The Past and Future of Australian Innovations in Information and Communication Technology (ICT)

Oral History Interview

36

Graeme Philipson

Interviewed by:

Sebastian Boell, Jennifer Leonard

Interviewed on:

Tuesday 21 May 2019

Citation: Boell, S.K.; Philipson, G.; Thorne, P.; Riemer, K.; Peter, S.; Wang, B. (2023). Series of Oral Histories with Pearcey Medallists and Hall of Fame 2000-2020. Sydney, Melbourne. DOI: doi.org/10.25910/j5ak-rs49

Project Summary

This interview is part of a series of oral history interviews undertaken by the Pearcey Foundation and the University of Sydney as part of the project 'The Past and Future of Australian Innovations in Information and Communication Technology (ICT)'. The series interviewed recipients admitted into the Pearcey Hall of Fame from 2003 to 2020. The hall of fame recognizes outstanding life-time contribution to ICT in Australia in business, research and government. Each oral history captures a short biography of individuals who made an outstanding contribution to ICT in Australia. They also collect insights on aspects that had a lasting effect on ICT innovations in Australia, positive as well as negative from approximately the 1960s to the 2010s. Interviews lasted about 60-90 minutes and were conducted by Sebastian Boell, Graeme Philipson, Peter Thorne, Kai Riemer, Sandra Peter and Belinda Wang. The complete set of interviews in this series is archived by the Pearcey Foundation.

Key Points Covered in this Oral History

1. Mini computers revolutionised business and therefore gives the Australian IT industry flourishing growth in the 1980s.

2. There has long been a divide between academics and industry people in organizational bodies (e.g. ACS) due to the requirements of a computer degree for its membership.

3. The universities started to run computer courses in the 1950s; however, the wide range of curriculum design produced a mismatch between the graduates and the market needs in the 1960s. Hence, the federal government run the Programmers in Training TIP program to ensure the right type of graduates into the industry. Back then, the big multinationals also started their training programs for technical people such as Control Data.

4. The industrial professional bodies were dominated by large multinationals (e.g. AIIA), producing the long-term contention between the big multinationals and the small local suppliers until today. They ostensibly have held conferences and forums to engage the commercial people; however, the big commercials have their own channel for networking.

Biography

Graeme Philipson

Founder of whygowhere.com
Writer and Analyst of Philipson Information
Service Australia
President of Australian Computer Museum Society

Writer, Editor, IT analyst, Computer historian

Graeme Philipson has decades of experience in IT market analysis and IT journalism. He has written books on high technology, business, travel and history. He has launched and edited many business and technology magazines, and written several corporate histories. He has spoken at dozens of conferences around the world, including many keynote presentations, achieving high marks for the quality of his content and his presentation style.

He is President of the Australian Computer Museum Society and Historian for the Pearcey Foundation. He is author of The Top 100 Countries and Why You Should Visit Them, a book based on a rating system he has devised to rank every country by ten key criteria important to the traveller. He is also author of the definitive A Vision Splendid: The History of the Australian Computer Industry, the first ever book on the subject, and a number of technology and business titles. His book of original poems, Social Cricket, the Universe and Everything, was published in 2015.

Previous credits include: founder and Research Director of Connection Research; founding editor of MIS Magazine and co-founder of Strategic Publishing Group; Research Director for leading publicly listed technology analyst group Gartner; weekly IT columnist in The Australian, The Sydney Morning Herald and The Age; Editor of Computerworld Australia; and travel writer for Westpac Traveller and The Hilton Magazine.

He has written over 3000 articles and columns on travel, technology, and business for many publications around the world. He now writes mostly on travel, and blogs at his travel website www.whygowhere.com.

Graeme has lived and worked in Australia, the USA, the UK and Singapore. He has a BA in Political Science and Modern History from the University of New England, and lives in Sydney, Australia.

[Note: Graeme Philipson, who was a valued colleague and contributor to this project, died in early 2021, following an accident].

Project Summary

This interview is part of a series of oral history interviews undertaken by the Pearcey Foundation and the University of Sydney as part of the project 'The Past and Future of Australian Innovations in Information and Communication Technology (ICT)'. The series interviewed recipients admitted into the Pearcey Hall of Fame from 2003 to 2020. The hall of fame recognizes outstanding life-time contribution to ICT in Australia in business, research and government. Each oral history captures a short biography of individuals who made an outstanding contribution to ICT in Australia. They also collect insights on aspects that had a lasting effect on ICT innovations in Australia, positive as well as negative from approximately the 1960s to the 2010s. Interviews lasted about 60-90 minutes and were conducted by Sebastian Boell, Graeme Philipson, Peter Thorne, Kai Riemer, Sandra Peter and Belinda Wang. The complete set of interviews in this series is archived by the Pearcey Foundation.

Interview Transcript

Date of interview: Tuesday 21 May 2019

(Can you briefly introduce your personal bio?)

