



THE UNIVERSITY OF
SYDNEY



Pearcey
FOUNDATION

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

Oral History Interview

07

David Hartley

Interviewed by:

Graeme Philipson, Sebastian Boell, Kai Riemer

Interviewed on:

Friday 11 September 2020

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. The Labour government and the Science minister Barry Jones were supportive of the development of the 3900 hardware and the operating system.
2. The environment back in the 1970s are confused with the different states and the federal's interest, therefore, venture capital is very little in the market, and the underfunded Australian manufacturers have to fund offshore. However, the capital market has improved a lot now.
3. The new company organization and structures brought new opportunities for Australia, such as the digital ledger technology for data monitoring and privacy.

Biography

David Hartley

Founder of Hartley Computer Applications
CEO of Pacio Core
Pearcey Hall of Fame in 2003



Entrepreneur, Software developer for accountancy profession, Industry advisor

David Hartley started his working life in 1966 as a civil engineer with Brisbane City Council. His work later took him to Namibia in southern Africa, where he was introduced to computing while conducting mathematical modelling of rainfall in the vast Okavango river basin, using FORTRAN on an ICT 1500.

When he returned to Australia, he decided that computing was more interesting than civil engineering. He started Hartley Computer in Brisbane in 1974 to develop software for the accounting profession, on the rationale that accounting could be easily computerised but that many in the profession did not realise that.

His first effort was to write a program in BASIC called AANCS (Australian Accountants Number Crunching System) to run on a Hewlett Packard cassette-based desktop calculator. But the HP machine had only a one-line display, and Hartley was approached by Wang to rewrite the program to run on a Wang 2200, the company's newly popular small minicomputer, which had a full display screen, and ran off floppy disks. He called the Wang program HAPAS (HARTley Professional Accountants' System).

The new software was very successful – it was the only software in Australia designed specifically for small accounting practices. Hartley and team also designed SHEILA (System by Hartley for Entirely Integrated Ledger Accounting) for larger organisations.

The venture included building hardware (the Hartley 3900) and an operating system. Both the hardware and the software were very innovative. In Hartley's words:

“The operating system was called RT86, a ‘true pre-emptive multi-user multi-tasking operating system for the 8086 chips. It was launched in 1980, 15 years before Windows PCs had that capability.

“Hartley Computer was one of the first mini/PC computer vertical market successes in the world, with ultimately 250 staff and 3,000 sites in seven countries. In the process I became known as ‘the father of computer client accounting’, and we won several awards. The success was killed by hubris and a messy divorce. Big lessons, only partly learned at the time.”

The company sold thousands of copies of HAPAS in Australia in the 1970s and early 1980s. At one stage Hartley was the largest global customer for Wang minicomputers.

In 1979 Hartley expanded the business to the US, setting up in Denver Colorado. The US business was run by Roger Brownlee and Craig Ashby, who built the operation there to over 100 customers. But financial problems developed as Hartley diverted more and more funding into the development of his hardware platform.

The entire history of the microcomputer industry could have been very different:

“When IBM launched the IBM PC, it decided to use the Intel 8088 (an 8-bit external bus sister chip of the full 16 bit 8086 we had chosen). IBM asked Intel for an introduction to someone who could supply an operating system. Intel knew of our work in Australia with RT86 but did not make the introduction because we were not in the USA.

“Instead they introduced IBM to Bill Gates, who did not even have any Intel chip-based software at the time. Bill was smart enough to rush out and buy what became MS-DOS for \$50,000. And so, MS-DOS was inflicted upon the world – a huge cost compared to what could have been with our far superior RT86, and Microsoft was on its way.”

In 1982 Hartley Computer was put into receivership by the Queensland Government. Hartley says this was under a technicality via a loan guarantee, “even though there was no commercial reason or need as business was booming with just some cash flow issues during financial year end, exacerbated by a cargo handler strike in Sydney, which the bank understood.”

David Hartley believes that he was being punished for not having donated to the Joh Bjelke-Petersen Foundation, a kickback vehicle for the corrupt Queensland Government. The company was sold to the New Zealand company Paxus, which was in the process of entering the Australian market. After failing to convince the board to back the IBM-PC instead of IBM’s System 36 he left.

