Michael Earl

Interviewed by

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At the

SAID BUSINESS SCHOOL

Welcome to the Archives of Information Technology, which captures the past and inspires the future.

It's the 4th of May 2017, and we're in the Saïd Business School in Oxford, because the entry to the Archives today is Professor Michael Earl, who is an international luminary on the application of information technology in business. I'm Richard Sharpe, sometime Adjunct Professor for the University of Southern California, and a long-time journalist.

[00:36]
Professor Earl, you entered the computing industry, as it would then be called, on the user side, at United Steel in Sheffield in 1966, as a systems analyst. Why did you make that choice?

Well I agree, we probably called it computing, but I think more likely we called it data processing. I had been on the graduate training scheme at United Steel, which was regarded as one of the doyen graduate training schemes. And, after about four or five months of formal education there you were invited to join a department that you might be interested in. And I was an arts graduate and it was thought that probably I should go into the sales department. And I did a week in the sales department, and I spent quite a lot of time dictating letters saying, 'We cannot satisfy your order.' So I thought, I'm not interested in sales. And they said, well another thing you might do is go into what then was called personnel. Now I had a project to go round the steel mills trying to count how many people weren't wearing their white hard hats. So I wasn't sure that's what I wanted to do. Then I said to the manager in charge of the programme, 'I think I need to do something else.' He said, 'Well, we're not quite sure what to do, except that, that some of our graduates who have read either history or geography,' and I was a geographer, 'have gone into data processing, or into operations research.' And I still remember saying, 'But I'm hopeless at maths.' He said, 'You don't need it apparently.'
[02:16]
So, I had a week in the data processing department of the head office, and I was given various tasks to do, and I found them intellectually challenging, just even thinking about how to draw a flowchart. And I can remember taking one or two of the things I

had to do back to my flat and working on it in the evening, and I thought, this is all right. It's challenging. And then, should I have a job there? Well, the manager in charge said, 'Well, there's a great thing about being a systems analyst. First of all you've got the opportunity to change the world, change the way we do things. Secondly, it's a great way of learning about the business, because you see across all functions, and you have to understand the functions if you're going to automate them, so forth. And thirdly, therefore, it's a way of seeing what you might want to do next, if you want to.' So, that's what I did. But I was reflecting back, and there was another bit of luck, because there was a parallel unit in United Steel which was the operations research unit, called Cyber House, and it had been founded by the cybernetic guru Stafford Beer. And then was run by a called Keith Tocher. And occasionally when we were looking at a new system opportunity we'd have a day's workshop, and Keith Tocher in particular would ask questions like, 'Why are we doing this? Isn't there a better way? Could we model it and think of this, you know, some solution we haven't thought about?' In other words, one was introduced to systems analysis, not just being about the design of systems but asking questions about what might be, and thinking through, what one might say nowadays in today's parlance, thinking out of the box. So I regard myself as having been very fortunate to have that sort of induction.

[04:16]
And by then, the data processing had stripped the job of programing and systems analysts, so the two were now separated.

Absolutely.

And programming did not attract you?

Well the deal then was that, you had to have done a small amount of programming, and prove you could do it. So that you could hand over a spec to a programmer. But your job was to analyse and design systems. And, and that was something of a relief to me; I can't say I enjoyed programing terribly much. [laughs]

[04:51]

And what systems did you analyse and therefore improve?

Well this is a sign of the times. So, the first system was a payroll system. I mean classically where many organisations started back then. If I remember rightly, it might have been designing a new one all over again. And the same thing happened on inventory control. So it was the classic sort of data processing era of automating standard processes, you know, to do them better, to reduce the cost, to, to take some labour out and so forth. But it was a good way of learning. It doesn't sound exciting, but, it was a good way of learning the game.

And this was mainframe-centric computing, I imagine?

Mainframe-centric. I mean, as, you know, as you know, they seemed great big machines at the time [laughs], but, compared with today, they were nothing. So, we started on an ICT nine hundred and something, but before long it was a thirteen hundred and something. And, I still remember the great excitement of the thirteen hundred and something coming in where we would have disk storage and random access storage and so on. And despite my aversion to programming, one did have to get back into the technology a bit, and the one thing I remember was being asked to write a paper on the benefits and dis-benefits of random access storage versus serial storage and so on of magnetic tape. So, I was able to prove my technology colours that way.

[06:35]
And did you work in teams?

In teams. Teams of, maybe four. I mean small teams.

Four.

Yes.

Who were you led by?

Who was I led by?

Well let me put in a different way. Were you impressed by the leadership?

Of the team?

Yes.

It was a sort of mentoring leadership. I don't know why I can't quite remember the name. But it was more of a, you had a task to do and then you would be slightly tutored and mentored. And, so, it wasn't sort of, big guns leadership or anything. But it was quite enjoyable.
[07:10]
It was interrupted by something and that was the nationalisation of the steel industry. That created a lot of uncertainty. And most of the young executives and new trainees didn't know what was going to happen, and several of us decided to go elsewhere. And, I chose to go and join the Bowater Paper Corporation.

[07:41]
What did you learn at United Steel that took you forward?

Well I learnt the importance of asking why. I think, looking back, your question has reminded me really that I think that sort of mentoring model of leadership was, was quite good. And I think motivationally, computerising the payroll doesn't sound very exciting but doing something completely new and innovating in that context was exciting. And being able to meet all sorts of people and ask questions in a non-hierarchical way, that was great. So I think that's what I, what I took. And the logic of moving from United Steel to Bowater was that paper was a process industry as well. I mean one thing we had to learn quite a lot about was how iron and steel were made, and it was quite easy to translate into paper.

[08:44]
You physically moved as well from Sheffield to Kent…

Yes. Yes.

…for that job.

For that job.

Were you recruited for that job, or did you seek it?

No, I was… Well, I replied to an advert. Yes.

And you became a senior systems analyst there?

Yes. I mean, it was a fairly quick way to promotion, which, that meant was, I was actually in charge not just of the systems development but of operations, the computer room and so on. A fairly small-scale unit, but nevertheless they had the whole gamut. And that was quite a difficult period really, there was relatively speaking a recession. The part of Bowater Corporation we were dealing with was a mixture of packaging and newsprint. Newsprint was very cyclical, because of the way advertising waxes and wanes according to the economy. And, I spent quite a lot of time in my short spell there in what we would now call downsizing. And, this is no criticism of Bowater Paper Corporation, which was very good in many ways, but it, making people redundant was less attractive than creating new systems. So I moved on.

[09:54]
What systems were you creating at Bowater?

It was some of the same. In other words, one was still developing all the basic transactional processing systems for administration, but alongside that was the first steps of process control in paper mills. And, it wasn't that we were doing anything. What it was, was, we were exploring and groping really [laughs], and being educated into what might be possible. And, I left before we decided what should be possible. But those were the twin tracks of continuing to automate the administrative processes, but then start to tackle the paper-making process.

And as a senior systems analyst, did you apply the mentoring model of management?

I think probably, if I look back, there was a bit of that and quite a bit of having to be hardnosed to be honest.

Right. You can be hardnosed, can you?

Cost-cutting and labour cutting. [laughs] I can be, but as I hinted earlier, at a tender age it's not all that enjoyable.

