publish books, but most particularly magazines. And Philip[ph] was the doyen of the controlled circulation magazine, i.e. free, and finance... free at the point of receipt of the magazine, but financed entirely by advertising. And he was hugely successful at it. And he launched a magazine called *Dataweek*. That brought in an American called Dick Brandon, who had worked with Diebold's in America, as a consultant. And Dick was becoming in America a popular figure, like James Martin was later, talking about data processing, he wrote books and so on. And Mercury

House, subsidiary of BIS, BIS decided to put Dick on a platform, and that developed a whole training activity of, for data processing people, systems analysts and programmers and others, which they started with BIS before I joined. The guy who ran it, a chap called Bob London, he wanted home, back to America, and so they, BIS, were looking for somebody to run this business. It had about eleven people at the time. And, they offered me the job to run it; I said, I won't go without Ron Yearsley. We had two distinct roles. I sort of ran the business, but he was the guy, used to be described as kicking open the doors. He's far more elegant than that [laughs], in terms of the kick sense, but opening the opportunities, and I would go and close them. That's how we started. I'm a great believer, we'll perhaps touch on this later, about building the team. And after him, I then proceeded... Quite a lot of people resigned, I would think half of the original eleven resigned, they didn't like the way I decided to do things, which was a more disciplined way, more reflective of IBM rather than perhaps British business at the time. And, so they went. And I hired some new key people into the business, who stayed with the business all the way through its sale in 1986.

[28:15]

So, you're now heading BIS Applied System... Applied...

Yes, initially that's exactly what I did. I was also on the main board from the outset. Because, at that time there were three businesses. There was a training business, which covered more than data processing, general management as well. We were very good at week-long and two-day courses, finance for the non-financial manager, a critical feature of business, which I think is even today something I am shocked at as I do my entrepreneurial work, how poorly-equipped people are. I think the young of today are much better equipped, but people, between the young and my age, are badly equipped. Appalled. I spent time yesterday with a young company which I am backing, but they just haven't got the idea of the key elements of a financial plan. So at any rate, we ran courses, and that was the training part. We had a marketing research operation which was centred around the paper industry, because that's where the two founders of the business had come from. Spicers, part of Reed Paper Group, they had worked there in the marketing departments and had persuaded Mercury House to back us. It's a publishing venture, high value publishing, market data. And

then, we had what we called BIS Applied Systems, which was a consulting wing. And that developed quickly, because I hired a chief executive for that. And I moved on, because I got an opportunity to start other businesses, and one was a distance learning business, using video and other tools to enable people to operate computers, analyse what might be done on computers, program, et cetera et cetera. But all done, not on a formal classroom basis, but by taking people in a personnel department, aided and abetted by existing managers who were doing the functions that you wanted to train people in, helping them to facilitate the development of people needing to learn the skills required to do new jobs. It was a good system, and it led me into the United States, I became a member of the Deltec[sp] board. I learnt a lot working with the Americans. I joined their board, I was invited to join their board. We then had a terrible falling-out towards the end of the, of the decade we're in now, the Seventies, but I might say, after a couple of years... We fell out because of, they wanted to sell the business and they weren't entirely open about what was being sold, and they wanted, clearly wanted to buy our company. And, anyway, all of that, the founder and chief executive of that company is now one of my absolute best friends, and I see a lot of them, every...

Well let's put some dates on it. So you joined BIS in 1969.

May the 5th.

Right. And at what stage did you become chief executive? Well you started off as chief of the Applied Systems division.

Yes.

And then you became chief executive of the whole enterprise, is that right?

That was in about 1985.

Oh, so that's much later.

Much later. And that was in preparation for the future of the ownership of the business.

[31:55]

OK, let's go back, then, to the 1970s. So, I haven't got a very clear picture of what your role is, say, in 1972/73.

Well, at that early stage, I bought in '69, that's three years later. At that stage we had just started Deltec[ph], it was BIS Applied Systems. The big change year of the company was '75. In '75 we went global. And when I look back on it, in preparing for this session today I am amazed how much we did. I got on a boat in Southampton to go to South Africa. That resulted in several businesses, joint ventures, being spawned there, including Deltec[ph]. I went over to Scandinavia, we found a partner there for Deltec[ph]. We did consulting in South Africa. And we also did it in Australia. I went to Australia the back end of '75, and we, together with a colleague, the senior colleague, the founder of BIS, we established a joint venture with a company called Shrapnel, BIS Shrapnel, indeed a great-grandson of the guy who had developed the stuff, the shrapnel that we've all heard of, in war times and so on, he ran a very successful business, research business there, and we grafted on BIS businesses, computing businesses and trading businesses, to his business.

And there were activities in Australia as well?

In Australia, yes.

Yes.

He was based in Australia.

Right. And South Africa and Germany.

Germany came a bit later. The end of the Seventies.

Right.

Not very successful. I mean, we had some... I don't mean to imply that everything was hugely successful. The German activity... What happened after we had sold to Nynex, there was a lot of pressure to grow, grow rapidly, and to grow internationally, and to grow activities. So, we bought quite a big business in Germany, which apparently was a house of cards. We were hopelessly misled. We did inadequate due diligence. I was very much involved with the Americans by now, and I would be over in America every two weeks, and I delegated two key people to look at this, and in any event, within weeks it was clear we had made a bad decision. And this was quite a big business, it had nominal revenues of about \$40 million, and within eighteen months we were closing it down. And then we bought some other businesses, we bought, in Cambridge, a service bureau facilities management house, which did a lot with local authorities, and we weren't able to develop that. And as I say, the original BIS Applied Systems was being much encouraged to do new things, and it didn't work. And, there are lessons from it, due diligence is a key lesson, but also the grit of looking at the numbers and deciding whether the culture of the business can be developed from what they had before to something more akin to our business, which was pretty high growth. We grew from really very little in '69 to, you know, a business, by the time we sold it in '86, we're into that period now, we sold in '86, and the business was doing about £80 million of revenue, and we sold it for about one times revenue, which was the sort of going price at that time. But we were very highly profitable at that time, we would be producing six or seven million profit on that, and, I think by today's standard, looking back at it, we would have been priced very much higher. And indeed we were when we sold it again in 1993.