Hartley moved to Hong Kong in 1985 and founded Banksia Information Technology (BIT), which designed and manufactured IT gear, including PCs, modems, and an early voice activated fax/phone switch, called the PHaxSwitch.

He later returned to Australia and developed HAPAS Mark II. In 1993 he went to the United Kingdom and with some colleagues set up Hartley Computer UK, which gained over 1000 accounting practice clients ranging from sole practitioners to PricewaterhouseCoopers. In 1999 the company was sold to British accounting software vendor Sage, and Hartley moved to the Caribbean. He still lives there today, where he is a self-described ‘Caribbean Blockchain Evangelist’, pursuing initiatives using the new blockchain technology, including work on accounting systems for what he believes to be the new age of blockchain business.

Hartley was admitted to the Pearcey Hall of Fame in its first year in 2003 for ‘distinguished lifetime achievement and contribution to the development and growth of the information technology profession, research and industry’.

Interview Transcript

Date of interview: Friday 11 September 2020

So David, can you briefly if that's possible? Tell us about your career in IT?

Oh, goodness. Since it's spanned so many years, and so many generations, that's a bit hard.

It is the early years in Australia that we're particularly interested in.

Right, well, back at the University of Queensland I was studying civil engineering, with Fortran and punch cards. And then in Namibia, South West Africa, where I got into computing heavily with simulating river basin flow with 100 years of rainfall data. It was one of the few places in the world where I could get such data. Because the German farmers had been instructed over 100 years ago to read the rain gauge every 15 minutes when it rained, and 100 years later, they were still doing it.

So when you were there in '66, it was still Southwest Africa, right. Still administered by South Africa.

Correct. And there were four races and seven different languages, very complicated place. But I had free use of this antiquated computer, ICT 1504. And got into doing weird things like revamping the Fortran compiler and punching all this data on cards that I read into the machine.

How come you went there? Who sent you to Southwest Africa,

Civil engineering. I was doing water hydrology work, desert hydrology work. So that was in my civil engineering days. When I returned to Australia, I worked with a consulting engineering firm for a while in Brisbane, involving computing for the firm again hydrological work at the Snowy River, as well as around Brisbane. I developed various engineering programs, which I tried to sell on behalf of the firm. Running on Hewlett Packard gear at the time.

And the modestly named Hartley computer in 1974?

Yes, when I decided that computing was a greater interest than the civil engineering and that initially was engineering related stuff, but none of that sold very much. Until I came across an accountant wanting some software, and that was via the Hewlett Packard calculator division manager in Melbourne, Paul Dunn, whom I had gotten to know in Queensland before he moved to Victoria. He introduced me to the accountant needing some computing and that was the start of it. His, Paul Dunn's name for the initial product that didn't last very long was AANCS – Australian Accountants Number Crunching System which, yes, wasn't one of his best acronyms. Paul is currently running BIG1 in Singapore. And he subsequently joined me in Hartley Computer as the marketing manager and was the basis of the marketing success of what we renamed as HAPAS for HARTley Professional Accounting System.

So, David, can I ask you, why did you want to go out of civil engineering and into computing?

Because computing was more interesting. And because I could see that there was a lot happening in the computing world. There was opportunity there greater than in the civil engineering world or so it seemed to me as a young person. I was 27 at the time.

Was there an episode or series of events that got you in moving to this direction.

Because I had been working with computing in civil engineering, I wrote a whole suite of programs for the firm. I put a proposal to the firm to gear up computing activities, which was rejected. I think, in hindsight, that the partners were correct. I don't blame them. Because my proposal was over ambitious for a consulting firm and involved a PDP 11. Too much capital investment for a firm of the size and in a rapidly changing environment. They were quite correct to be cautious. But I was a bit disappointed. So, I thought, I'll go and do computing on my own. The arrogance of a young man.

And off we went charging. And so initially, it didn't do very well. As I said, with the Hewlett Packard based computing, I attempted to sell the software through Hewlett Packard offices around Australia and sold virtually nothing.