Okay, well you're talking about information systems from the viewpoint of users and those who were responsible for implementation. I'm obviously a historian and journalist but because of my age, which is 65, I was actually involved in computing for many years before I became a journalist. In 1976, my first job out of university was as a mainframe computer operator, a profession which no longer exists but it was a very big deal back then, most large organisations had mainframes and they were quite labour intensive. The one I worked on had a full-time staff of about half a dozen people, just to operate it, just to load the tapes and disc drives which had to be constantly exchanged because data storage was so expensive and simply to ensure that the programs ran properly. When I began as a trainee, my fulltime job for the first three months was loading punched cards into a punched card machine and then matching the output up with the printer when the job was completed some hours later. And, of course, if the programmer had left a single comma off his punched card the whole thing aborted and you had to go away and start again. I had a couple of jobs as a mainframe computer operator but I then became a computer salesman and I started out with a company called Burroughs. Burroughs later merged with Sperry to become Unisys, but back at the time was one of the leading accounting machine companies, adding machines and suchlike. So I sold those devices, with not a lot of success, for a year or two. But then I saw the first Apple II computer at a computer show in Sydney, in 1979. I asked the guy at the computer show who sold these things, I went and asked him for a job selling them. I thought I'd have a lot more success selling Apple IIs than old accounting machines. Fortunately, he had just fired all his sales staff the previous day. So he hired me on the spot and I sold Apple II computers for nearly three years back in '79, '80, '81, in the very, very early days of microcomputers in Australia; and as a salesman I was really at the cutting edge. He was the only Apple computer distributor in Australia. I personally sold the first ever copies of dBASE II, which was the big database software back in those days. I sold one of the first copies of VisiCalc, the first spreadsheet, which totally revolutionised the PC industry. A fully configured Apple II cost $5000 in 1980 money, they were very expensive, but some

companies bought them by the bushel, just to run VisiCalc: because the whole concept of the spreadsheet which had not existed before, completely revolutionised financial management. One company, IEL, Industrial Equity Limited, run by a famous entrepreneur at the time, Ron Brierly (a Kiwi, later Sir Ron), they bought a dozen of them off us, just to run VisiCalc. So that was a really seminal period in the history of computing in Australia. When I later moved into journalism, and then became a market researcher, I came up with a very, very interesting statistic from my research: that in 1980 not a single office worker had a computer on their desk, in Australia, in 1990 every knowledge worker had a PC on their desk. The PC revolution of the 1980s was just that, a revolution. It was absolutely astonishing how, it for the average office worker, spreadsheets become commonplace, word processing became commonplace. Before word processing software on PCs, word processors were very expensive standalone machines. There were a half a dozen word processing vendors, all of whom went to the wall because they didn't foresee that PCs would just totally eradicate them. PCs running word processing software aren't as good word processors as a dedicated word processor, but they will do lots of other things as well and they cost one tenth as much. It was astonishing days. It really was remarkable. That ten-year period from 1980 to 1990 just completely transformed business.

And during that time you went and became an editor for…?

Yeah, in 1983 I sold a couple of Apple IIs to a publisher, a very foresighted man who could see that computers would totally change the publishing industry. This is before the days of desktop publishing. And he published travel magazines, his name was Gareth Powell, and he died a couple of years ago. He published travel magazines. He had this idea of starting a computer magazine, so he asked me to join him, even though I had no editorial or publishing, journalistic experience. I'd always wanted to write and I showed him unpublished material I'd written and he hired me straight away. And I moved out of sales into journalism in my late 20s and never looked back as they say. So, I then had a dual career as a journalist and market researcher, throughout the rest of the 80s and 90s, and really through to now. I started a big computer magazine in the 90s which was very successful. A magazine for CIOs, a magazine for corporate computer users. So that was, got me very involved with understanding the role and the day-to-day life of the IT manager.

Was it the MIS magazine?

MIS yes, we sold it to Fairfax in '99, they kept it going for a few years and shut it down after about eight years. All the IT magazines have gone now. I don't think there's a single IT publication in hard copy anymore, everything went online. The whole IT journalistic scene is completely changed since my heyday in the 90s when I was, I was probably the senior IT journalist in Australia in the mid-90s. Flown around the world at vendor expense, business class, to attend conferences and visit vendor headquarters and such like. Wonderful, wonderful times. But despite being an observer, I was very much in tune with what the user community was doing, because our whole ethos of our publication was understanding the corporate world and how they use computers. We styled MIS magazine, the MIS stood for Managing Information Systems. MIS was at the time the common title of IT managers, MIS manager, a term that's in disuse now. CIO has sort of taken over, American term. As I say, it was a management magazine for IT professionals. And we had a couple of rules, no articles about computer suppliers, and no pictures of computers. We made it look and feel like a business magazine. And we were very successful and computer suppliers would say: how do we get into your magazine? I said: get your users to talk to us. So we had a whole section in the magazine called "endorsements", where vendors would get their MIS manager users to