[35:57]

So we're talking about the early Seventies and you're in your early forties, is that right?

Yes.

Family man?

Family man. '67 married.

Flying all over the world.

Flying all over the world.

Neglecting your family I suppose.

That's what my wife would say. [laughs] I don't think she's quite right. But, right, I...

How did you manage to reconcile these, these things, these tremendous demands on your, on your time and, for travel and so forth?

Yes. Well, I'm a late, [laughs] long worker. So, I don't need much sleep. I mean I, I am OK, less so today, but certainly in that era, four hours, five hours, all right. And, it's adrenalin, it's excitement, it's people, it's changing, it's, different tomorrow, all that.

[36:50]

So in 1975, BIS acquired Kingsley-Smith and Associates, and that becomes the BIS Banking Systems. Can you tell me the inside story of that acquisition?

Yes. What happened was that my colleague, Ronnie Yearsley, had called, in his marketing sales role, on Samuel Montagu, the investment merchant bank, and they told him that they had a business which was involved in software, and they really wanted to dispose of their interest in it. So, we agreed that we would buy it, and negotiated with Kingsley-Smith, the individual who had founded the business, and eventually agreed that we should purchase it. They had some very capable people who were getting more and more experience in the banking arena. We had, in BIS, a very able senior manager, director of the company, John Prosser, who had been in Peru for much of the previous four or five years, and he was coming back, the contract was coming to an end out there, and he was ready-equipped to take over the management of Kingsley-Smith. So, that's what happened. And after a very few months of looking at all the various things they did, we decided we would focus on

international banking. International banking had become a very interesting, growing business. Prior to the early Seventies exchange rates were fixed, but went floating at about that time, so that the merchant banks had a role – not the merchant banks, sorry, the conventional commercial banks, had a role in conducting transactions on behalf of investors, major corporations, all the people who need foreign currency, and doing that all over the world. And so the big banks, which had never operated outside their own country, many of them, decided they needed operations in many locations. And a typical number was about fourteen locations. So we set up, having started the business we started to develop software. Our first client was ANZ Bank, funnily enough, a British bank with an Australian name, with operations principally in Australia and New Zealand, but we actually put the first piece of software into America, running on a small IBM computer, a System/32. And, this, you will understand, was not like retail banking. They would have, in America, about six or eight people, that's all, and they were there simply to use computers, to facilitate the deals, the processing of the deals, and the payment of the deals, the completion of the deals, in foreign exchange. Now, after we set that up, we then started getting some really big beasts of clients, of which Chemical Bank was the most important, because they entered into an agreement for us to materially advance the software product, which we began to call MIDAS, Modular International Dealing and Accounting System. So it did stand for something real as well as gold. And, we entered into a contract which went for some two to three years to develop a system for them which we then took and sold to many others. We opened branches in fourteen locations all over the world, branches where we had our own staff, and over the next ten years we installed our software in 700 bank locations. There are about, or there were about, and I'm talking 20 years ago, about 2,000 international bank locations, focus on the word international, two words, international bank. That changed, because a lot of those banks now have moved into retail banking as well. And we started, before we sold the business finally, to do some retail banking work, because that came with the business. If you are an Australian coming to work in London you wanted one house to deal both with your foreign exchange, your commercial loans, and some retail banking as well.

[41:53]

Now, software industry people say that the transition from software contracting to a software product is absolutely key for a successful software firm. For BIS Banking Systems, was it a conscious strategy, or is it just how things evolved?

Absolutely conscious. So, certainly, within six months of our acquiring Kingsley-Smith we said, no more of the none banking activities. We organised the company with managers to develop software for banks. And we had a number of clients at that stage, and we saw the scope for a product that would run on IBM equipment, you know, and the old story was that, you never get far for choosing IBM. So if you are... And all the banks around the world use IBM, I mean, 90 per cent of them. Burroughs were there, but only in a small proportion of the banks. So it was a conscious decision to build a product. And the important thing to recognise is that at that stage, and we are talking 1975, there were very few British software product companies. I had a very good friend called Larry Welke, an American who published something called *ICP Quarterly*, which was the bible of software products in the Seventies. In America there were a lot of companies developing products, largely accounting but not exclusively so, some for manufacturing, some for marketing, some for selling, but nothing comparable with the salesforces or the major data management, personnel, ERP systems of today, SAP is an example, PeopleSoft, and those, it just wasn't like that in '75. And in Britain, really, the only company of any materiality was Sage even then, in the mid-Seventies, and of course they've gone on to be a multi-billion-pound company operating globally, and they were a software company. So, most of the... And they were quite a small company at that stage, and, not as big as we were I don't think; they were growing up. And incidentally, started, not by a technologist, but by an advertising man, a man whose background was entirely from a sales and marketing point of view. And of course, they did a superb job of encouraging clients to take their products, in the face of American competition, because there was really very little British competition at that time.

So this is also in the period between the, the mainframe and small computers. So, you've got departmental size computers, the IBM System/32, 34, 38, AS/400. How much did that influence the sales of MIDAS?

Oh it was very fortuitous and good. Because what we found was that when we went to an overseas location, we had fourteen offices as I mentioned, but we had computers installed and our system installed in, I think, 70-odd countries, like half of all the countries in the world there was an IBM system with BIS software running on it. And, what happened when we went to one of these locations, the IBM people who were there on the ground were ready, willing and able to help us make the sale, both of the software and of the hardware. So it worked very well.

[45:45]

Tell me how, the process by which the software was delivered. Because this is in the period really when people are making, are making it up.

Yes.

There are no models to follow. Now, I'm guessing that there are some key steps, sales, installation, maintenance, upgrade. So can you tell me how many people are involved, have I got the right headings there? So start then with sales. How was the sales performed?