It was on an HP calculator more than a computer, right? And then on their computers.

Correct. The initial software was on the Hewlett Packard 9830, the souped up calculator, but running Basic. And yes, and that was what the first HAPAS was written on. But then, Wang appeared with the WANG 2200. And the 2200 was a far better machine than the Hewlett Packard 9830. It also ran Basic, but faster. The big crucial difference was that it had a monitor, a screen, rather than just the one-line LED display. And so HAPAS on Wang began to look like a real product, even though the first versions had a whole 8k, in which we had to work. So we developed financial reporting software that ran in 8k on Wang 2200. And the system sold for some \$8000 Australian dollars quite a lot of money at the time.

That was including hardware, obviously.

Yes, yes. It began to take off in one critical month, when there was a double depreciation period, and end of financial year so we went from nothing to success in one month in 1976. But up to that point Harley Computer had been in a loss situation. It used up all my savings and I'd brought back savings from Africa in the form of diamonds. Money saved in Namibia returned to Australia as diamonds carried through Europe and USSR. Quite an adventure then back via Japan. The diamonds all got sold and went into the company, my mother also lent me money. So I was very exposed in the early days of Hartley Computer until in one month everything changed with HPAS on Wang taking off. We had captured the all the accountants in Australia into our database, which was run on a 9830 with mass memory which provided a whole five megabytes. But that was enough to get all the accountants in Australia out of the yellow pages. We were into mailing all the accountants on paper, inviting them to seminars to view HAPAS and we ran the seminars all around Australia. It was one of the first vertical marketing successes orchestrated by Paul Dunn, and my wife at the time, an American lady who was involved with the marketing program.

Did you write the code?

I wrote the Hewlett Packard code. I had staff members by the time we were writing the Wang 2200. Eddie Boyes was the key person. And there were two others for the Wang version of HAPAS which started as a copy of the Hewlett Packard version that I had written, but rapidly went far beyond it. It was written by these people. Eddie Boyes stayed with the company right through and subsequently became General Manager after my departure. But he was the key person in HAPAS Wang. So we actually became Wang's largest DP customer in the world, after the US government. At the time that we started with Wang, Wang was a force in word processing, but not in DP, not in computers. We helped to get them established in Australia, New Zealand, Hong Kong, South Africa, United Kingdom, to a lesser extent in the USA. When we started in the UK with HAPAS, and we said to Wang that we'd sell 100, in the first year, they laughed, because up to that point they'd sold a whole 4 systems. And we sold 120, in our first year in the UK. They couldn't argue with that. It would have been around '78.

And what led you then to decide to build your own hardware

That came about as a result of wanting to have multiuser systems. As accountants got to use HAPAS more and more multiuser capability was needed. Some of them were doing very well

with HAPAS. I mean, at one user group meeting in South Africa, one of the HAPAS users there said, Hail to the chief, the man who's making us wealthy courtesy of what they were doing with HAPAS because they improved their productivity so much. Up to that point the Wang systems had all been single user, like the Hewlett Packard calculators, obviously. So we wanted to have multi user systems, as clearly our clients needed that and we couldn't do it with the Wang hardware out of the box. We actually put our foot in the hardware world and created a little box to let us network WANG 2200s. So that's how we got started. Wang made it clear that they didn't like this development, though they didn't really tell us fully why. But we understood later because they had, what was their mainframe in the works. We were using the 2200 VS then, but this was a bigger machine that they were developing that was their direct competition with the minis from Data General, DEC, and the IBM System 36, and so on.