talk about their products. It was a very successful formula which we replicated in New Zealand, Singapore, India, and we were about to start in the UK when Fairfax acquired us. So that's my little history, but as you know I have a history degree and I'm a historian by bent, I love it, it's all I ever read mostly. And someone asked me once, what's a historian doing writing about computers? And I only realised that evening, I thought about it a bit and I realised that in "normal history", (does air quotes), in "normal history": the rise and fall of empires and such like, happen over millennia, hundreds of years. You know, the Roman Empire lasted nearly 1000 years, if you add the Byzantine Empire too it probably lasted 2000 years. And it takes a long time for a country to rise or fall, and I like looking at history from long term historical or graphical viewpoint. But if you look at the history of the IT industry, I mean the first computers, the first electronic computers were only developed in the 40s, you see the rise and fall of computer companies, computer technologies, they happened in a decade or so. So it's like you're seeing normal history compressed into a very short timeframe.

And that simple realisation, probably as much as anything, made me become extremely interested in the history of computing. So, in my journalistic activities I wrote quite a bit about the history of computing and I developed a little bit of a reputation as an historian of the industry. I was asked by Australian Personal Computer which was Australia's leading PC magazine at the time, to mark their tenth anniversary to write a big history of the industry. That got me thinking about writing a history of the Australian computer industry which had never been done. So I sort of had this idea of writing it out, but I never did it until out of the blue one day about three years ago I was approached by the Australian Computer Society to write such a book which I jumped at. I was very pleased, gratified by the fact that they didn't ask anybody else, they didn't go out to tender, they came to me. So obviously my reputation was sufficient. I would have been most upset had they asked anybody else. So, in the course of writing that book, which is quite a substantial volume, I obviously researched and found out many other aspects of the Australian computer industry, many of which I wasn't completely familiar with. The history of academic computing in Australia which is very important because all the early computers in Australia were at universities or research institutions, that was the start of computing in Australia, when Pearcey's first computer, the Mark I, commonly referred to CSIRAC (people forget that it was only called CSIRAC in Melbourne, it was always the Mark I when he designed it) it was obviously owned by CSIRO. then the second one was the University of Sydney, and University of NSW and Weapons Research Establishment in South Australia, they were all. It took nearly 10 years before the Australian private industry started to use computers and I was fortunate enough, and it's in the book to discover a list of every computer in Australia in the late 50s, where they all were, it was quite a remarkable thing, and I reproduced it in the book. It was very, very hard to find any information about the early days of commercial computing in Australia, it's never been documented. I had to put it together from talking to various people and scraps of information I was able to divine from various sources. But the very early users were the government departments, after the universities you had the government departments, Australian Bureau of Statistics, as it later became, then called the Bureau of Census and Statistics, some such thing, was the first big government user, apart obviously from the universities. And there's a chapter in the book about how some of the other departments started to use it, but the Bureau of Statistics in its early years also acted as a bureau in the computing sense for other departments. Health was quite early. In the commercial field, the first users were the banks and financial institutions as you might expect. AMP was very early…

Westpac was…

Westpac or the Bank of New South Wales as it then was, NCR was a big vendor back in those days. NCR sort of still exists but you wouldn't know it, they do ATMs, that's about it. There was a, I'd have to go back to the book to remember, but I remember the first IBM system 360 which was a very seminal computer in the history of IT was I think installed at Qantas in the mid 60s. But before the IBM 360s computers, mainframe computers were pretty cumbersome and pretty basic. It's astonishing they were able to so much at all, but they were such an advance over manual processing. Remember they were called computers but computing is not really, or wasn't really, their main task in commercial computing. Their main task was more storage and sorting and classification and such like you know, sorting accounts into different types and filing, glorified filing and storage and retrieval systems. Their computing functionality in terms of actually doing calculation was comparatively unimportant, or minor compared to their ability to store and retrieve information, and that's where IBM which was just so far ahead of everybody else in the industry in those days. IBM has faded now. I'm now working in an organisation full of young people who are doing seminars for CIOs. One of them said today: what's Big Blue, what does that mean?

Really?

Yeah, anyone under 30 you know, and I said well, in the 70s which isn't that long ago, even in the 80s, IBM was as big as the rest of the industry combined. And then it was as big as its next five competitors combined, and then it was as big as the next two competitors. And then it was overtaken by HP. And now IBM is just another, you know, it's still a big vendor but just another player. But the earlier: IBM which dates from the early 20th century when it was called CTR, Computer Tabulating and Recording, the name says it all, that was what they did. The early IBM, pre-electronic IBM computers, it's all punch cards and electromechanical sorting of Hollerith punch cards. They were used for classification and storage and used for, the first ever computer, mechanical computer, the Hollerith device in the 1880s was designed, was commissioned for the US census to enable them to work out all the, properly sort and easily compute or add up more than compute all the demographic information from the census. And that became IBM's speciality and their devices were always optimised to do that sort of work and that was the sort of work that commercial computing, that commercial organisations used the early computers for. And even today it's still probably more important than actual processing, it's all that storage and retrieval.