[11:13]
No. You were only a year there.

Yes.

Why was that?

For that reason really. I thought there were more horizons. We then get into the personal side as well, which was that, I could see I wasn't going to stay there. My wife-to-be was working in, as I say, what we then called personnel, and she was working for GEC Telecommunications in Coventry. And, I suppose I probably felt it wasn't very clever to be moving on very quickly, but, she provided me a route to exploring whether there was an opportunity in GEC. And, you know, I think, many careers have a large element of luck, and you can make your luck. I'm not quite sure why I got the job as systems analyst at GEC, but one thing, probably, was that the, I've forgotten what it was called, but anyway, if you like, the manager of the whole data processing systems analysis shop, was called David Robinson. And he was, he soon moved on to be IT director at Lloyds Bank. But he had been in the steel industry before. So at the interview we'd talk about steel and the steel industry. And we started swapping the steel industry jargon. So I think a lot of it was about sort of getting on in that way, and that's why I was able to get the job. So, yes, luck goes a long way sometimes.

[12:56]

So, GEC Telecommunications is building telecommunications equipment in Coventry.

Yes.

And you are supporting them in developing systems to support them as a group systems manager, or parts of it.

Yes. Well I wasn't immediately a group systems analyst, that's seen as up the ranks. And then… And what happened actually was that, GEC had a scheme, across all the different businesses, you know, electronics and engines and telecommunications and, the old English Electric and so on, they had a scheme of sending four people to university for a year or three, and postgraduate, and on a scholarship, fully paid. And, I decided that I would like to apply for a scholarship to go to business school. And that had never been done before. And, and I was encouraged by my manager at the time to apply, but the odds were fairly low I think. But anyway, you went through stages of interviews and making the case, and, I got to the final interview at the head office in Stanhope Gate. There was an interview panel of the chairman and chief executive, the deputy chief executive of GEC. But the key man was Sir Arnold Weinstock, who was well-known for not having a very positive opinion of business schools; he was an extraordinarily good business man in many ways, but, but that was it. I can still remember sitting in the waiting room and Sir Arnold's PA coming down to me saying, 'I'm afraid I've got some bad news for you.' I said, 'What's that?' She said, 'Sir Arnold is ill today. He's got flu. So he won't be chairing the panel.' And so, talk about luck, I think that was probably a little bit of luck. I managed to persuade them, I was the first person to be sent to business school, and that actually was the change. Because, I went back, I was to go back to GEC for two years, which was more than fair enough, but I was made Group Systems Manager. And, it was really grappling with a number of issues, feeling that a number of issues weren't being addressed that got me interested into thinking about researching, and teaching the management of, of what could then be called information systems for computing.

[15:32]
And what were you doing at GEC Telecommunications, what types of applications were being developed by the company?

Well, I mean the big application development was, which would have been the same in Plessey, was the same in British Aerospace, same in Rolls Royce, was basically bill of materials processing, what were being called BOMP. [laughs]

BOMP.

Evolving into MRP or manufacturing resource planning. So, it was all bill of materials stuff, and what hung off that really, process support and purchasing, and inventory control and so on. So all manufacturing oriented. But of course, at the same time there was the necessity to have decent financial systems, particularly in GEC where Arnold Weinstock ran everything by financial numbers. And, you know, the payroll and so on. So, in my case, and it was, I was sort of in the middle of that. I mean on the one hand I can remember leading the team on how we cope with VAT when it was introduced. So that meant amending all the, all the financial systems, and, I think there was quite a lot of anxiety about this, about whether it was going to, to work. And, it all went fine. So I think that, that helped reputation a bit. And then, I didn't work on the bill of materials processing; I worked on the derivative of that, of a standard costing system, which also became important later on. But basically, using all the data on the database about parts lists and about processes and so on to, to calculate quite realistic standard costs in different ways for use not just in the management reporting but in analysis of better ways of doing things. So, and that was, that was quite fun, quite, quite challenging in some ways then, and a very large project. I mean I can't now remember the financial numbers, but it was, it was expensive. So that couldn't afford to go wrong either.

[17:53]
And we must remind people that nowadays you go out and buy a payroll package.

Yes.

Buy your BOMP package, or, whatever the latest generation is. But at that period, in the 1960s and early 1970s, people were building their own, because a software industry as a supporter of application packages had not really developed very much.

It was halfway there in a way. I mean if we take the bill of materials processing, there was a sort of architecture there which people like IBM would supply, but you still were designing the programs that rested on that database structure. But you're quite right, yes, the package industry hadn't got going really.

[18:38]
And in your time at GEC Telecommunications, what was your main learning point so to speak?

Well there were some different sorts of learning. And, I mean, the first thing I would say, partly because of that work I was doing on financial systems, I actually got to become a pretty proficient accountant, [laughs] without doing the accounting exams. And, that may seem a little bit arrogant, that, but if I just fast-forward for a moment, because I left GEC to go to Manchester Business School, and we might talk about why that happened, and, you know, my appointment was largely to start developing the teaching of information systems, but there wasn't enough demand. And it was expected therefore, because of the way IT was being applied to financial systems, that you could teach finance and accounting. So in my year, time at Manchester Business School, and subsequently actually for a few years, I was teaching accounting and finance as well as information systems. And that again was due to accidental luck. So, learning about accounting, that was quite important. And, I also had another learning, or two, which led me to what I then wanted to research. Now the time to talk about that, or…?

[20:16]
Well I just want to look at this major shift that occurred.

Yes.

So you did your two years at Warwick University, management and business studies.

One year, yes.

And you got your MSc.

Mm.

You did, therefore, have to do another two years at GEC.

Yes.

And while you were at GEC, having had the knowledge and experience of your management and business studies, I think you mentioned that you, you looked around and you saw things were not being done as perhaps they could be done.

At GEC.

Yes.

Mm.

And there were gaps there?

Yes.

What were they?

Well, that whole bill of materials process was nested in a wider logic, very much developed by IBM and others, and this is not a critical comment, but which today would have been seen as a sort of applications architecture idea. If you did this, then you went on to do that because you had the data there, and if you did that you went on to do something else because there was an obvious system or application you could do. What it wasn't, was in any sense business led.

Right.

It wasn't… What you were doing, wasn't necessarily stupid [laughs], but you couldn't really ask, well, what's the business driver of this? Or, how is this going to change the business? So I tried to introduce what I think was probably then called systems planning, and I went on in my academic career to talk about systems strategy. But how should you plan what you should do? The question is, what should you apply information technology to? And, it was a fairly feeble attempt, partly because that logic of going from this step to that step, just drowned it all.

Yes.

And, and I can remember feeling that there was one particular area that should be starting to be addressed, but why should I? I wasn't, as it were, in the business; I was a data processing guy. But it seemed to me pretty obvious that it at least ought to be addressed. But no, that data logic carried on. That was the first thing.
[22:28]
The second thing was this, that, you know, the exciting and stressful time, as you may well remember, would be close to when you were implementing a new system. And I can remember a guy sitting at the next desk who had got to that point, and I remember saying, 'How's it going Pete?' He said, 'Oh yes, we're nearly there.' And I said, 'And what about the user testing? And what about the user training? And what about any redesign of what's going on?' And he said, 'What?' 'Well, what about the users?' And if you will excuse the expression, he said, 'Oh bugger the users.' And I said, 'Well gosh, this is, this is awful.'