Well the sales were performed by salesmen on commission, rather similar to the way IBM would sell. And they were sold, the systems were sold by use of a proposal. I used to put a lot of emphasis on having the client understand the prospect, before they sign, understand what was involved in installing a software product, a new system, which would change the behaviour and working practices of the braves, the staff, and taking full account of that, and making sure that they were on board, even before the contract was signed. And they understood that if they didn't fulfil their part of the combination required for success, we would not have a success. And we had many examples where people were keen to get on with it and sign on the paper, but they wouldn't actually do the work required, to load up data, to do testing, to make sure that the data was sound and rigorous: all the managerial things where we make clear who's doing what, and so on. So we got more and more involved in what you might call consulting around the business process realignment. So sales had a big job in getting people able to take advantage of it.

This was an international operation. Did you have sales offices in different countries?

Well I think I mentioned, we had offices in fourteen countries. And at that stage, and I'm now into the Eighties by the time we got all those offices, I don't think I can identify any other British company which had offices in so many overseas countries which sold software products. So, we were ahead of the game. Which is not always a very comfortable place to be, but it worked out for us most of the time. Then we had development, which was a group varying in size. At one stage it got too big, much later on, when some of the management thought we should develop a mainframe, i.e. a system that would run on an IBM 360 and its derivatives, and candidly that didn't work out. We spent a lot of money on it, didn't work out. We were very much better doing what we had been doing on, by then, AS/400, quite capable and large computers which were able to keep up with the growth of our clients, in terms of data volumes and things of that sort. So we had a development group which I think at the peak might have been about 350, but, yes, quite a big...

So lots of people.

It was a very large system, too large by modern standards, so totally different today. Then we had a customer service group, which was a central one, and servicing people in our fourteen overseas locations.

And how would that work? Not over the phone I guess. Consultants would come in and fix problems, would they?

No, they would do a lot, a lot over the phone, but they would very often have to come and reload the software with a patch. I mean, it's pretty primitive in the early days. One of the great challenges of software products, which has been completely eliminated with the iPhone and similar devices, is the upgrade of the software. If you buy a smartphone, you're basically always up-to-date, and the software from an old environment, from yesterday, which you have on your smartphone, will work on the new software. Well in those days it wasn't like that. There was what we used to call spaghetti code involved, where things had been added and amended and so on for a

particular client, and that was certainly the case. And so, it was very challenging sometimes to meet all the requirements, and fit a bug.

[50:30]

Tell me something about charging for MIDAS. The usual formula would be to charge a cost price for the product or a lease, a leasing price, and then there would be something, perhaps a fifteen per cent maintenance and upgrade annual fee. Can you remember...

You've got it pretty well exactly. Except the word cost price. That doesn't allow for profit, and, one of the things that BIS always did was that, we may not have grown quite as fast as some other companies, but we always made a profit.

How did you ensure that, in that the purchase price generated a profit when you had got 300 developers?

Well, I mean it was quite simple, that, we looked at our costs, we looked at our revenue, and said, we have to sell the product for this price. And on the whole we didn't have much argument about the price. The alternatives were few. There were some, there were some people competing with us on the margin, but, for much of the period, for much of the twelve years following '75 into the late Eighties, we were a very dominant player.

Can you tell me what the cost would be? I guess it would vary with the size of the...

Absolutely.

So, give me some...

I would think the lowest cost in, probably in modern money, because I can't remember exactly, would be something like £200,000, quarter of a million pounds. And the high cost would be up to eight or ten million, for one or two really major multi-locational places with a certain degree of modification, and a lot of applications, and we're all much more familiar, again because of the smartphone. So, you might

start with foreign exchange but you would go on, and latterly people would buy a whole bunch of these other capabilities to cover substantially their whole operation.

[52:30]

Tell me how, at this stage, BIS Banking Systems fits into BIS, the BIS Group?

Well, it was one of our four businesses, and rapidly became the one that was growing fastest, with the greatest potential. And certainly, you know, in the late Seventies we saw all of that. The other businesses were BIS Applied Systems, which we had started with back in '69.

And that's consulting?

That was consulting and training. We had another company which we had acquired called Christian Brann, and this was a direct marketing company, we know it as direct mail, but it was unusual. It was one of the majors in the country, run into financial difficulties in 1979, and we acquired it, not wholly, we saved it from liquidation by injecting some capital, but a modest amount, to pay the salary bill. Got involved there with our own people, just a few of them, a couple of people, financial. They weren't good at financial management. And saved the company. And we saw the company develop, they had good ideas, but they weren't very commercial, and we injected commercial reality to them. And of course it was the precursor of what we now call social media and the whole business of the Internet. And we had a studio actually in the Eighties which showed future technology, including things like Prestel and satellite television, and showing what was coming down the road, so that marketers would have new options, new opportunities to sell their products and services using the technology, communications and software technology coming. And that was based in Cirencester, it employed about 200 people. It had a large studio, it had a printing works, it had a fulfilment warehouse, and it had a large computer operation and printing going with it. So it was a full service, and there weren't many of those. It was started by an individual called Christian Brann, who had led *Reader's Digest* after the war and set up this business in 1977. So it was quite young when we got involved actually.

And what was the fourth business?

And the fourth business...

Was that the training?

No, that, the training, we'd sold off the general management training; the computer training remained as part of BIS Applied Systems. But it was marketing research rather than direct marketing, marketing research. And by then – well no, probably in the mid-Seventies, we still, continued with the Forest Products Research, which was the original activity of the two founders, Brian Allison, he came from that background. But, it was not very successful. They had a huge contact, but it never made very much money. But it carried on through the Seventies and into the Eighties. But in 1979 again, I got a call from 3i saying, 'We have a business, a technology business, and it's in trouble, and we've come to you.' [laughs] So, back to BIS's habit for investing in things. So, bottom line was, they couldn't pay the August salary bill. I always say businesses go bust in August. And, we looked at it, we liked it, and it was helpful because, the founders, it fitted in with the founders' background in terms of activity, although the, what they were researching, in what was called Mackintosh[sp], it was run by a chap called Ian Mackintosh[sp], what they were researching was components, people like ARM, ASIX, i.e. components, hardware, of all manner of kinds. And they'd do the applications of hardware. They were the people who started saying, the largest value of a motorcar in the 1990s will be the electronics, et cetera. So, and they operated out of Luton, in Paris, in the West Coast, East Coast of America, and in Australia. So, it was a small business, and frankly, not very profitable, even the new technology side of it, but it was a, a component of the whole. So we had four businesses, marketing research, industrial marketing, direct marketing, precursor to the modern world of Internet marketing, we had banking software, banking systems, and DP or IT consulting and training.