In the early times there were two strands of computing, like scientific computing and commercial computing and I think the 360 was the first line that brought both of them together and IBM before that they had two different lines of computers…

That's true, the 360 was powerful enough to be used as a, what's the term you used?

Scientific.

Scientific computer. They even brought out a supposedly scientific version of it which really wasn't much different, it was a marketing ploy, but it was sufficiently powerful to do scientific computing. The distinction really disappeared probably at about that time. There was one computer, I forget the name of it, a British computer that, actually it's whole processing architecture was optimised around being able to calculate pounds, shilling, and pence in the old style of measures of 12 and 20 numbers rather than ten, so obviously a commercial computer. Yeah, so the revolution brought about by the IBM 360 which was the first one in Australia was about '65 from memory, there's I think a section in the book on

when it was installed, the first one in Australia. Before then, commercial computing in Australia was pretty limited to the big banks, pretty well, and government departments. But then I spoke earlier about the PC revolution of the 80s. You had a very similar revolution in the 60s, late 60s with the IBM 360 of cost-effective mainframe computers becoming widely available. And then (just coincidental that it happened in neat decades) in the 1970s, you had another revolution of the mini computers, by this time I was in, I was a part of the industry. And remember the first mini-computers and they totally revolutionised business because the smaller organisations, SMEs and such could suddenly afford computers. And probably, really, we're talking about the PC revolution in the 80s but there was almost a parallel mini computer revolution, that didn't start really probably until the mid-70s before people really started to get into them. And by this time I'm a journalist and I remember it all very well, companies like Prime Computer and Digital Equipment Corporation, and IBM with their own line of minicomputers, these guys were growing enormously, massive numbers of new customers. It was actually a truly remarkable thing, the history of the industry and how quickly it all happened.

So that was your motivation to be a historian bringing in this sudden change but you studied history?
Yes.

How come that you came into contact with computers? Was it by chance or…?
When I was in year nine in High School, I was the bell-boy at school, it's a sinecure passed down from student to student, you had to be in year 9 because year 10's your first important exam, and I was the bell-boy, and I rang the bell at school. Every 40 minutes I had to get up from class and go and ring the bell, a great job, fabulous fun. Now at the end of the year I was the only person to get a special prize at speech night for school service and I could choose from a list of books. And I chose two books, the Oxford English Dictionary and the Pelican Book of Computers, so here I am, what 14 years old and this dual interest in the written word and computers. So I always had a fascination with computers. And I did an Arts Degree and History and Political Science. And then I left university not knowing what I'd do and I just saw an ad in the paper one day for a graduate trainee computer operator, they didn't care what you were a graduate in, so I applied for the job and got it.

So that was with Esso or…?
Yeah, Esso.

And can I ask a little bit about that job, what you did, you said that your job was stacking cards?
Yeah, well the first, as a trainee I started doing that but stacking cards and matching that up with the printout and then I graduated to loading and unloading disc drives and tape drives, and magnetic tape. And then the next step up is you would sit at the console. I loved it because it was like a big video game and different jobs are coming into the computer and you have to sort of guide them through the process. When they call for a particular tape drive or you know, maybe another job wants more processing power so you put a hold on it for a while or, it was just…

Was that job control language…?

Yeah, JCL, job control language but the operators console had its own language as it were, so I did that job with Esso at first and then with another, a couple of other companies. Before I took my father's advice: "Whatever you do in life Graeme, spend some of your time as a salesman," so I moved from operations to sales when I was about 25.

Can I still ask you a little bit about your first operations jobs?

Certainly.

So, who was checking your work or the quality of your work? Were there any governance processes in place?

The job was its own governor really, if you made a mistake it became very apparent, very quickly. If you matched up the wrong output, the wrong card deck, a program would complain immediately, if you loaded the wrong tape onto a tape drive. I mean I once committed a major error, I mounted the wrong disc pack and fortunately it was discovered in time. The guy I was working with, a Canadian guy, I remember him telling me a story, from his computer operating days back in Canada, that they loaded yesterday's tape instead of today's, or some such thing. They were running a job for some large meat delivery firm in Toronto, and it all got mucked up and hundreds of trucks went out to butchers with the wrong order. Just simple things like that could happen. So there was no governance anymore than there is in any job with your boss keeping an eye on you, but it demands a strong, logical workflow process. I had an aptitude test before I did it, before I got the job, you know, you've got a particular type of mind to you know, just think logically. And my logical career path was to become a programmer, which a lot of my peers did. But programming didn't particularly appeal to me, I didn't really know what I wanted to do, which is why I went into sales, which I didn't really want to do anyway, but I thought it would cure my shyness and, I was pretty shy at that time, pretty shy, but cure my shyness, which it did, and selling Apple IIs was a lot of fun, I wasn't very happy in the Burroughs job but selling micro computers in those early days. I didn't know how it would happen and I didn't know much about the career path of a journalist, but I just always assumed somehow that I would become a writer. And so it came to pass, without me actively pursuing it (but I suppose I passively pursued it by writing a lot). If I hadn't done a lot of writing privately, this guy wouldn't have asked me to edit a magazine. My first ever job in journalism, I'm a magazine editor.