On one of my visits to Lowell, when I met with Dr. Wang, and he showed me the new machine. I could see, oh, this is where all the effort is going. And we thought that they had gone down a wrong track heading in the mainframe direction, not in the networked micro or mini direction. But of course, Dr. Wang wasn't going to listen to me. And so we said, "Oh well we'll do it ourselves". Again, this arrogance showing. But we were right about Wang because ultimately, the decision by Wang to produce that big beast killed the company. It was the end of Wang. Wang ultimately went bankrupt. And our decision to go with hardware that wasn't too good either. You could say it had the same result for us. But along the way, we did produce some interesting stuff. And certainly, we developed a good 8086 implementation. We were one of the first in the world to put the 8086 chip from Intel into a working mini. Plus, we developed the operating system RT 86, whose name gives away that some of the ideas for it were inspired by RT11 from DEC, which we had been using, because prior to deciding to go with their own hardware, we also had done some work with Data General minis and with DEC minis, and SHEILA, our commercial System by Hartley for Entirely Integrated Ledger Accounting. This stirred up some objections internally when it was launched I might add, some of the team objected to this name as being sexist. But it was in fact a memorable name. People did remember the name. And I've had letters even recently from SHEILA users, one from the New Zealand Wool Corporation last year, who was one of the SHEILA users. SHEILA ran on Data General hardware.

In an attempt to get multi user HAPAS running we also used PDP 11 in what was called Large Scale HAPAS. So yes we got involved in a few too many mixes of hardware and software. But obviously, for Large Scale HAPAS, we were using RT11 from the DEC world. Then we developed our own 80 86 based hardware, which was called the 3900. There was no particular reason for the name other than that our address at the time was 39 Sherwood road Toowong Brisbane. We developed the operating system, which was a true multiuser, preemptive multitasking system, which windows wasn't until windows 95 if then. And the hardware and the software ran well for the task it was intended for - for accountants running HAPAS. They got the multiuser performance, they got everything working well and we implemented our vision of Basic called Commercial Basic in that environment. And then HAPAS on top of it. We implemented all the various versions of HAPAS, financial reporting, office costing, debtors, creditors, word processing, financial modelling on the 3900. We were shipping this 3900 hardware and systems to other countries, the UK, South Africa, New Zealand, and Hong Kong. In South Africa, they had a ceremony for the hundred the one which was painted in gold for the event.

So all the hardware was done in Australia. Did you have much trouble manufacturing the gear?

We had the normal sort of troubles you might imagine with an undercapitalized venture. So that was not without struggles. Many difficulties at times. One uniquely Australian one was that airfreight cargo handlers in Sydney went on strike in one critical month when we were trying to get a whole lot shipped. We always had this June deadline in Australia with the end of the financial year. And in the end, that was one of the things that caused the demise. We had a very skewed cash flow. We would get 75% of our orders in the last couple of months of the financial year in Australia, not in other countries. Then the cash would come in in July and August from supplying those orders. And then we would be cash rich, but cash poor at the end of the financial year with having to build up or gear up for deliveries. So that impacted us when we were getting ready to launch the 3900. Up to that point, we were largely being financed by American ExIm bank money.

What money Sorry?

US Export Import Bank funding courtesy of Wang because as I mentioned, we were Wang's largest customer after the US government for DP, not word processing. We had \$4 million worth of EXIM bank financing. I remember one time in the organizing of this when I went from Brisbane to Sydney to meet with Wang expecting to complete some arrangements on the EXIM bank financing and be back to Brisbane the same day. I mean, it was a one day booking. So I was there with no gear or any clothes or anything and with my car parked in a one day parking spot at Brisbane airport. But when in Sydney I found out oops, we can't settle it here. You have to go to New York. So I jumped on a plane to New York from Sydney and arrived in New York in the middle of winter in my Brisbane summer clothes and quickly had to buy a coat and so on. But I ended up getting the money signed up and then had a site visit to Lowell to meet with Wang before getting back to Brisbane some days later. So that was typical of dealings with Wang. Wang was an innovative company, but they were a mob of cowboys in some respects. The Vice President whom I'd been dealing with was fired one day by having his desk moved out into the carpark. When he arrived at work he found his desk in the carpark.

How big was the company at the time and how many people were working with you?

At the peak, it was 250

And how many of those in software and how many in hardware.

The software group was about 44 and then there were groups devoted to manual writing, printing, and graphic design. I mean, in those days we did our own document production. The first desktop publishing systems were what we were using, so we had a team producing printed manuals that we would mail out to people. We had divisions that don't exist anymore, jobs that software companies don't get involved with anymore. The factory had some 50 people at the peak.