Right. Now, I think I've read that MIDAS accounted for about fifty per cent...

A bit more than that, yes.

...of, of the profits and the revenues.

Yes, I think that would be about right.

[58:08]

I'm going to move away now from BIS to talk about your role in the wider industry. You're, at this stage you're a very senior executive in the computer services and software industry. Now, there's a whole plethora of initials we'd like to know more about. There's the CSA, that's the Computer Services Association. There's ADAPSO, which I think is an American organisation. There's the Software Houses Association[?]. The World Software Industry Forum[?]. So, can you spend five minutes telling us about some of these organisations, and your role, and how they helped to foster the industry?

Absolutely. Yes. I was approached in the late Seventies to join, or have BIS join, the quite new Computer Services Association. Now the Computer Services Association of that era, the late Seventies, was the consequence of a marriage between SHA, Software Houses Association, and COSBA, the Computer Service Bureau Association. They came together in the Computer Services Association. And there was a European Computer Services Association. ADAPSO was the American equivalent association, data processing organisations. And so on. And there were various similar associations. And it was really, I guess, started a little earlier in America, but a belief that working together, the industry could achieve more, perhaps particularly with government, there was that feeling. And then it moved on to business practices and doing things better themselves. Because very often these companies were run by people who had had a good idea, but little business experience, and joining their association, an industry association, then there was scope for them to learn from others and gather, and gather techniques and processes which would facilitate their businesses. I then, having joined it, I got involved in it through the good offices of my colleagues, because the business was going quite well, and I found myself put up for election and became President quite quickly thereafter – well, I won the election, and I became President. And then I became quite quickly thereafter that president of the European association. And, I got involved with the global operation, and at that time, we're now talking the early Eighties, there was a

big concern about the Japanese who were, Fujitsu of course was the big hardware player but there were others, Hitachi and others, Mitsubishi and people, and there was concern, particularly on the part of the Americans, that the Japanese would break the copyrights and use the software of the American companies, particularly of IBM, and so, be able to offer their hardware at lower prices than was then the practice in, say at IBM, which at that time was still bundled, so all the software, the systems software of IBM, came as part of the package price that you paid for in purchasing these things, renting the equipment. And so, and I found myself in the chair in large groups of meetings from countries all over the world, with a very dominant American point of view, and on the other side of the U-shape table, you know, in Europe, elsewhere, there would be the Japanese. And, I got on well with them, I did... It's an area I really quite enjoy, I've always been interested in public policy, and so on and so forth. And I think, there was a lot of talk of patenting software, and it was something that I think many of us came to believe was not a good idea, it would limit the speed at which development would take place, and lead to a lot of legal wrangles about definitions. So... And to rely more on copyright. And we'd got them, the Japanese, to agree that, and subsequently the Chinese, a version of copyright. Though of course, plagiarists, there were some. So that was the main thrust of it. And, I carried on on the council, ultimately obviously giving over the presidency, all the way through my time until we finally sold BIS in '93.

Where did the Computer Services Association meet?

Meet? It met, for its regular monthly meetings, just off Holborn. So it met in London. And then, we were talking yesterday, funnily enough, about the value of some, of their annual conference and things of this sort, and they were both enjoyable occasions and occasions to swap ideas, and to get people partnering together. One of the modern characteristics of the business that I'm currently involved in is that a growing amount of business is done by a company who has a specialism here, and is marketing that specialism, with a company which has a different specialism, but is marketing to a similar population. And the scope for partnership is large, and people have, in the past, thought of the big partners like IBM and Cisco and, who you like, but, I think that there's much more scope for medium-scale companies to come together, and that should be encouraged and facilitated. Because, you know, if you're

a small company, it takes time and effort to persuade people to evaluate, to get the processes right. How **do** you work together? I've got a group of salespeople, they're on commission. They're going to sell what they make most money on. I mean life is not complicated. So you've got to persuade them [laughs] that they're going to make more money, or not much less, by selling your stuff.

[1:04:58]

Now, during your presidency it's IT82, the Government's information technology initiative. Did you have some involvement in that?

[laughs] Well mostly what I remember about it was, Kenneth Baker was Minister of Education, or about to become it, and, he's a delightful man and one of the most well-read, you know, poetry, American literature and so on, a very interesting man. And we had a meeting with him which was slated to be on the top floor of the Hilton Hotel in Park Lane. I had come off the Cunard ship *Queen Elizabeth II*, crossing the Atlantic, it was a business thing I had been to in America, series of meetings, and we came back, and it was the third fastest crossing we had ever done. So it was at a speed, you could water-ski behind the *Queen Elizabeth*. We rushed into port, and we came back to London where, home and so on and so forth, and went for this meeting with Ken Baker, all about IT Year and the policies that we, the CSA, wanted to see. And I was the spokesman. And all I remember about it [laughs] – I remember what I said, of which more in a moment – was, the Hyde Park wobbling from side to side as if I was still at sea. Because, the effect of that high-speed crossing was rather dramatic. However, the message then, in IT Year, for us, the Government was coming out with a whole lot of rather trivial policies, quite a lot to do with education, all good in and of themselves, but nothing very fundamental. And remember, these are the early Thatcher days when there really wasn't a feeling, I remember meeting Maggie at that time, and saying, you know, 'You've got to do some things but not too much, but let's do things that make a real impact.' And our message, put alliteratively, was, 'trade not aid'. Don't back little aid programmes or research programmes; rather, apply IT in Government, as is now happening all these many years later. I mean what is absolutely so remarkable is, here we are, we're talking about '82, until today, here we are, what is that, thirty-odd years, and it's exactly what the Government is now doing. I was reading the, the chap who's just resigned from

the Government digital office, but I mean, it's very encouraging what's happening. Now the difficulty of doing it with, you know, 1,000-year-old administrative system, which isn't too bad, and a third of the world uses something rather similar, to make it all digital is a major task. And I think the trouble of course with politicians, they want a very quick solution, and it's not available. It'll take, probably a generation, and providing you chip away at it with sensible lots, it'll work.