And at what time came your interest for history back for the computing industry?

Well I always, as I said I always have an interest in history, I just love history for its own sake, I read history for pleasure, quite complex histories, history about history, history that you can't read unless you already know a lot of history. That's what I read for pleasure. I just I gave the anecdote earlier about my realisation that history is condensed in the industry. But also about that time, probably around 1999 I suppose, I started to realise that the computer industry actually had a history. And I think visiting the Computer Museum in Boston, it's now moved to the west coast, in a trip to the States in the mid-80s, it absolutely fascinated me. So I think it's probably from that period that me, then because I'm an avid reader and curious about all things historical I then started consciously and actively researching and understanding the history of the industry. The Smithsonian Institute in Washington, very good, Deutsche Museum in Munich, absolutely fabulous, great history of computing section. Never made it to the big ones in England, I should have done, I've been in England often enough. So, and then in the mid-90s some guys got together and wanted to start a computing

museum in Australia. So the Australian Computer Museum Society was formed and I was its first president. It never went anywhere, I resigned in disgust after a couple of years. [After this interview, Graeme Philipson became president of the ACMS for a second time in 2020.] So, I was very busy with my day job. I had a column in the Herald for 12 years and for a while I had two columns: I had a separate column on computing history, and I started writing various bits and pieces about the history of the industry. I was asked to write a history of the software industry, as a chapter in a larger book which I wrote which was, it's still out there, I came across it again recently. I got a job, I had a, before we started the magazine in the early 90s, I wrote a few books or not, they had ISBNs but they weren't proper books, reports really on various aspects of the computer industry for this American company. One of which *Mainframe Wars* remains a classic of its type. It's the only real overview of the entire mainframe industry in the 1990s. I dragged it out the other day and had a look, but it's quite interesting for its historical value. It's one of the first, well the only really overviews of Fujitsu's role in the international mainframe scene because they weren't involved in America, they didn't do much at all in the US, but Fujitsu came into Australia. I don't know, recently as you're probably aware, you've obviously done a bit of research, about five years ago I wrote the corporate history of Fujitsu in Australia and New Zealand.

Yeah, found it.

There it is, yeah, fine little book. Actually, it's now five years and they've actually approached me with the idea of doing an update of it. But Fujitsu is particularly interesting because they chose Australia and Spain as their two sample international markets.

Yes...

And the history of Fujitsu in Australia is particularly interesting. Their big international property battle with IBM was very, very much centred on Australia, with a lot of the development. They stole IBM's operating system, they basically admitted they did and had to pay IBM lots and lots of money. But all the development work was done in the offices, in the software labs in Frenchs Forest. And Fujitsu became very, very big in Australia and the whole argument about Fujitsu and IBM compatibility sort of dominated the Australian mainframe industry back in the late 80s. Amdahl, which was an IBM lookalike, actually ended up being a subsidiary of Fujitsu. That's all ancient history now, ancient history, things happen so quickly in the IT industry.

That is part of the reason why we try to interview people like you, to, you know, because it's a relative, it's a quickly moving industry. I mean if you think of these days somebody loading a wrong tape drive and hundreds of trucks going out the wrong way it's almost inconceivable, but back in the early days things like that were possible.

Yeah, and when I was researching the book, the area that interested me the most was the early days of the commercial industry from the vendor side in Australia. Because I was quite involved in it back then. And there's a section in the book, only a few pages long but about all the big US software companies coming into Australia when they all set up here. I was quite involved in that as a journalist, because I knew all those guys. But going out, tracking them down if they were still alive, and writing the history of that part of the industry was to me really interesting because that had never, ever, been documented either, no-one's ever written about it. I spent days in the State Library pouring over old copies of Pacific Computer Weekly, the first computer magazine, or weekly computer magazine, regular newspaper type magazine, trying to patch it all together, rang a few of my old mates, interviewed a lot of

them by phone to patch it all together. That was extremely interesting because as seminal as IBM's release of the system 360 was, their decision a few years later to unbundle software. A lot of people don't nowadays don't realise this, but what a big deal that was but it was, It meant the start of the whole software industry.

Yeah, absolutely.

And the early days companies like Computer Associates and, which is the only one of them still alive, it's a really interesting story and those suppliers and their entry into Australia, personally I find extremely interesting.

You've talked about these very bunched up eras and how, you know, particularly in terms of new hardware developments and also in terms of software developments, I wondered if you had any insights for us in terms of developments of the profession, developments of the IT and IS and ICT professions.