Yes.

Not at that point in any sort of moral or humanistic way, but, how do we know this was all going to work? How do we know they make the best of it? How do we know we had actually designed the right thing? And that was something that, that I was concerned about. And then, something happened. Because of that data logic, of what could be pursued next out of the bill of materials processing, a purchasing module as it were had been developed, and, it was installed in one area of the business. And, it didn't work. It worked technically, but it wasn't what they were wanting. It wasn't helping them in their job at all. I mean it was assuming that everybody did purchasing

the same way, if you see what I mean. And so it was abandoned. I had nothing, I just remember it being abandoned. And then, a guy who was responsible for requirements, planning in that part of the business, came along one day to the data processing department, and said, 'Could we have a little system knocked up on punch cards, and what we want is, this sort of thing, and we'd like it sorted this way and that way, and we'd like a report on Monday, and that's what we want.' And, I can remember the manager of our, saying, 'Punch cards? What do you want that for here? Don't you realise what we can do is, this and that and the other?' He said, 'This is what we want.' So, it was developed. And it started being used. And then, the user departments came round and said, 'Can you add a little bit on here, and a bit there?' Then it had become too big to be sort of based on punch cards and sorting this way and that way. So it had to be reverse engineered. But, through that process a system was discovered that, a) was implemented, b) was used, met the user requirements, and you could see what the enhancements would be. And I thought, that's the way to proceed basically.

[25:27]

And so, when I went to Manchester Business School, you know, one of the first things you've got to start worrying about is, what are you going to research? And I wasn't quite sure how to research this planning question. There's something in this about a much more evolutionary learning as you go method of systems development. So my first work was on that, and again with a little bit of luck which we can go into, that became the first academic paper on prototyping, and, why and now to do it, so on. And it came out of that, not small is beautiful, but simple is beautiful.

[26:14]

So the, if I may use the term, the technological imperative which said, you've got this data, so now you can do that with it, was not looking at the business needs.

No.

And the technological imperative was, oh bugger the users.

Mhm.

And the technological imperative was, we'll put it in, and technically it works, but actually nobody really wants it, and it's not doing anything for the business.

Yes.

And that, therefore, are you saying, was the real break point which led you to say, 'I need to research this, I need to teach it, I need to get out of this process of, of doing it, and I need to take a step back,' and therefore you joined Manchester Business School as a lecturer in 1974.

Yes.

And initially, therefore, you started to work on this area which is, instead of, here's a system, there, throw it at the users, that you iterate towards the system by interacting with the users, by building a prototype, showing it to them, getting them to respond, tweaking it, going backwards and forwards. This was very different from the cascade method that you're meant to…

Waterfall method, yes.

Yes.

Mhm.

Yes.

Yes.

Yes, you're meant to do systems analysis, and then you're meant to do the programming, then you're meant to do the testing, and then you're meant to give it to the users.

Yes. In a way you can see it as design by implementation.

Yes.

Not design and implement, it was implement and then design, or develop. Turns it on its head. And it's not just showing the users; it's actually the system being developed in use. So it's not a sort of show and tell; it's use it and see what happens. Now it's not a pilot either. You know, I find when people talk about pilots still today, or prototypes actually, they mean a pilot. You mean, they're testing the technology.

Yes.

But they're not testing the use, and the business impact and the business possibilities. And most of the evidence we've got about how people have ideas to apply technology for innovative use and to practical use, comes out of tackling a problem in a small way and then seeing if we do something much bigger and better. So it's learning by doing.

[28:35]
Right. And, how were your ideas received in the early 1970s?

[hesitates] Yeah, I think that, that particular thing was, was, yeah, received quite well. There were a number of people round the world who were working on basically systems development, and there was quite a few people in one, if you like, movement which was about user involvement, feeling that if you had user involvement from soup to nuts through the whole systems development process, things would be better. And there was a lot of research done to test out various user involvements, does it lead to more appreciation, does it lead to more use? All that sort of thing. Decomposing the question, but, there wasn't a lot being done on, is there a tool, is there a method that you can use which gets to the users? And, and you know, today to talk about prototyping is commonplace, it's usually called rapid prototyping as a way of knocking up something quickly to go to market, but it's the same idea, you're seeing what works in the marketplace and you're adapting. But then, it was, you know, how can we actually do something which is user-led? And I think you used the word iterative, it's an iterative process.

So you…

And prototyping, by the way, I mean what encouraged me really, I mean somebody at a conference had mentioned that they had heard a speech where prototyping had been mentioned as a possibility, because it wasn't unknown in the civil engineering world, but it hadn't been applied to the IT world or data processing world.

[30:16]
And about this period there was a major disruption in the structure of IT data processing with the introduction of client-server computing.

Mm. Yes.

Did that provide help or hindrance to your work?

Well what's… [laughs] In a way, any of… New technology developments or disruptions, new business disruptions, are grist to the mill really, it's what keeps us going. So, when client-server and personal computing came in, that was one stimulus, for me anyway, when I had come to Oxford, of starting to think about executive education programs. And, when the first PCs came in, we were running quite interesting programs on what PCs might do for you, for the business, and why they mattered. And, I remember a colleague from Balliol College, Mike Dempster, who became a professor at Cambridge, he was demonstrating that you could run an inventory control system on a personal computer. It was that sort of thing. And people couldn't believe it. So, it sort of changed the vision. And it was also a period that made you realise that the technology world itself was changing. By this time that I'm talking about I was here in Oxford.

This is in… You left Manchester '76?

'76, yes.

You joined Oxford '79?

No, ’76.

’76.

Yes, ’76.

[31:58]
It’s a typing error. So, ’76 you came to Oxford as a Fellow?

Mm.

And, you were working on, what?

So, I mean, I was teaching whatever the conventional syllabus was on management information systems, it was called undergraduates and postgraduates. And then, started to think about the executive education thing, and it was this, this opportunity or interest to think about what PCs meant. And then started to see that there might be need for courses on managing IT. And there was a, there was an interesting congruence with the PC world. It was announced that IBM were, you know, were shipping out their first PCs, though of course there had been predecessors, but IBM were doing…

Yes. 1981.

And, Tony Clever was the managing director or chief executive of IBM, and he was, we had a, a board or a council here, and he was on it. I said to Tony Clever, ‘Tony, we’ve got a group of IT directors and IT managers coming, and I want to use a little management game developed at Harvard on project management, and it’s based on the PC. Would you be able to lend us six PCs in three weeks’ time?’ ‘When is it?’ And I said ‘Well it starts three weeks on Monday.’ He said, ‘Well they’re only coming in three weeks on Sunday.’ [laughs] ‘Where are they coming to?’ ‘They’re coming into the docks at Southampton.’ So, ‘Do you think you could get one up the A34?’ or 6, to Oxford. ‘Mmm, OK.’ So, they arrived with a systems, IBM systems engineer. Then, we opened up the first one, possibly the first one to be opened in the

country. And it didn't work. And I had one of our graduates helping me as an assistant, sort of gopher assistant, and she was looking. She had been at MIT for her first degree in computer science. She said, 'Can I have a look?' And she took a screwdriver from me, and she opened the back. And he said, 'What are you going?' And she said, 'It's OK,' she said, 'we all had to strip a PC at MIT and put it together again.' [laughs] She carried on, she fixed it.