[1:08:20]

You must have met a lot of industry leaders in his public role. Do any particular industry leaders stand out to you, or any you had sort of, particularly good relationships with?

Yes, they, I mean they're all, I think, they all turned out... I mean, what is interesting now is, looking back, and seeing what's happened to them. I mean we all think of Barney Gibbens, sadly no longer with us, who, with Alan Benjamin, also no longer with us, was one of the creators of the CSA, and also the Worshipful Company of Information Technologists. It was their idea. The CSA, Barney was the first, the first president of the CSA, and Alan was its first director-general, when it came together. And, Barney was the very first master of the livery company. And, they were real, very much in the line of pursuing this business of togetherness, they, they believed in that, and I think have left a hugely valuable legacy. Barney was, above all, a very pragmatic, very well-educated, very articulate leader of the industry of its time. Well the plain fact is that, Barney left the industry, I suppose, a long time ago, he died quite recently, Alan died ten years ago, but, he left the industry. And that has been a continuing facet of great people. Philip Hughes for instance, who started Logica, Philip is an artist, he was an artist when he ran Logica. He had a good team around him, but he left pretty soon after it went public, and I think, he left the early Nineties, a long time ago, and he's quite a well-respected artist today. You go to people like Kenneth Barnes of SPL, similarly, been out of the industry for quite a long time. So it's quite hard to see that early generation of people... Colin Southgate, Sir Colin, now he was the progenitor of an early company out of ICL, and got it taken over, became part of BOC; went on to be the chief executive of EMI, and chairman I think, and Chairman of the Royal Opera House. And then chairman of various other, small, companies, for a time. And so on. So, and there are a lot of people who made a big

impact. But, when you ask me about legacy, I think, one of the sadnesses is that most of the companies, including my own, found themselves being taken over by Americans, and, that's ultimately what happened to our business, or Canadians as well. Not all, BIS Applied Systems still exists in the United Kingdom. But the individuals were profound. And people like Doug Eyeions, who was the successor to Alan Benjamin as director-general of the CSA, he was a formidable intellect, physicist, ex-Rolls Royce, and was a... And he and I worked very warmly together for a very long period in my role in the CSA.

[1:12:08]

Now, talking of takeovers, in 1986 BIS was acquired by Nynex, which was one of the Baby Bells following the deregulation of the US telecommunications industry.

Yes.

Can you tell me the inside story of how that happened?

Well yes. I mean, the first thing was that, we had started, actually I had started, to distribute shares to the key people in BIS. And by the middle-Eighties, we had about 110 shareholders. I have always been of the view, which isn't shared by an awful lot of start-up managers and executives, that you should confine shareholding to those who are really going to make a difference in the technology or the growth of the business, and not distribute it to all and sundry. I think there may be a case for that in a few exceptional examples of businesses that either have become very large, like IBM, which, they do that, or are going to grow so rapidly, like Facebook or Google, but for most companies, where that prospect is not likely or on offer, focus the shareholding on key players. So that was, we started on that. And we used to meet once a year, three of us, the founder, Brian Allison, Colin Walpole and myself. We'd go to a hotel and have a meeting. And then the middle Eighties, '85, we had – and we had it on the agenda every year – we had, and it was all quite surprising, because, it was on the agenda, and I don't there had been any discussion beforehand, but the bottom line was, I think to the surprise of my colleagues, I supported the sale of the business, I believed, I, and I particularly did not think we could go public. Because by then companies were beginning to go public. Logica I think went public in 1983;

Hoskyns had not gone public; CAP didn't, that was bought by the French, in the UK; SPL, I don't know what happened to that exactly. But most of the companies were being bought, with one or two aspirants to go public, in the middle Eighties. I didn't think we should go public, because we are a diversified business. We had these four businesses. And it didn't seem to me that the Stock Exchange and the investment bankers would understand us too readily, and that we would be ill-treated in the Stock Exchange. And, there was an era of conglomerates, and my colleague, Brian Allison, used to say, 'Well, we are a mini-conglomerate.' Well we were, and we weren't. Banking systems had already become dominant, and looked as though it had the biggest future. There were some lame ducks, and there were some real issues with the other businesses. I would say the second business by then had almost been direct marketing, but there were some challenges there. Anyway, the bottom line was, we made that decision, and so, in the end of '85 we appointed merchant bankers, Hill Samuel, and they frankly got nowhere, and I said, well I'll go to my American friends, Broadview, and, I knew the bosses of Broadview, who had founded the business, and who had become, well frankly the world's leading merger and acquisition advisers. And, very quickly they identified the Baby Bells, not just Nynex, who we sold to, but a number of them. The bottom line was, many discussions, many months. We, in '86 now, we agreed that we would merge with them, they would take us over, they would pay us in shares, which had its own complications, but we did all that. We agreed to that in December of '86, for completion on February the 28th 1987. There was a big drama on that evening, because the lawyers/bankers had put into the agreement a method of determining the value of the Nynex shares at the time of completion, which had not been properly executed. So there was a major row until about 11.30 when I in concert with Brian Allison ultimately agreed that we would go ahead with the deal, but that's, you know, the nature. It was a deal which valued the business at some 70-75 million pounds, which, as I mentioned earlier, it would have been, I think, more today than it was then, but, I think we were very happy, and certainly, some of the senior managers were happy. One or two of the key ones left, Colin Walpole left. John Prosser left to... John Prosser was actually a bit of a pop star, he made a lot of money in his teen years as a rostrum musician, a brilliant musician. He wanted to go off and set up a studio, which he did; he sold that very quickly, and then went to America and, I am in contact with him, we tend to meet once a year, he's now up in

Yorkshire. But those are two of the people who have been so important to BIS, from its founding and then in the building of the banking software business.