Yeah, that's a good one. The book was commissioned by the Australian Computer Society, which is the professional body for computer professionals, but there's long been a big divide in the ACS between academics and the commercial world. To the extent that even today most computer vendors and people on the commercial side regard the ACS as a bit of a fuddy-duddy academic organisation.

Oh really?

And there's always been this divide. For many years the ACS had very stringent membership qualifications. You had to actually have a Degree in Computer Science to be a member. Which obviously most computer suppliers and people running computer companies did not have. You know, I was not able to become a member in the 90s when I was a publisher, when I published their magazine. I couldn't be a member because I didn't have a Degree in Computer Science.

Okay.

But that's now changed fortunately. But this was an off and on again thing for many, many years. When you consider the profession of computing, the early computer professionals were academics and that academic computing has got a stream of its own in the history of the industry and continues today as a very identifiable and distinct discipline. But the rest of the industry, one of the great things about the IT industry was you didn't really need, to do most of the jobs in it, you didn't need any formal qualifications.

No.

Now, and the people I met in the computer vendor community were a real mishmash of professions and backgrounds, no commonality whatsoever in their background, you know. You had ex school teachers, ex academics, a lot of sales guys who saw that selling computers was going to be a good lurk. You have your programmers and that sort of, if you like, the academic community and you had the sort of technical community of programmers, formally operators and the project leader and the sort of people with technical skills that you see advertised. So your SAP specialists and stuff like a lot of them work now for the big vendors, the big computer users and consultancies. And you have the vendor community, the people that sell the stuff and maintain it. They obviously hire a lot of technical staff, but I suppose there's the three different groups within the broader profession of academics and technicians and for marketing/sales, and hangers on like journalists and market researchers and

consultants. Consultants is a broad area. So development of IT as a profession it's very higgledy-piggledy. As computing became more prevalent there was, and the biggest demand was for programmers.

Right yeah, what sort of time period, what were the dates…?

We're talking about the late 60s, sorry 50s when the universities started running courses in computer science and they were ostensibly to teach people how to program. And a lot of them were, did computer science as part of a wider degree. The government, federal government realised in the early 60s that the universities weren't producing the right sort of, or enough people for them and they started this, I think it as called Programmers In Training. I talk about it briefly in the book, yeah, PIT, Programmers In Training. The government started a very large program to train, internally, people: computer programmers, and obviously over time these government trained guys went out into industry. One of the really formative influences on the early training of technical people was the Control Data Institute, CDI, they were enormous. Control Data, which was one of the early mainframe vendors was spun off this separate Institute which became very, very big in Australia and they ran commercial programming courses. They cost a lot of money, but they guaranteed you a job.

A couple of my friends did these courses, they were specifically designed to turn out programmers for commercial industry and for a six-month course, you had to pay 10 grand for it 30, 40 years ago. I think they had a HECS-type deal, where they'd lend you the money and you paid them back once you got the job. But a few of my friends did it and I considered doing it myself I remember. But they trained so many programmers. And so between the government, in house training and the big banks and big users had internal programs in place to train people. Then as the industry grew, the required skills of professionals became broader and broader and the number of tasks became broader and broader. But at the same time, the skills of a typical computer professional became narrower and narrower, more and more specific. You look at the computer, pages of the computer job ads now, most of which have gone online, and some of the job descriptions are incredibly specific.

Yeah, we've become interested in how that process happened over the decades.

Yeah, it's just a logical process I think, you know, as computers became more widespread they, and more complex, more different types of software and ran increasing number of different software packages, all of which required various skills. The computer suppliers, each software company hired programmer type people to train them in their own particular application. If that application became widely used, like SAP, then that in itself became a part of, a subdiscipline within the industry. SAP is a good example, you know, world's second biggest software company or third, depending on Microsoft and Oracle, but are used by most major corporates to run their ERP and financial software. The SAP campus in Germany, Walldorf near Heidelberg, I haven't been there for 15 years, and it was enormous then, they had scheduled buses to get you around. You been to Walldorf at SAP?

I haven't been to Walldorf…

It's incredible, that was 15 years ago, you had, you get a bus to go between the buildings, I shudder to think what it's like nowadays, and enormous suite of programs. So as you get all these, you know, packages started to replace in-house development software, the need for in-house programmers to write accounting systems from scratch declined and was replaced by people who were able to maintain and tweak off the shelf software. And so, as that grew and

evolved, so did the jobs and the specialities of those jobs that involved maintaining it. So, to the extent that nowadays, and of course then all the micro software and now there's a whole new breed of technician or programmer working in these clever start-ups doing fintech stuff in all these weird languages, C++ is probably the COBOL of them all now.

Yeah, it's interesting, isn't it?