It was a hardware fault?

It was a hardware fault. And the rest was fine. But it was a revelation really, that you could actually… You know, I mean here's this huge machine in a big room, which couldn't actually in retrospect do very much, but actually, people were, you know, we then got the young generation stripping them, building tem up, sorting it out. And our generation was already out of touch. And we ran this game, and it was, it was magic. And it was a good way of impressing people that that was possible.

[35:00]
And you were now developing ideas about the role of the CIO?

[hesitates] Yeah, well that came a bit later. So…

Right.

So I then got back to this concern I'd had about, how do you plan or decide what are the right things to do with IT, which was generally called IT strategy, or, IC, information systems planning, and that's where my work then went. Which seemed to be the right sort of thing in a business school. And, so, you asked me if work on prototyping was well received. It was well received by academics; I'm not sure how it worked in the real world. But the work I did on that was what had the impact really on strategy, and it had an impact in the real world. Because, I think, there was a wider recognition that we had to have a much more business-oriented approach to deciding what to invest in, plus, it was becoming very clear, largely popularised by the faculty at Harvard Business School, that IT could enable all sorts of competitive advantage if you could think about how to do it. In other words, that was another strategy

question. Not only how should you be deploying IT to support the current business strategy, but how might IT be actually changing what you did, and as a threat or as an opportunity. And so, that opened up a whole box of what we call strategic planning of IT. And, partly by doing case studies on companies, partly with a little bit of consulting, partly trying to interpret what others did, I developed two models for IT strategy making.

[36:48]
And what were they?

So, one was, kept evolving over time. So, the first was to say, when people talked about their IT plan, their IT strategy, it was not unlike I described with the logic back in GEC, of bill of materials processing. That is to say, it was nearly always a strategy about what technologies were we going to use. It wasn't about what the business need was, and it wasn't about what the application should be. And, I used to, once I started work on this, I used to get sent companies' IT strategies. I used to joke that I knew one had arrived in the post when I heard a great thump through the letterbox. [laughs] And it was a thick tome. And, I'd look at the first page, and a few words about the business, and then there were 99 pages about the technology and the suppliers. So, what I suggested to start off with was, we needed two strategies. One we should call the IT strategy, which was about, what was the technology platform we needed, what technologies were in our scope, what standards did we need and all that sort of thing. The architecture in a way. And then we needed what I call an information systems strategy, which is, what are the applications we need? And what are the priorities, so on, which is much more business-led. And we needed those two separately so that the former didn't drive out the latter. And, I mean, one simple test of whether his was working was that, nearly always those technology strategies seemed to have a blue cover on them. Something to do with Big Blue. But the other IT companies were blue as well, [laughs] nearly always. And then companies started saying, 'Well shall we, how shall we distinguish that IS strategy from the IT strategy? And quite cleverly they would put the colour of their brand on the information systems, to signal it was different to the business one. So there'd be a green one and a blue one. So that was the first, you know, simple start. But then you could play tunes on that, so on.

[39:20]

And then, I started to realise, again with a mixture of fieldwork and quite often consulting, but, it didn't answer a really important question, is, how do you really decide the IT strategy and the information systems strategy, and who should and how should you organise to deliver it? In other words, how do you manage this show, and how do you organise? Do you decentralise, centralise, federal organisation, do you outsource? All that sort of thing. So… And there's a third box of the strategy, which I called the IM, information management strategy, how do we manage this show? And that would be things like, what's the mission of IT? What are the roles we have, what are the schools? What's the relationships between the IT function and the rest of the organisation or the business? And it became apparent actually that unless you answered those questions, you couldn't get the other two right. And if you hadn't really sorted out the relationship between the IT function and the business, or indeed what sort of CIO you need, you know, the likelihood was, you would get a rather biased information systems strategy, and maybe a technology strategy which was a bit ahead of its time, or something like that. So that was the third box.

[40:33]

And then, as I said, it evolved over time to, began to realise, it's something I had always knew but I, I had done some case studies which, which came out of just following up interesting, interesting opportunities. And, I then did some work on the power of information, on information as a resource, and information as a strategy. And so the fourth box is what I called the IR strategy, the information resource strategy, which is about, you know, what data are we collecting, how do we value it, do we give it away, do we buy it, do we sell it? What schools do we need for analysing information? And so on. That's got ever more important. I've just been teaching a session on big data. Well, you know, if you haven't got an information resource strategy, you're not doing big data very well. That's the one that's the most difficult. But, it's important. And it can be sorted by trying to keep the story simple, and, I was, you know, just as an example, I was really influenced by that when I was giving a bit of help to American Express, we were doing their S versus IT strategy, and they had five principles. And one of them was that data should be a corporate resource. So the data collected from the transactions of the card, of the American Express card, should be accessible to the insurance division as well as the card division. And those sort of things made me realise that principles mattered in

information, so hence the information resource strategy. So that was model one as a sort of structural model, but it was all about, you know, how to think about, about this. And, if I'm immodest for a moment, I think it's as valid today as it was when it started, in fact I'm just helping an organisation on that front now.

[42:44]
You said that, in this period, a number of companies were realising that IT could be used as a competitive advantage.

Yes. Mm

MIT was teaching this, presumably you were teaching it.

Harvard were.

Harvard was.

Well, MIT was as well, but…

What did you, what good examples do you think were around at the time or came later of IT as used as a competitive advantage?

Well it was very loosely phrased. And, if I may, I'd like to backtrack a bit to 1982 or '84, '82. And, teaching, if you like, all the managements and leadership aspects, business aspects, of information systems and IT, was going on in a number of business schools around the world. A lot of the pedagogy had been developed at Harvard Business School, with case studies and some books and a very good team, big names, and, and that helped anybody around the world in their teaching thing. And, there was some useful research about those problems going on at MIT. But I, I felt that, there were so many questions that needed to be addressed in teaching for which there was not much research, and the phrase about IT for competitor advantage sounds good, but then the question was, well, what really is competitive advantage? So it's a business strategy question. How can IT get you there? How can it get you to some sort of sustainable competitive advantage? So… And that… So I thought, we