Who were the principal shareholders when it was sold? You were one I assume.

I was one. Brian Allison was the principal one, he had founded the business, I guess I was the second one. Other main board people were, well up there. I think I mentioned 110 people received cash from the result of the sale. Whether they received shares and then cash. Almost all... I didn't sell, actually, every last Nynex share, I still hold some Nynex shares, but I...

Why did Nynex buy them, what was the strategic fit that was in there?

Well that's a good question. There were seven, I think I'm right in saying, six or seven Baby Bells, and, they were let off the leash of AT&T. Now AT&T itself was a, a slightly confusing company, because, I mean it was all but, it was a nationalised corporation, but it was a vast national, not international, it was strictly American, IT&T was... And IT&T did many things, and widely diversified. But AT&T was focused on this, and did lots of research. And that research, we're talking now in the Eighties, the beginning of the combining of communications and computing was in the air. One of the people I got to know very well was a man called James Martin, a Brit who worked for IBM in their research centre, wrote books and lectured, wrote the book *The Wired Society*, which I introduced, instilled into the Thatcher government, and it became one of Maggie's required reading books. And he, I think, articulated very well, and this was back in 1979, the likely results, the potential outcomes, of this growing combination. Because until about then, until the mid-Eighties, there was computing and communication over here, and there were connections. But IBM tried to, and my earliest days in IBM, in the Sixties, we tried to tie things together with telephone lines. It was very difficult. And you know, we still had teleprinters in the office and telex. It was, there were the, the changes, but in the mid-Eighties, it began. So that's what they thought, they thought they could bring us together. And what was interesting was that, in fact, only two of the Bells acquired any assets in the computer field, and all of them disposed of them within seven or eight years. And I went to, I got on very well with the two chairmen of Nynex I dealt with, we had a remarkable

relationship, they were very different background, they'd been Bell people for years. They started their career climbing telegraph poles in fact. Bud Staley was the son of an immigrant, 1905, born in Akron Ohio, which is the tyre capital, and his father was a working man on the shop floor of this tyre maker, I can't remember what the name of it, which one it was, but, that's what they did. And he rose to the chairmanship of this vast corporation, employing about 90,000 people. And, we got along very well. And, I said to him one day, 'Look, I don't think you want this. Why don't I sell it for you?' [American accent] 'Roger, good idea.' And, [laughs] it was settled. We appointed Lazard's, they appointed Lazard's, nominally, the bank, I knew the people at Lazard's, and we went through the whole process.

And it was bought by Apricot Computers.

It was. I mean, it was all slightly bizarre. Candidly, I should have disassembled the business a bit earlier, in particular we'd have made more money with Brann, now known as BIS Brann, if it had been sold off as a separate business. And Apricot, run by Roger Foster, a great entrepreneur, who had started making hardware, the Apricot computer, which was a PC but a particular version of it, ran most PC software, but was trying to get into software and consulting and advisory work and so on and so forth. It was far too big a piece for him to chew on. And within eighteen months he had other challenges and sold off the consulting business to Philip Swinstead, one of the early, very successful systems designers, managers and owners. He sold off the banking software to Misys, and they paid much less than he had paid for it, but that was great for Misys, because now, Misys really commanded for the next, oh, goodness me, I would say, well certainly for the next ten years. Competition came in, there's one other company now, Temenos, which has done rather well, Greek owned, Swiss based, competitor to that. And then, Brann was the subject of a management buyout, [laughs] which was extremely beneficial to the management, and we gave, we pretty well gave away the market research businesses, we sold them to management. I say we sold them, we had sold them, but the remaining ones were sold by Apricot.

[1:24:36]

1993, this sale takes place, and then you, you leave the industry.

I leave. Yes, absolutely. Start the process of setting up a new company. It was going to be a competitor to Computer Centre, i.e. supplying a package of capabilities, including equipment, we'd subcontract all that, of advice and services to people who have lots of PCs, which at that time a lot of the companies were finding quite difficult to manage. In any case, I had conceptually set up a business, aspects set-up, and I had a partner set-up, but the partner was risk-averse, and decided to do something else. Meantime I had been approached to get involved in some other companies, and some of them were quite interesting, to go plural, an expression we use today, which is to say, do many things as a non-executive adviser, in my case mostly chairman, of companies. Which is what I have done for the last 22 years. And I have been just that with a total of 24 companies over that period of, I was looking at the data recently, twelve of them have been very advantageous, and the other twelve have not. That's a better strike rate than most VCs, and certainly if you're an investor in VCTs or EIS combinations, groups, yes, it's certainly better. But, of course I have the advantage of, not only being able to do... And where I failed is, I did bad due diligence, because of pressures on one's time, and doing it all, because someone says to you, 'Oh I need the money, I need the money,' so you do it too quickly, and you don't check it all out. And in every case, the investments were done too quickly, and equally the really successful ones, I did masses of due diligence. And that's the big lesson I have for an investment. And it's very different due diligence to the due diligence done by private equity houses or venture capital houses, or angel groups. It needs to be a very thorough, documented, non-legalistic analysis of the operational facets of a business, particularly focusing on sales and marketing, and the viability of the software. Those are the areas that companies, small companies, fail in. And it's long been said that Britain's so good at marketing; not true. Napoleon had us as the nation of shopkeepers. We are perfectly good, and have got better and better, at the sales and marketing function. But it still staggers me how young people, young people and companies, don't do a meticulous and thorough job of understanding the scope and scale of the market, what the impediments are, what the competitors are, and then don't proceed to establish a sales operation of high quality with qualified people that run to a procedural basis, but with flair. Procedure with flair. You've got to have both. You can't just be "all by the book" men, but you've got to be able to persuade people, and above all you've got to listen.

[1:28:31]

You've invested in a lot of companies. Tell me about some of them, and how successful they've been.