I know, some of the names of these new software platforms, alphabet soup. I've got no idea about half of them. But as the industry evolves, and new platforms and new technologies come, you need people trained in these areas. So I don't think it's an easy thing to say how it happened, it just is a natural evolution as the technology moves along, that you need a specialist. This has been the case for decades, the industry has complained that the academic community is not doing a very good job turning out people with the relevant skills. But the academic community is always, you know, a few years behind in terms of the sort of thing they're training people for. I was hired as a consultant, God, about 15 years ago, by Sydney TAFE to do an audit of their IT courses, and to report back to them on how well I thought they matched the requirements of the industry. An interesting little project and it took me about a month or so. They gave me a few grand and I went and interviewed all these TAFE teachers and some of the people that they'd placed. And actually, they weren't doing a very bad job, but that was just one institute. You still hear today about computer science graduates not being trained, so most of these…

Is that audit publicly available? It probably isn't.

Sorry?

Is that audit publicly available?

I could drag it out of my PC but it's very old.

Well we're studying history.

Of course you are…

So that would be a really interesting point for us I think.

Maybe drop me a line on that, I've got it somewhere, everything I've ever written is on my laptop, I could find it. TAFE, it's about, when did I do it? It was sometime in the 2000s, the noughties, it was quite a decent, dare I say it, piece of work, just a 20-page report based on how well I thought they were matching the needs of industry. And it's so old now, there'd be no problem with IP or anything like that.

Yeah.

So you mentioned there's academic and industry, did the industry set up its own boards or do they have conferences. How did they vendors come together when they were not allowed as part of the party of the ACS?

Well vendors, they arose, and an interesting question. Australia actually has a pretty sorry history of vendor organisations, they've come and they've gone and the AIIA (Australian Information Industry Association, originally called the Australian Computer Equipment Suppliers Association, formed in 1978) still exists. But it's not very successful, it's dominated by the large multinationals and smaller Australian computer suppliers and software houses tend not to belong. I wrote quite a bit about this a couple of years ago, a big bone of contention in the industry today. But because there's so much money in the computer

industry there arose a lot of commercial organisations who saw the opportunity to run computer conferences and computer shows, and ACS ran their own for a while but that wasn't overly successful. In the early days it was. But it was overtaken by commercial organisations, and these still exist today. Indeed I'm working for one of them on a contractual basis, that put on their own seminars and conferences for computer suppliers or computer vendors or both. The vendors themselves tend not really to talk to each other that much. Now AIIA is ostensibly a forum for them but it's not, I think, overly significant. The vendors then tend to go their own way.

I'm coming here from the angle of professional development. If there was an attempt or attempts by vendors to create some kind of, standards or…?

No, well you have de facto standards that have grown up, I mean Microsoft and Cisco are the best examples of software that's so widely used by the user community that a particular vendor can, has enough clout to put, to do their own certification. And so SAP is another example. Oracle. So the really big software vendors have. The hardware vendors don't have a real need to do that, hardware maintenance tends to, normally done by the vendor and they hire their own technicians and now although there are some third party organisations, but there's no real cross-industry, cross-vendor body that's ever set up to provide certification and training. There was one, I used to do some work with them, I can't even remember their name now, they were funded by vendors, they did quite a bit of software certification. If I looked them up I could find, but they've never been really, really big, so there was this one attempt but I…

And from the vendors themselves, I mean companies like Microsoft they have Microsoft certificates and so on, at what time came this into the industry, at what point did vendors start to say we certify people because it makes you qualified to work with industry?

I'd say the 80s, 80s and 90s maybe even. I forget how long ago the 80s is sometimes, but certainly by the 90s these sorts of things were comparatively common.

And was it just another scheme to try to extract more value out of the industry or was there real need from companies…?

I think a bit of both. I mean vendors are obviously by their nature very commercially oriented, if anything will make money they'll do it. But they succeeded and the reason they succeeded was because there was a demand for this sort of thing. I mean to be a Microsoft certified system engineer is pretty well a necessary qualification for anybody who wants to do anything with end-user computing. There's various SAP qualifications. The ACS has always pushed for certification, as a part of their academic background. They like the idea, they've always pushed the idea that an IT professional is a professional in the same way as an engineer or even a doctor and you should have formal qualifications and they had developed their own qualification scheme. Indeed that has become one of their major sources of income, particularly since they cut a deal with the government to recognise their qualification as <u>the</u> qualification. So you go to any ACS meeting, they're all Indians and Chinese because they've come into Australia and the only way they can enter the industry is to get this qualification and obviously join the ACS. I'd love to see the figures and of course the ACS doesn't publish them, but an extremely high proportion of their revenues comes from putting people through these certification courses.

And so that's linked to visas?

Yes, yeah, and again that's not widely publicised but it is, and ACS doesn't really like to let it be known that that's their main source of revenue, but it is.

Okay, interesting.

Requesting particular units at the back of this… shall we ask Graeme a little bit more about your personal life and how it changed, I mean through the use of computers? So maybe you can reflect a little bit on the publishing industry which would make sense, you said like you started working on this computer magazine when it was not really recognised how computers will change the publishing industry, can you recap a little bit…?