Was the factory in Brisbane?

Yes, the first factory was at Kangaroo Point underneath the Story bridge, in an old ship building place which was no longer in use. That's where the first factory was. Later, it was a little bit closer to us in Toowong, opposite the brewery at Milton so the smell of beer was in the air. Then there were support people, of course, and sales and marketing staff. We had sales and support people in multiple offices. We had offices in each capital around Australia,

and in New Zealand, the UK, and the USA via subsidiaries, and we had agents in Hong Kong and in South Africa. There were quite a number of users in Ireland. I just recently had an email from an exstaff member 40 years ago from Ireland, remembering 3900 days and eight inch floppies and big disk drives, etc.

You would have been the largest computer manufacturer in Australia, correct?

Correct, yes. Now, let me finish on the financing aspects of things. Well, as I said, we had \$4 million worth of ExIm bank financing. And of course, once we stopped ordering, from Wang and started using our own 3900s that finance disappeared. So we were \$4 million down in terms of working capital. We knew this was going to happen, of course. And we were attempting to organize different finance. Our arrangements for this, funnily enough, were not helped by a press report that came out prematurely. One good reporter just doing his job was in Brisbane interviewing us. And the R&D section where all the 3900 work was going on, was behind closed doors, and he wasn't shown that. But he noticed this, and he was sharp enough to start questioning and digging around. And he broke the news about something going on prematurely. So that was a bit devastating as our ExIm Bank finance got called prematurely. We had as part of this process of changing our financing sought Queensland Government guarantee for some loan finance. And that was the ultimate kiss of death. We did get the loan guarantee. And the Queensland Government correctly or validly said that as part of their providing this, they wanted to see some greater capital in the company. And I did manage to organize what at the time seemed good - an investment of a million Australian dollars. This was in 1981-1982 and that was a good investment in a private company at that time. The money purportedly came from a Melbourne barrister, a supposed upright member of the establishment, Paul Harper, Barrister at the Supreme Court of Victoria. And he introduced a guy to join the board as chairman. This was part of the company apparently growing up from being founded by a few mad guys. But it didn't work out too well at all. The company with the launch of the 3900 went on to be successful in sales. We had a very full order book. But we had this same cash crunch as ever, each financial year. And as I say, this particular year was exacerbated by the cargo handlers strike in Sydney. So we went to the bank and said, this is our order book, this is how we're going to be rolling in cash in July and August. Can we just pay the interest and no principal repayments in May and June while we use every bit of cash we can scrape together to fund purchasing all the components to build all these computers we have got orders for. And the bank could see it and said "fine, no problems". Okay, good. Next thing, to my amazement a receiver walked in the door. What are you doing here? Appointed by the Queensland Government. Why? Well, technically, you're in breach of the government guarantee. Ernie Harris was the gentleman's name from Coopers and Lybrand. He also emailed me a couple of years back, he became a friend in the end, and he understood exactly what went on eventually. Though he didn't on day one.

And so, I ended up quite perplexed, you know, why is the receiver here? The closest I ever got to understanding it, and I still cannot be 100% sure was when I asked John Moore, who was our local member, and he was Federal Minister of Finance. On our driveway, I remember quite clearly asking "John, why has this happened?" And he said, David, because you didn't put the right money into a brown paper bag. And to translate that for people who might not understand the reference, that refers to Joh Bjelke-Peterson, and the Joh Bjelke-Peterson foundation. Joh was the premier at the time. Silly David plugged into his computers and not being awake as to what was going on in the real world had failed to realize that he was supposed to make a contribution to thank the premier for the Queensland Government guarantee. Joh was subsequently charged with corruption, and this brown paper bag money

was referred to in regard to a Singaporean businessman who had indeed left his contributions in a brown paper bag for the Joh Bjelke-Peterson foundation. But Joh was acquitted incredibly.

Because of one particular juror, as I recall.

Correct, who in fact, was a member of Joh's party and involved in fundraising for Joh's party. Corrupt Queensland left-right and centre.

So it is quite astounding that there is no support. I mean, you were the biggest computer manufacturer in Australia and there was no interest in support.