need some decent research on this. So I founded a research centre, the Oxford Institute of Information Management. We had three streams, but one of them was really asking that question, whether IT can yield competitive advantage, and if so, how? And if so, how you discover these things. And, so, it's quite easy in some ways to say what not. I mean, just by having a new IT application doesn't lead to any competitive advantage; it's got to be giving you some business advantage. There may be some first mover advantages by doing something first, but, you know, generally will get copied quite quickly, so the next question is, how can you develop some useful application of IT which is difficult to imitate? Now the next question is, what makes it difficult to imitate? And then, it starts to get interesting, which is, well have you got some technology that somebody else can't get? Have you got some information you've been collecting which you can't get? And that's a much more powerful way. Because it's not easy to catch up on information. Have you got skills in the organisation that's good at analysing and processing that information?
[45:54]
So we decided to do that work on competitive advantage. And we studied, and I wasn't doing most of this, my colleague David Feeny was doing a lot of that, of looking at sectors where there seemed to be a lot of IT based competition going on, for example, the travel sector, travel agents, the airline sector, so on. And, so, you then get into a situation, I mean let's take airlines, and we used to teach a wonderful case study, Frontier Airlines, who went out of business, because basically they didn't have a reservation system, they didn't have any information about their customers, they didn't have any optimisation modules and so on. So they were, they were fighting blind really. Whereas you'd got people like American Airlines and British Airways who were doing that rather well. So, so in that case they were doing it well, they'd been early movers, and they just kept at it, but if you hadn't done it, you were at a disadvantage. So the competitive disadvantage was as important as competitive advantage. My favourite case was one I did of a company in France called Sorco Films, and it's quite a good example of where advantage comes from. And they made packaging film, oriented, polypropylene film, and they were losing money. And a chief executive was put in who was a commercial man, and he was looking for anything that might help rescue the company. And, somebody introduced him to the idea of process control, rather like I was describing in the paper industry, in the steel industry. In fact, they replicated the applications that were developed in the paper

industry for making film. And, it automated the process, taking cost out basically, and improving reliability, and improving the turnaround time from setting up the machines to make one sort of film to go to another, so they could make things more quickly. And they did it in small steps by the way, not unlike prototyping. Why? Because they were not getting much capital investment from the parent, because they weren't doing very well. So they kept doing it in salami slices, very clever, under the radar. Having done that, they were capturing data on the making of film every nanosecond, about temperature, humidity, width, depth, and so on, things going wrong. And they started to say, what can we do with this data? So this was a business that the rest of the industry thought was going to close every year. They said, 'We ought to analyse this data, because if we can work out what we've got to do for any sort of order that comes in, we can go out to our customers and say, "We're your bespoke producers who can turn something round overnight. You tell us what you want and we'll know how to make it. We've never done it before, but we know from the data."' And they had a control room in the middle of the plant which was to demonstrate that's where the action was. And all the operatives were sent to college, the blue collar, rolled-up sleeves. And they went to learn about polymer science, they went to learn about data modelling, they learnt about statistics. And they became the analysts as well as the manufacturers. And hey presto, the big turn-round, bespoke tailor-made sort of operator. Which was not impossible to replicate, but it needed a very bold move by somebody. And I remember teaching this case to one of their biggest rivals, and they came in afterwards, and a guy said, 'I want to say something before we start discussing it.' He said, 'Every year we predicted this business was going to go bust and every year it did better than the previous year, and we couldn't understand why.' He said, 'We now understand why,' he said, 'but I think we're just too big to be able to copy that.'

Too big?

Mm.

[50:23]
In 1990 you moved on to London Business School.

Mhm.

Becoming a professor, for the first time.

Mhm.

What was your role there?

I was, I was Professor of Information Management, and, this sounds slightly personal but I think it's quite interesting. The business school and the then principal, George Bain, realised that, there had been somebody there already, but, and, a very good, nice guy, Frank Land, he was retiring, and they wanted somebody to replace him, and there was an established chair had been funded. And they didn't want to create a new department, they couldn't have a department of one. So, they said to all the departments in the business school, 'Would you like to make a bid [laughs], to have the Professor of Information Management?' So, the different departments said, 'OK, as long as we can interview him and see what he's like.' So, there were bids from the accounting department, one from the decision science department, one from the operations management department, one from, I think the organisational behaviour department, and one from the Strategy Group. And, and they fortunately didn't have the decision. The decision was given to me to… So I said I like what I hear from the strategy, and that's what I work on. So I was in the strategy department. Which was the sort of, sign of the times really. You know, not only, where does it fit in in a business; where does it fit in in a school, and where should it fit in? And, so… And, rather like I said at the Manchester Business School, because there wasn't enough demand, I had to teach accounting, what you had to do if you were in the strategy department, you had to be able to teach the first course of the MBA, or something similar, on business strategy. So that was a way of pulling up my socks on business strategy. And I, you know, I repeated the recipe from Oxford, and, you know, the Oxford Institute of Information Management continued here at Oxford, but I started the Centre for Research and Information Management, CRIM. And, we did some of the same stuff. But a really good move was, we had a partnership with a similar outfit at MIT, the Center for Information Systems Research. And, it was mainly funded by corporations giving an annual subscription. And…

This made you conscious of the link again with business. So it isn't just, fly off into academe.

Exactly.

It has to be focused on business and business requirements.

Yes. Exactly. But there was a very interesting moment I think after about a year. One of the things we did was to sit down with our sponsors, big companies, and agree what our research programme should be for next year, I mean with some projects going on from the previous year. And, I remember we had a discussion and we said, and my colleague said, 'Outsourcing is becoming big. I think we ought to do research on outsourcing.' And they said, 'Oh no, that's all sorted, you know, we don't want that.' So on. So I said, 'Well, I'm not so sure about that.' So, said, 'Hey, why don't we do something like 80 of projects which you think are necessary, but we've got 20 per cent which we think aren't necessary.' [laughs] And so we did the 20 per cent on things to do with outsourcing. And we had a review about two years later of how things had gone, and, two or three responded, said, 'You know, the best thing you did was all that work on outsourcing.' [laughter] So, it was sort of…

[54:20]
So the question of outsourcing was, it became very fashionable.

Mhm.

I believe one of the ones was Kodak?

[hesitates] I can't remember.

OK.

No.

To say, what are we doing in the IT business? We should be in the camera business, or, making cars.

Mm.

Let's get people who are expert at this to run it for us. We don't have mainframes or client server systems; they do it for us.

Mhm. Yes. Yes, exactly. So, there were various arguments. One was, if they get the scale, it can be cheaper.

Mhm.

They can… Because of that they can perhaps attract more and better IT people. They might just be better at it all than we are. And there's one IT director said to me, 'The great thing about outsourcing is, if it goes wrong, I can sue.' [laughs]

Yes. [laughs]

Now, we had actually started a lot of work on outsourcing here in Oxford before I went to London, so I don't want to attribute it all to London. And my then colleague, David Feeny, with a number of other people, particularly some visitors from other business schools, did a lot of work on it. And, and it went something like this. I mean I, I wrote an article on the risks of outsourcing, and the conclusion was, there are a lot of risks, so if you go into it, you've really got to put a lot of management into it. You're not outsourcing the management. You've got to put probably even more management into it than if it was in-house, you know. So that was a sort of, warning shot. But it then, David and others started to say, well, how do you make the decision whether to insource or outsource? And what do you decompose? Do you outsource the development, or the operations, or both, or, you know, service, desktop and all the rest of it. And then, if you do, how do you reduce those risks? So that was that whole area. Then it evolved into business processing, business process outsourcing, same sort of questions.
[56:29]

So, coming back to research, my own bias, which is where it all started in a sense, was that, we wanted to be researching problems that mattered in businesses, and we wanted to do research and fieldwork. I didn't have a lot of faith in survey research, for, I don't mind scholarship with ideas, but ideas need to be tested. So all our work was fieldwork based. Tried to be what businesses were interested in. But also, tried to be, because, the reason I told you that outsourcing story is also in some areas to be a bit ahead. So, you know, there's things that really need understanding far more. So that's what drove it all.