Well, one of the most successful happened right at the sale of BIS in August or September. My lawyer then in BIS came to me and said, 'My husband works for a company in the banking arena, and they are looking for someone to join them as an adviser and chairman.' So, meetings were held, and I joined them. What the company did was payment systems, which is, inter-bank payments which is a sophisticated, few transaction, high-value, very, security, absolutely vital, system environment. And it's become more and more scaled, upscaled. We were operating with much simpler software and hardware environments at that time, we used a, a Series/1 IBM computer, which was a, like a PDP, a digital computer, to execute some of this work. Anyway, the company was successful. Two brothers were the principal players. One started the business, ex-Burroughs, Burroughs computer, and the other guy ran the business from all points of view. The other brother, who owned the business, was at that outset in America where we had an office, and the young brother was here and doing the development of software and the sales to the UK market. And were very successful, we had tens of clients in London, and, you know, big conferences once or twice a year, and highly regarded, always adding features and capabilities to it. But things moved on, and by the end of the Nineties, we're talking now, oh, five, six years on, the company started not to do quite so well, and there was a real question about the future. And, there was an issue about direction. And, anyway, I played, I would say, a material role in helping the two brothers to see a good future for the business.

And was that a financial role?

It was financial, and operational. And, the consequence was, we appointed merchant bankers, and we sold the business a fifteen months later. So did extremely well. This was the absolute apogee of values. This is the end of the Nineties, and the early Noughties, and, we sold it for one price for shares, much of it, consideration were given to shares, and the shares went up five times in value. So, it was all very good and people were very happy with that. So that's an example of what I did. And my

role there was helping them across a broad spectrum of, I would say operational advice and some financial. In fact, the owner of the business, the older brother, is very very capable financially, and so, that was less of an issue there, but in other companies the financial management of the company, and always this issue of, how much money we should raise and for what. I mean one of my other companies, which we haven't yet sold, and I've been invested in now for about eleven or twelve years, and we've poured lots of money into it, more money than the revenue now is of the company, but now the company is growing. And why is it now growing? Well of course it's all about management, ultimately. But it's also about the management having the right strategy, and what we're seeing now is a re-visioning of the company, so when it goes to market it expresses itself about what it can deliver and do and prove, and prove what it can deliver to clients already using it. And big clients are using it, big banks are using it, the Ford Motor Company's using it, I am told, with a contract in very many places, et cetera et cetera. And so it's about, very often it's about market, competition sales, and then also about having a vibrant development, so the product tomorrow... People don't buy yesterday's product anywhere these days; it's, it's a fashion world, and if you are in a niche, you need to be updating constantly, and expressing a vision.

[1:34:06]

Tell me about much the importance of capital in the IT industry has changed over the years.

That's a very good question, and I think my views are at variance with some of the commentators, aided and abetted by obviously the banks, the investment bankers on the one hand, and the media. Because, the media like sad stories, and the sad story is, there isn't enough capital behind British technology. And that of course is true, it's hard to argue with that simple statement. But what is, I think, not right is that there are companies, inappropriate companies, seeking capital inappropriately for inappropriate purposes, and unless you've got all the ins out of the way and the appropriates clearly right, you shouldn't be raising money. And by and large, I believe, money should be raised for growth. I would support a firm which comes to me and say, 'Look, I can grow at 100 per cent a year, I can double my business year on year, and I can show that we can do this in a way for three or four or five years,' I

would support that. I mean it's a tough call, that, it's a tough call, but companies do it. I mean clearly Google and clearly Facebook and so on will do it. And it's not impossible. And I would do it for companies that did only 50 per cent a year, but were on a reliable, continuing basis. But, then we shouldn't use capital. I think by and large product development and software development, it depends a bit on the particular area, but by and large should be funded by the clients. If you've got a valuable enough idea... That's how we built BIS banking software, BIS Banking Systems. We never, in BIS, had more than, in total, £110,000 invested in the company. That was the total capital we ever employed, and we built a business that was sold ultimately for over £100 million, and we sold it in '93. Now today, young people these days, they don't, they can't conceive of how you can do that. We generated cash from our consulting business, which was the initial big-ish business, all the time, every day. We didn't do consulting for nothing, we charged a top rate. And one of my proudest moments was to win my first ever contract in Coopers. We won a lot when I was in the previous company, but, the first contract was against Coopers, we competed with Coopers to win the computerisation, the analysis of computerisation of the Covent Garden Market Authority, at that time in Covent Garden, but soon to move to Nine Elms. Well we won the contract to do the work, and we did the work, over about, seven months, and we interviewed market traders and people supplying them and so on and so forth. And we wrote the most unusual report for a consultancy, because we said, 'We don't think you should use computers.' Because that's not what, typically, was the modus of the day. So we got a lot of respect for that, we made a, had a big presentation to all the Covent Garden traders who wanted to listen. We said, 'We think some of you might think of doing this in your own offices, upgrading,' blah blah blah, 'and moving towards, but, don't do anything yet. And these are the reasons why.' So that was the start of the business, and that was within weeks of May the 5th 1969. And we didn't need capital to win that business. And that business provided the capital to hire better people and do all the things you do. And I feel very strongly that you don't need, you shouldn't need, and it's a better discipline not to expect to have, more and more capital poured in. Now, of course, things have moved on, and people's expectations about the growth rates and the type of business you are in. I mean if you're developing apps for a smartphone, you don't need much capital, but you do need some, and you've got to get it out there in the marketplace, you've got to have partners. So, the actual

business models are different from what they were. But I would say that today capital is available. I've not heard in the last few years, last four or five years, people saying, as they used to say, as little as ten years ago, 'Oh you can't raise money in Britain.' There was a period in the early Noughties, after the very bad period following the Millennium, when capital was hard to come by. Now it's really available.

[1:39:22]

How important has money-making been to you personally? I've a feeling you're going to say, it gives you some chips in the game. Would that be right?