It was astounding. But the story doesn't end there. Let me finish. Anyway, as the receivership started, of course, customers were frightened "What's going on?" The situation was not helped by my being in divorce proceedings at the times. I mean, it became complicated. There's plenty of material for a saga or a book. And my wife, or ex-wife was a smart lady. She didn't sue me in the domestic court, but sued me under company law for oppression of a minority shareholder. And she ended up convincing a law firm in Brisbane to support her and she had an office in their office free to pursue this interesting case. And so, in the end, we were in court 10 times and it was finally settled in the Supreme Court, the first time ever a divorce property settlement went to the Supreme Court. So that was another issue going on at the same time. It didn't exactly improve matters.

But the other drama that occurred in the middle of this is incredible. One day Paul Harper, the barrister who had moved to Brisbane, by this time. He took over the role of Managing Director of the company, while I was to focus on the technology side heading the development and looking after the tech. He took the Managing Director aspect off my shoulders, which I didn't object to, so he was there. He took me aside and said to me, "David, don't talk. Sit in your corner, and focus on the tech. Leave everything with the receiver and what's going on to me. Shut up. David, don't say a word. And remember, a hitman out of the Philippines cost only \$1,000". So I was threatened with a hitman if I talked. So this was my first hint that Paul Harper was not what he purported to be. My next hint came when I got a phone call from two guys who were in a motel in Brisbane saying, "Could you come and talk with us?" I said, Well come to the office. They said no, no, we can't come to the office. You've got to come to us, Coronation motel. They told me "We are the people who supplied the million dollars that Paul Harper invested in your company. Come and talk to us." So I went to talk to them. They produced documents saying and they were from Minplex, a mining company in Western Australia. They said they had been dealing with Paul Harper and that they had funded Paul Harper by lending him the million dollars that Paul Harper had invested in Hartley Computers. So the million dollars was borrowed money from Minplex and they said to me, David, Paul Harper has not repaid, he has not met the terms of the loan. If we call the loan and we end up as the owners of the shares in Hartley Computer will you cooperate with us? I said, this is totally new to me. So that was a shock. Sorry, I'm a bit out of sequence with the first part where I told you about Paul Harper threatening me with a hitmen. It was when after I went back to the office and told Paul about the Minplex guys that Paul gave me the warning. So I said, these guys are purportedly, your colleagues. Why all this? So that was when I was given the warning. But I did tell Ernie, I did talk to Ernie, the receiver about this. And of course, I told other people that I knew like people who are still involved with what I'm doing today in Pacio, Keith Cleland. And so, Paul was clearly thrown into another light with this lot. And the receiver took it seriously. He said, David, shut up and

you should consider moving. I didn't move. But shortly afterwards, my car a new one at the time, new Peugeot went up in flames in the middle of the night.

Coincidentally? David?

Coincidentally, yes. [Of course not.]

And unfortunately I lost some of my archive papers in the fire which was in the garage of the apartment building that I was living in at the time. So when we all ended up out on the street in the middle of the night, and some little old ladies out there in their night gear, said, David, you do have any enemies? I said no. But of course, that was my warning. take this seriously, David. And subsequently, later that year, I gave the ACS inaugural address, keynote address in Hobart, the first Australian to ever do so at the ACS conference. And just recently, thanks to the courtesy of one lady who was there who recorded it, I got an audio tape of the speech. If you would like I can send it to you.

Helen Meredith. Right?

Correct. Well, it was transcribed courtesy of my associate in Sydney, Trevor Waters. When I was in Hobart for that speech, I met one of the guys who had endorsed Paul Harper to me at the time when I was looking for the investor and directors. He was the managing director of a computer company in Sydney. I asked him, why did you endorse Paul? Why didn't you warn me about Paul? And he said, I'm sorry, David. It was cowardice. I was threatened with kneecapping. And I believed the threat. It turned out that Paul Harper was involved with the Painters and Dockers, the most violent union in Australian history. He was also involved with bottom of the harbor schemes and violence was one of their stock in trade techniques. This was the man that I was dealing with. The man who had come into Hartley Computer. Now, I do not know whether the Queensland Government got any hint of this to be one of the reasons for appointing Ernie as the receiver or whether it was, wholly as John Moore had said. I actually don't know. I had hoped the cabinet papers after 30 years would reveal something about this. I've searched but not found anything.