[57:17]
While you were at the London Business School, there was an issue, a worry, a concern, even a fear, raising among many users called Y2K.

Mm.

The year 2000.

Yes.

And those old applications, were they robust enough?

Mm.

Did they actually have four digits for the year instead of two?

Yes, quite.

Was that a scam? Nothing fell over, did it?

Well, I've just been talking about it yesterday. I mean, it wasn't a scam. It was hyped out of all belief. But that probably helped people make sure that everything went OK. I mean, it wasn't illusory, it had to be done. It wasn't… I mean it was certainly an excuse for getting bigger budgets. For some CEOs it was an excuse to get rid of a CIO who didn't seem up to it but who could be a sort of super-duper programme

manager, a sort of two-star general type, you know. And, as we know, it sort of went OK. What overtook it, I think, in the mixture of the business world and the technology world, and certainly in the business school world, was, before that 2000 date came, e-commerce came. And, so, certainly for our research purposes, and even more for our teaching purposes, e-business, e-commerce, sort of displaced Y2K as an issue. It was an issue, it was sorted, but it was that whole e-commerce thing. And, we were, we exhausted ourselves more or less on teaching of that in the business school for two or three years. It was exciting, exciting times. And, not just for those of us in our little information systems group, you know, there were operations management questions, strategy questions, marketing questions. And, I was just saying to people yesterday, at one time I think we had nearly 200 business plans for a new start-up e-business, going round the business school, and those plans, if you were lucky, where a page and a half, you know. And there were venture capitalists turning up on Tuesdays to down pound notes, you know.

[59:53]

So, Y2K was an important issue, but it sort of, passed in the night a bit, and from my point of view, and I think actually for the IT world and business world, it was e-commerce that displaced it. And, this made, could be misinterpreted but, we actually, the business school did two, or three things. One was, the Centre for Research and Information Management became a centre for the network economy. And so we widened the whole agenda. And that was really interesting, and eventually led to disappointment, but, because we had, again we had corporate funding, and we were able to invite anybody from any subject area to put a proposal or research. We had economists working on it, we had behaviourists working, and marketing people. And it was, it was great mechanisms for bringing everybody together, a sort of integrating mechanism. And, we, we also, alongside that, had a sort of, low key but real thrust on, are we making sure that all the different subjects that are taught are recognising what's happening in this e-world, and there'll be something e in it. And, so that, that went on there for a bit. And then, unfortunately we had, you know, the dotcom boom, and we had the dotcom collapse. And our two biggest sponsors, one went, more or less went bust, and the other nearly did, and we lost all our money for the future. So we couldn't continue it. But, it was exciting times.

[1:02:00]

In 2002 you move back to Oxford.

Mm.

Dean of Templeton College.

Mm.

You're very much involved in academic administration now.

Mm. Yes.

And you were part of the restructuring of business at Oxford.

Mhm.

And leading to Oxford's first ever college merger.

Mhm.

Templeton and…

Green.

…Green. And… Now you did that for six years. And then you moved into another major management role, executive role, at the university itself, not the college, which was Pro-Vide-Chancellor, from 2008 to 2010.

Mm.

Two years of that.

Mm.

So, presumably, 2010 you began to refocus, did you, on the IT areas, and the applications of IT.

A bit.

A bit. One of your areas that you looked at, and I'd like to finish with this, is that you were, you are and were, researching on the impacts of mergers and acquisitions. When companies merge, or take over someone else, there is a big information technology issue quite often.

Yes. Yeah. Yeah. Well, I mean let me just say really… Can we just go back to London Business School. Via various mysterious routes, I became Chairman of the Strategy Group, I became Faculty Dean, I became Deputy Principal. So you're then on a roll of, you know, what pejoratively people call administration, and which you would rather call leadership, OK. So that's how I got back to Oxford, they invited me to come back and do that. So, you're quite right in hinting that my research work and teaching sort of, reduced quite a lot.
[1:03:47]
So, come, come retirement, I wanted to do something else. I had always been involved, interested in mergers and acquisitions. At GEC, I had the job of crushing together IT departments every time GEC took over somebody. [laughs] It wasn't the most sophisticated approach, but I learnt a lot. And then I did this merger in Oxford. And, so, so IT and mergers and acquisitions was attractive. Now why? I mean what we know from financial economics, that at best, at best 70 per cent of mergers fail. And what we then know is, the major cause, I mean, is that, it's the post-merger integration. I mean, it may be you've got the wrong partner, so scanning can go wrong. You may have paid the wrong price, that's easily done. [laughs] So on. But it's the post-merger integration that's the killer. And as you say, nowadays IT is quite often at the heart of that, and the IT and process integration. And there's been no really solid advice of how to do it. So, we had a look at that, I and my research assistant. And, it's a difficult area to research. You can find quite a lot of business school academics who say, 'Yeah, I've looked at that, and I had to give up.' Why? 'Because, companies are very nervous about talking about it.' And I have got data on some of our famous companies in this country which I cannot use. I had to agree that

we couldn't disclose it. But we got enough to come out with a framework for deciding what to do, and once you decide what to do, what are the success factors of getting that? So, once you think about the framework, it's pretty obvious. So the question is really, is the synergy, assuming you've identified a synergy, of the two businesses coming together, is it highly IT-dependent or not? That gives you two opposites on an axis. And the other question is, when you come together, what's the state of the infrastructure? Is it crummy, or is it new, if you like. And you've then got, you know, four different strategies. And it's worth asking those questions, it's not quite as simple as that, but, but each one, you know, they'll look at has got different imperatives for management. Do you need heavy-duty programmers or not? Do you need the board to be involved or not? Do you need to take time over it or not? And so on. So that's, that's what, what we did. And, it, you know, as you know, mergers and acquisitions keep happening, and, I fear that quite a lot of mistakes therefore keep happening. [laughs]

Thank you very much Professor Michael Earl.

Right.

[break in recording]

[1:06:45]
We're back at the Archives of Information Technology with Professor Michael Earl. And we're going to focus now on his more personal stories. He was born on the 11th of January 1944 in Cheadle, in Cheshire. His father was a sales representative; his mother was a housewife. And he was an only child. Only childs normally have particular traits. Do you have those?

Well it's probably for others to, to judge, but, you know, psychologists who teach in business schools hang a lot of stuff on only children, the obvious things, like, are they possessive, are they selfish, are they a bit low on sociability? And so forth. I, I don't know. What I can say is that, for no particular reason I spent a lot of my formative years, you know, teenage years, and younger years, outside the family, so I hope that, that may have corrected any of those likely traits to some degree. I should probably

also admit that one of my closest colleagues when running the research centres, and possibly true when I was running the colleges, did describe me as a sort of benevolent autocrat. So, maybe there's a little bit of that still there. I wouldn't, I wouldn't dismiss that, and, and my wife calls me a control freak. [laughs]

[1:08:12]
Apart from your physical existence, what did you get from your father and your mother?