Yeah, it was absolutely fascinating. I mean I started doing some publishing work, mainly before computers had revolutionised publishing. I was working on computer magazines in the 80s, where things were still done completely manually. I never wrote without a word processor, professionally. I did non-professionally, by the time I started writing in the early 80s I had a PC and I used a word processor. The whole story of how a word processing has revolutionised the physical process of composing text is a story in itself, which I can't really address. And every writer has their own story on that, it affects everybody differently, but I can't imagine writing without a word processor. But the publishing industry, once the words had been created, then have to be edited and turned into physical magazines in the old days and websites nowadays. I mean the physical processing industry, physical magazines and books still exist, and I have been involved since the beginning with that particular process. I remember putting together a brochure for a friend of mine once in the early 80s, and you'd write the words, maybe on a word processor and you'd give the file to a typesetter and you specify what font you want it in and how wide you want the columns to be and then they'd create them and they give them to you. And then you take it to a layout artist, and they physically lay the printed bits of paper onto a page and physically add a picture here or there and cut and paste. I mean it's become a virtual term but it actually was, it was cut and paste. And as late as the late 80s, I remember, we were doing a computer magazine (before I started my own magazine, but it was still done in that same way). A guy, the layout artist would have a giant board and every double page spread he or she would physically lay it out. Very cumbersome process and then from there it had to go to a printer and the printing part of it hadn't changed enormously, that technology, one particular aspect has. The big revolution, desktop publishing, started with the Macintosh and the laser printer and the Macintosh was released in the early 80s, '84, January '84, and the first laser printer that was cheap enough to be owned by a small business, or even an individual, became available in about 86. With a Macintosh and a laser printer you could do desktop publishing. You could turn out things that looked quite reasonable and that technology started on the desktop and then evolved into the commercial world. Adobe which still exists today, was one of the early developers of the software, their software packaging design is today the most widely used design software for layout artists. All the stuff they used to do by hand, cutting, physically cutting and pasting is now done on a big screen, particularly on a Macintosh with a program called InDesign. And they can, you've seen it, you know, move around pictures, it was like desktop publishing but more sophisticated. And that happened around 1990 where magazines started to be produced using this sort of technology, but the files that they created, the InDesign, were so large you had to download it on this giant cassette. The storage was still expensive in those days, I remember when we started our magazine we had the guy doing the layout on an InDesign type thing and then would output it to this giant cassette which we would physically take down to ACP's offices in Park Street. And they would turn it into a file that we could give to

a printer because there was too much processing power: you couldn't do it on a PC, you had to get a bureau to do it. And that phase lasted a few years before, and then the file would go to the printer and then they'd feed it into their machine, it was still offset printing but the offset printing would take a digital input, that was one of the… Briefly for about two years I wrote a monthly column in Print 21, a magazine for the printing industry, they wanted someone to write an article about the effect of IT on the printing industry. I resigned that commission after I wrote about six articles because I couldn't think of anything else to write about, I found I was saying the same thing over and over again. But of course, what's happened in the printing industry subsequently, is the rise of laser printing. Offset printing still exists, but it's become more and more cost effective doing short print runs on high quality laser printing. And that's led to this phenomenon which as an author, as I now am, published my travel book last year, you can print on demand, but then the…

Absolutely, yeah.

The economics aren't too bad, you can print a professional looking book, my travel book's 400 pages and I can get them printed for 20 bucks each. Now if I did an offset run of 10,000 copies it'd probably only be $4 each, but I only want to print a couple of dozen at a time. So that's revolutionised the printing industry, but the economics of offset are still indisputable, depending on the printing run. So, there's been many, many changes there as well.

So thank you for talking us through this change in the print industry from a very also technological aspect. How did the work roles of the people that are working in the printing industry change over time, can you reflect maybe a little bit on that?

Yeah, the work roles haven't changed that much. I mean you look at the workflow process from journalist to editor and the subediting, proofreading, process into the layout person, from the layout person to the printer, those roles haven't changed. What has changed is the technology that they use. The work, the actual job titles and responsibilities haven't changed because the process is unchanged. You write, you edit, you lay it out, you print it, and these guys over here, the ad salesmen sell ads in the magazine and so on. So those roles are all still there, it's just that they all use different technologies than they used to…

You mentioned the typesetter before, is that a role that's still there?

No, typesetter disappeared, they were disintermediated, completely (you're quite right to pick me up on that), The evolution from physical to electronic layout completely disintermediated the typesetters, they disappeared out of the profession entirely.

Were there other intermediates that when you look at printing or…?

There's probably jobs in the printing industry that were affected by technology, but it is not an area I know really that well. Once something goes off to the printer you heave a sigh of relief and go down to the pub, you know, you're not involved anymore. You wait till it comes back from the printer a few days later and then you spot the typo.

End