So you made the decision to leave Australia and go to Hong Kong?

Well, we're not quite there yet. Ernie put the assets up for sale as is a normal thing a receiver would do. So the receiver put the assets of the company up for sale to any of the interested parties. One was New Zealand Insurance and they interposed Ariadne, one of the upstart entrepreneurial successes in Australia at the time, one of the high flyers as an intermediary. The role given to Ariadne was to buy the assets, tidy things up, and then hand them on to New Zealand Insurance. The consultant that Ariadne brought in to help them with this, a New Zealand guy who came to Brisbane, interviewed Paul Harper and me and the other people. He was awake enough to see what was really going on, and he asked me, if they bought the assets, would I cooperate? That it would be me in and Harper out. So I said, yes, of course. I mean, I had to do what I could save it even if I didn't own it anymore for the sake of the staff and for the people who had bought the systems. So that ended up being the deal. Ariadne made the offer with me in and Harper out. And so there was one day when the transition took place in the building in Toowong. Harper and I crossed in the carpark and as we passed Harper's wife said to me, it's a good thing you don't shave, an enigmatic statement meaning I assume that such a crooked, devious person would surely cut my own throat. Anyway, Harper then turned around and sued everybody, the Queensland Government, the receiver, Ariadne, New Zealand insurance and me. It duly went to court many years later with truckloads of bookcases of documents being wheeled in and out of court. By the time it

ultimately was settled, Ariadne had gone broke, and so my legal guarantee from Ariadne to cover, my legal cost was worth nothing. Thus I ended up in court defending myself. At the time, I had to fly back from England to appear in the final court action. But in the end, Harper lost, I was specifically exonerated by the final judgment. In the meantime, when Ariadne ended up owning the assets things started to go again. We did get the business rolling. Then it was passed over to New Zealand Insurance, who set it up in a division called Paxus, which was their attempt to do things in the tech world.

Yes. But then Paxus got enamoured of IBM and the System 36 and wanted to go System 36. I said, our accounting firm users are not going to be wanting to buy System 36 from IBM. That's not where things are going. You know, this was 1984 or something. The PC was live by then and networking was going. He is surprising that I skipped over one of the big misses That when IBM launched a PC in 82, when gearing up for it in and theyt to Intel for an operating system for this 8086, or 8088, as they initially used. Intel knew what we had done in Australia when developing the RT86. But Intel did not introduce us. They introduced Bill Gates instead, who didn't even have an operating system at the time for the 8086 range, as his stuff was Motorola based. But he was, of course, smart enough to go out and buy something and thus the world had MS DOS inflicted upon them. RT86 would have been a so much better solution for IBM and the world than MS DOS. But that was, and correctly my first wife, the one who ended up suing me, had said that with what we're doing, we should move to California. I said no, I'm not doing that. I'm Australian, you know, we're going to do it here. But of course, she was absolutely right. From a business perspective, we should have done just that. It would have been a very different outcome for RT86 and then Harley Computer and the business, but it was not to be.

I mean, the reason being that you were not in the US was for logistical reasons, or it's that form of nationalism. Why that decision? Or was it thought that Australian companies were not financially backed enough? Why that hesitancy to involve with a with an Australian company.

I expect it was nationalism on my part, and on Intel's part.

Why did Intel did not go to you? Why did they go to Bill Gates instead?

I think nationalism, I suspect it was nationalism as America was the tech leader at the time. It is more challenged these days, but then it was undisputed tech leader of the world. So Intel, seeing what was likely to come with the IBM endorsement of the 8086 PC, could see that this was going to be big.

Where they aware of your operating system?