Well, I mean I, you know, born just towards the end of the war, a war baby, I mean I think they were just fantastic parents in doing what they could do for you in difficult times really. In a funny way, an almost tacit way, I look back now, that, my, I only knew one of my grandparents, but, certainly on the maternal side, my family was in a funny way quite internationalist. My grandfather was big in business and did a lot of travelling in Europe and so on, and, and both my parents' families were in the north-west, but had a sort of Whig-Liberal tradition, free trade and so on, and I think that influenced me in many ways. I mean, I've always travelled, I've done a lot of my work overseas. I'm absolutely aghast at the result of the referendum and all that sort of thing. So that sort of influence I think was, was quite important. I'm sure it's true for a lot of people who went into IT, that, my parents used to say, 'We don't really understand what you do.' [laughs] And I don't think I was ever very good at explaining that. But, you know, I think that's… But… And, they valued education actually. Yes, I think that's important, and it's another north-west trait I think. But… And I was, I was a late developer in some ways. I don't mean in sort of, intellectual capability, but I messed about. And, they backed me, and I sort of, recovered just in time.

[1:10:14]
You went to primary school, and that was in Cheshire, in Cheadle?

Yes. Mm.

What did you learn from there? What did you learn at there, what did you learn from there?

Mm. Yes. Well, I'm sure you've been through it, went through the same thing. I mean the formal education was very much the three Rs. And, I think most of the teachers were men and women of the world. I mean they weren't just sticking to a syllabus. It may be still true today in primary schools. But I think, probably what one got in terms of what you did as well as what you taught was a good sense of citizenship actually. And that's just, maybe just part of leaving the home and going to a biggish school, but I think that was quite, quite important. It's quite difficult to remember what you got. I'm much clearer on what I got from grammar school perhaps.

[1:11:13]
Well then, what you got from your primary school was enough to get you through your Eleven Plus?

Yes. Yes. Mm.

And so you went to Moseley Hall Grammar School in Cheadle, in 1955.

Mm.

And, what was that like?

That was great. I loved school. Of course like most people there were some subjects I wasn't too hot on, great on, but I, I loved the learning. I loved all the extracurricular things, you know, very heavily involved in sport, if there was a drama I wanted to be in drama, that sort of thing. I was in and out of the school choir. All those things were great. And that's a little bit, part of what I was saying earlier, about things outside the family. I, I hugely enjoyed sixth form, and I think that was largely because of two or three teachers who were very good, but, in a funny way, taught you curiosity. And, I mean, of course it wasn't terribly usual that people went to university then, and, quite a number of our generation were the first to go to university, but, I was introduced to university life vicariously through the parents of a great friend of mine, and we used to go to public lectures at Manchester University,

and they were always doing exciting things. I mean I wasn't very good at science, but I got excited when they started creating bubbles and plastic foam going all over the place, and things like that, you know. And, and also… Actually, my parents used to go to WEA classes, Workers' Educational Association, sort of extramural, and I used to go to classes on geology, and go on geology walks and so on, and I studied that at school, which is unusual. And the geology and geography master was so interesting, but he expected you to be curious. And he'd say, 'Do you have an opinion on so-and-so/' 'Oh, I haven't really thought about it sir.' But it made you think that way. So, you know, school was, was terrific really.

[1:13:27]
And you got into Newcastle University in 1963, studying geography. Now that seems to me a very interesting subject. Because it was, I think it still is, a very broad subject.

Yes.

It could touch on many things.

Exactly.

And it seems to me that in your background, when you were talking about career, that's what you've been able to do.

Yes. No, I attribute, I attribute a lot of what I have done, for good or bad, to that. I mean geographers are broad-gauge, they're interested in integration, they're interested in differences, and have to tackle different things. I mean I mentioned, in some ways, in the United Steel days, that I said I was hopeless at maths. I wasn't entirely hopeless at maths. I wasn't very good at school, but I was pretty good at statistics, which gave me the geography. So there's all sorts of things you do. And, I mean just as an aside, why did I choose Newcastle? The answer was, it had a specialism in polar studies. And I thought, that sounded really interesting. And so one of my specialisms was polar studies.

And you went on expedition there, didn't you?

I did.

Yes, polar expedition.

That was formative too.

Yes. What did you do there?

So…

Count the penguins?

No. [laughs] There was a, in the 1960s there was a, I think UNESCO-inspired International Hydrological Decade, and, one of the lecturers, well two of the lecturers, a lecturer in civil engineering and the guy who did polar studies, reader of polar studies, organised an academic scientific expedition to do some work on hydrology and glaciology. And, it was designed to go to the Karakoram in Pakistan, high up. One of the things they wanted to do, and I'm sure it was for good financial reasons, was, take two students, because then they could get grants for that, you know, industry money, Research Council money, and so on. So it was a proper expedition, you know, Land Rover and army truck, all the kit, and all sorts of stuff from the companies which supported the Everest expeditions and… And, so I was lucky enough to apply and be one of the two students and be the geomorphologist on the expedition. And, it was just the beginnings of the outbreak of one of the wars between India and Pakistan and we couldn't go to the Karakoram, so we went to the Hindu Kush, which was just as good really. But, spending six months with academics exploring things, having fun. And also, just the whole process of going there and getting sorted out, and meeting all sorts of different people, embassies, companies out there, and, I was the interpreter, because I was reasonably good at languages, and all that, it, it sort of, opened up my eyes to what one could do. And, for various reasons I, you know, chose a business career, but I've seen interesting things happening in business sites over there. But, inside me was the academic. So, I mean that

expedition was hugely, hugely formative. And, in some ways the sad thing is that, you know, we've slightly kept in touch, we never met after that until the last year or two years ago, and we had our fiftieth year anniversary. And, you know, like these things happen, we all just got on like a house on fire, it could have been yesterday, it was fantastic.

[1:17:19]
Only born in 1944, you did not have to do National Service.

No, I just missed it.

You just missed that didn't you.

Mm.

Would you have liked to have done it?

Yes.

You would?

I mean, whether I would have liked to have fought [laughs], and been in the real action, I, I doubt, to be frank. But, yeah, I have, brothers of friends of mine who had done National Service, and my cousin who I was very close to had done National Service, and, you know, I think it was formative for them, but they also had a great time. And in some ways they got from that what I got from the expedition if you like.

When you were at grammar school, was there a cadet force, were you a member?

No. There was something… I was a Scout, but outside the school. Yes.

[1:18:05]
OK. So from graduating from Newcastle University you went straight into work.

Yes.

Now, your whole career is based around intellectually analysing and coming up with solutions and doing case studies and doing analysis.

Mhm.

And some people have built big businesses out of this. Now I know you act as a consultant, but you haven't actually built Earl enterprises.

No, quite.

Why not?