Yes, you've said it well. You've said it well. I can... [laughs] I, I was an odd child, because, when I was literally going to Mill Hill, and evenings at home, I used to read books about business and things, and all I know is that I wanted to run something. I wanted to run something with people. And that was a driver. I wanted to lead people, I wanted to do something worthwhile. And part of this strays into my political ideas as well. I wanted to do that. The money was very secondary. When it came to thinking about selling the business, having already had shares and having made... I was, I reminded myself the other day, I found some old papers, I was very well paid in BIS, and I was – and so were our people, I mean, we, we were a good payer, we made good money. But, I then started to think, well how much money would be a reasonable sum? And I'm talking 20 years ago, and I used to think of £10 million, that I could live happily, doing nothing terribly... Not that that would be my intention. Well obviously that number's a bit different today. But, I mean, and I don't have, I'm, I haven't anywhere near the *Times* rich list or any of that stuff. There was a moment when I thought I might be about it, but, you know what I mean, I, I'm not so extremely well off, although I live in a very happy home, nice home, I wouldn't, you know, I wouldn't wish to go anywhere else. But that all said, money has not been a driver. Although, you said it well, certainly when you look back, you say, well, a part of the component of whether I enjoyed my time working somewhere, is, well how did it work out financially? I don't like my losses. And I think back on them, what I might have done differently.

[1:41:45]

Mm. What do you say is the relative importance between sort of, you as an individual leader and the team?

Well, I have a philosophy about this which seeks to identify the differences by different types of company. So to answer that question as you've asked it, rather generically, it's quite clear to me that, if your business is centred around capital assets, if you are a property developer, if you are an oil driller, and I have friends in all these fields, if you are a certain type of banker, an investment banker really, you're really operating on your own skills and capability, you need other people but you buy them in as required, you don't have a particular team. And you know, this goes into some of the professions as well. So, I shall never forget talking to a very eminent heart surgeon years ago, just before a strike of nurses, which was very unusual years ago, and I said, 'And what about the nurses' strike, what do you think of that?' And he said to me, 'Well it's nothing to do with me.' And that attitude of disassociation, by perhaps a certain class or a certain style of person, is, I find, very disagreeable. I think the lack of personal responsibility... I said to him, 'And if you were a lieutenant or captain,' and he was all that, equivalent in the health business, 'and you had said, "Well, the sergeant-major and his men are nothing to do with me," where do you think the Army would get?' So, I feel that, when you come to the businesses I've been involved in, I've not been involved in any of those asset-intensive businesses; they're all people-intensive. That's the assets, up and down in the lift, [laughs] hopefully only once in the morning and once in the afternoon. But that's the environment. And you don't look after them and don't help them and don't guide them at your peril, and theirs. And so, what I believe very passionately about is having a strong team, a team which doesn't have to agree with the leader upon everything, but they do have to work together. Disagreement in terms of strategy, or even tactics, is acceptable, but a decision has to be made, and the leader has a role in that, and mustn't shy away from that role of saying, we will go in this direction. And the others have to follow, and if they don't... I mean follow, I, and that means, doesn't... this is not Pied Piper stuff; this is, they have to make it happen. The role of a senior manager, they deserve shares, they deserve to be seen away, because they're going to make it happen, not because they're going to say they hope to.

[1:45:10]

This is my last question. What do you think have been the driving forces of change for your career? Is it the technologies, or the market, or the industry?

Well, what a big question. [laughs] A good one to conclude on. I think I'd start with saying, you ain't seen nothing yet. I think technology has gone through generations, rather as IBM has gone through generations of equipment, but the information technology and communications environment, obviously started with environments which are focused on very large-scale data manipulation. I think it was the boss of IBM, Tom Watson who said, or someone said, it probably wasn't him, a member of government, maybe a president of the United States, with all that prescience said, 'We'll only need three of these computer things, you know, to do everything.' Well of course, we know differently. So, I think what we have is, we've gone through a series of generations without articulating, most of the people that are watching this now will have a view of that. I think the major leading the changes, of the leading change... I gave a speech, took place in the early Nineties, I gave a major speech, it was the last speech I made when I was in BIS at an industry conference, [laughs] and I used the expression, about, "don't put your daughter on the stage Mrs Worthington", and the sense that, I think some of the people of my generation felt that it was all coming to an end, and I think it was, as it was, and as we had lived it. And it really came to an end ten years later, the Millennium and so on and so forth. Well much of that stuff which was much hyped, and, the Government sort of, got involved because of risk rather than because of anything very positive, and that all changed. But what happened in the early Nineties was, what I alluded to earlier, which was, the combination of computers and communication. The PC emerged as the consumer, not just consumer at home but consumer in business, a device which, all the data and capability of the big machine in the basement was suddenly brought to their desk, and they didn't look for printouts and things of this sort. I mean it's not that long ago. And then the Internet started to be applied, communications, and they were able to communicate with their customers, with their suppliers, in a whole different world. So what do I see for the future? What I think... So I think that was, that was the, the nodal change. And most of the businesses I've been involved in since then, because '93 was the moment I left BIS, since then have been very much involved in this new world, and of course we can think of smartphones, which is the most amazing piece, and capable piece. I've just got my Apple Watch and blah blah blah, and I'm not sure

about it yet I might add, but, my grandson, whenever I say I'm doubtful, quickly persuades me that I made a good decision. But what I see for the future, I see no end to it. I, I think, health, work, at home, I think, the environment, a transport system... Environment, transport, big issues. And will we really go on using the railway train as much? And the motorcar? You know, are we not going to have very individualised means of moving around a bit faster than at three miles an hour on our two pins? And all of that will come because of this technology and its application. And, I think the future is extremely rosy. There will be, as there have been in the past, a few great successes, and they have to be carefully managed by governments. The people like Google, Apple and Facebook, three examples, are wonderful companies, but terrifying as well, if not in some way managed. But my life has been with smaller companies, and the encouragement of those is something I think very worthwhile, and I see considerable opportunity with.

Mm. Thank you Roger, that was a really interesting conversation.

Thank you very much.

Cheers.

[End of Interview]