Mm. I've thought about it once or twice, and discussed it at length with a colleague once. [laughs] It may be there was some risk aversion, I don't know. It may be because actually life was quite good. But I think it was more that, I get interested in things, it's that curiosity, get interested in a new idea, and once you get into that, you're running the business but you haven't got time to follow up something. I mean the great thing about academic life is, you can do what you want, you're autonomous. I mean you've got to deliver teaching and so on, but you can carve your own interests and follow. And you have a reasonable amount of free time to do things as well. And, I remember several years ago having dinner with one of the other people involved with the Archive, John Leighfield, saying, 'John, you and I have been terribly lucky. We've been on an elevator that just kept finding new floors. And we've been able to do different things.' And that was what IT afforded. But one hopes one hasn't just taken; sort of, given something back to all that. So I think that was, that was why, and maybe it was the academic in me.

[1:19:57]
What's the biggest mistake you've made?

Oh, right. [pause] I'm sure everybody says, what a good question, and I'm afraid, I hadn't thought about it beforehand, so… [pause] So it's not that I've not made

mistakes. [pause] Mm. Mm. [pause] I think… Yeah, this is confessional time, and it's not a mistake in my career, it's a mistake post-career. Possibly. I had three or four ideas or goals of what I was going to do when I retired. And other than having some more leisure and going away more and all that sort of thing, which has been great, but the actual task things, well, I haven't done any of them. And, that probably suggests some lack of self-discipline. It may suggest a little bit, the academic never retires. And, I'm at the cusp now of, I ought to pick up two of them and do them.

[1:21:25]
What are they?

And dump stuff, which I'm doing. So, the first thing is, I'm very fond of music. I'm very involved in a professional symphony orchestra, and, not playing anything, I'm not a fiddler, other than maybe on boards, because I chair a finance committee. [laughs] And, I wanted to learn an instrument. I knew what I wanted to learn, and I've not done it. And I'd like to… I mean you know, you're not going to now be in a band or a group, but I'd just like to do it. That's the first thing. The second thing is a bit more academic. You mentioned the fact that I, you know, led this first set of, college merger, and, I should write it up as a monograph, not just because it was the first one, not just because it was Oxford, but I think there were some lessons from it which can be applied to other organisations and some businesses. And, and it's an area in, you know, the academic world, mergers in the academic world, it's been written about a bit but not really studied. So I'd like to write that. It would be slightly biographical, but it's not intended to; I just think we should capture it. And so, I'm trying to dump stuff so that I can get down to it. Because, you know, people's memories go, so, I've got to do some interviewing. But the thing that's, the obstacle, is, it needs a lot of archival work, and I've never done that, except for one day last year when I was going to get down to it, and I was bored within two hours. [laughs] So, I've got to get through that, and then, that's it.

[1:23:05]
In your rivalry between Oxford and Cambridge, you have been Pro-Vice-Chancellor of Oxford University, and the old rivalry between Oxford and Cambridge, it does seem that, this is my opinion and you can shoot me down if I'm wrong, that

Cambridge has had a better track record of entrepreneurship in Cambridge, coming out of Cambridge, with lots of different things, like Autonomy, ARM and so forth.

Mm.

And it's pulled ahead of Oxford in that case. Would you say that that's true?

I challenge it. I mean I'm bound to, because, I mean I never went to Oxford as a student, but I'm the typical convert, [laughs] you know, I come late, and… I mean, yes, we're great partners and we're great rivals, and, so on. But, when Gordon Brown was the Prime Minister, he commissioned a report on business-university relationships and entrepreneurship and innovation, and what could be done better. And interestingly, Oxford came out as the model, not Cambridge. I can't remember all the detail, but it suggests that it, you know, we're not far behind. It's certainly true that Cambridge started the whole area before us. But, we may be slightly different in the areas, particularly of science and technology. So, Oxford is the largest and also the rank, number one – not business school, but medical school in the world, and a lot of our research in sciences, in medicine, pre-clinical as well as post-clinical, or clinical, and, you know, there's quite a lot of work has created spin-out companies and so on of that. And that's a sort of, slight difference from Cambridge. They've gone into other routes. And we've got, you know, we've got a company in the university that handles spin-outs and all the rest of it. So, I think probably that if you compared how much wealth has been created in Cambridgeshire by Cambridge with how much has been created by Oxford and the Thames Valley, Cambridge would be ahead. I don't really know, but I think so. Partly because they were at it earlier, you have to say that. Yes. But there's areas where we can out-rate as well. So, end.

Thank you Michael very much, Professor Michael Earl.

OK.

[1:25:30]
You've got some remarks about strategy that you want to make.

I mentioned about the sort of, if you like, four-box model of strategy which is a way of thinking about it. The question really is about, how do you go about, what's the process for formulating all that? And so, my biggest research project was to look at how companies formulated their information systems strategy and what worked. And, the first thing is, what came out of that study. But the second thing is, how was it done? Which relates back to some of those formative years with GEC and United Steel and so on. So, I identified in companies that there were several different approaches to how people went about formulating their information systems strategy. One was what I call business-led. And that was basically saying, what's the business strategy, what's the business goals? And therefore, what can we align IT with to get there? Sounds sensible. It's not bad actually. But most businesses don't have a terribly formulated business strategy. And, it's quite difficult to interpret what it means. And it's not a guarantee of success. The second approach is what I called a method-driven approach, which was usually bringing the consultants a tool or a technique for doing it, and out pop a load of answers. And what came out there was, you could bring in some consultants and they come up with their set of answers, and you would have, mm, I wonder whether that's right. So you bring in another set of consultants. [laughs] And they'd come in with a completely different set of answers, because it rather depended, a) on how they it, but more particularly on who the consultant was. A third one was, what I called the administrative process, which was to say, let's treat it like capital budgeting, when people are making bids for capital investment, make bids for information technology. They had an advantage, once you had got the bid, you had the resources to do it. But they had the disadvantage, because all that is very political, it's a question of, who could argue the best and twist arms and so on. The next one was what I call a technological approach, where you had a computing architecture, an applications architecture, a data architecture, and it all went together rather like I described before that MRPH. And the final one was what I called the organisational approach, which wasn't formal or official, but it came with people identifying a theme to pursue, having cracked a problem and then seen certain opportunities that came up for doing things better or slightly differently, usually through the work of a team, an executive team or a quality circle or a taskforce. And it's what I called themes with teams. And that turned out to be the most successful approach. And in some ways it's not unlike that prototyping idea. [1:28:40]

And, so, how was success measured? And this is the biggest difficulty in all organisational research and strategy research. So, I had three measures. One lot was, you know, what did the general managers think of what was happening? The other was, what were the users? And the third was, how good were they at generating innovative, competitive advantage applications? So it had a multi-score dimension, which started to influence quite a lot of research in other areas of research, not least in geography, but I didn't know that at the time, they call it multi-method research, but, it was trying to crack this knotty problem of success. And the other thing that I did which got picked up by the literature goes back again to those early days. Because an awful lot of research about, what is happening in IT and the effectiveness of it, is done by surveying IT directors or CIOs, with whom I've done a lot of work, right. They're not the users, they're not calling the shots. So I use a three stakeholder approach. What did the general managers think of this process, what did the line managers think, and what was it like at generating these innovative applications? And, which was, what did the IT managers think? So you've got three stakeholders. Now it seems pretty obvious, but it was sort of, goes back to those days, and that started to change the way that people did such research, realising there's several stakeholders, not just the IT community.

That was Professor Michael Earl talking about his analysis and theories of strategies.

[End of Interview]