Oh yes, we were intimately involved with Intel. They absolutely knew though whether they knew at the right level high enough up in the corporation I don't know. I mean, at Wang, we dealt with people at the top, including occasionally Dr. Wang himself as mentioned. In the case of Hewlett Packard, when we started what we first did on their equipment with the predecessor to SHEILA used the Hewlett Packard so called mass memory, five megabytes. When we published the specs of what it did, Hewlett Packard didn't believe us. They said you're making this up. We did by being super efficient., We had to pack things. We were packing multiple things into one BCD number. We could handle 1000 items of inventory on this five megabytes, which they just thought was crazy. Their system, their version, and could barely handle 100. Yeah, we were doing 10 times as much on the same hardware, and they

just thought we were blowing our stack. In the end, they acknowledged that we were way ahead of them in terms of software to put the hardware to real commercial use. In the end they flew me to the US to talk to the engineers, to their people about this. They acknowledge this, but once again, you know they were behind the eight ball re Wang in terms of hardware. In the end when we stopped using Hewlett Packard equipment, it was because there was no support from the company. But, of course, the Wang tech was bigger and better. My farewell letter to Hewlett Packard was 74 pages long pages. Yes, I know. A waste of space. Silly David verbosity. But anyway, so back to Paxus, Paxus, to my amazement, still wanted to go System 36 even though we were supporting the IBM PC as well by then. We had an add in card for the PC to run RT86. We actually had RT 86 running on IBM hardware,

Did you build that add in card? Did you design and build it yourselves?

Yes, we did. We were offering HAPAS on IBM equipment as well as the 3900 equipment. And so we had multi user IBM PCs running HAPAS. To my amazement, Paxus still wanted to go System 36.

I kept objecting, objecting, objecting but In the end they said, well, David, its count the votes time. So okay, I resigned. I had to leave. I was chairman of the company. But you know, I didn't have the votes. On a major directional decision for the company I lost, so I had to resign. They bought my shares back, so I got a bit for my shares. And that was it. So that was why I'm headed off to Hong Kong.

Why did you choose Hong Kong?

Because I had been to Hong Kong in dealings with the agent in Hong Kong selling HAPAS and selling the 3900. In Hong Kong I had seen how dynamic the place is, you know, like the vibe of the place that it was active and vibrant, and seemed like where the action was technically, where the opportunity was.

Why did you decide to do modems and related gear?

Because I couldn't do accounting systems as part of getting out of the market with the Paxus I had to do something different. I couldn't directly compete, at least not for five years. And the modem range and the PEP [printer enhancement products] range came courtesy of the partner in Banksia Information Technology. I had met him in my period heading the Computer Manufacturing Association in Australia, he was another one of the members of that, and at our meetings in Canberra I got to know him. He joined me in Banksia and provided the modems and the PEP range so that we had something to kick off with. And that subsequently led to the PHaxSwitch, where we had this voice activated fax which was our main product, and which gained a lot of acceptance around the world or interest around the world. And, in fact, it was an embarrassment of riches. By 1989 we had more orders for the PHaxSwitch than we could cope with.

We had set up a factory in Hong Kong, a whole floor of one of the industrial buildings in Hong Kong. But we needed to contract manufacturing into China to cope with the volume. And we obtained an order from Acco in the United States which was large for millions of dollars. I made the big mistake of placing orders for components for the manufacturer in China of this before we had the letter of credit in hand on the basis of their order. And so we were exposed. And then what happened was Tiananmen Square in 1989. Acco cancelled the order because there was a bill before the California Senate to embargo all trade with China.

Our banks in Hong Kong were understanding as they knew the situation. They knew we had lots of other orders so that we would digest this big hit of components in time, that it was just a cash flow issue. So they were prepared to fund it. The banks in Hong Kong, were used to this sort of thing and were willing to fund it. The tragedy was that my two shareholders in Australia were not. They saw riots on the streets of Hong Kong on TV, and said, "Oh we're going down the tube, we can't do this. We've got to go into voluntary liquidation". I couldn't believe it. So, that's what happened. Banksia went into voluntary liquidation. The guy who came along and bought the assets went on to make a big success out of PHaxSwitch.

You moved back to Australia in about '93 and went back into the accounting software game?

Yes. So I wound up reverting to what I knew best personally. I got help from the guy who had been the consultant for Ariadne, and so moved to New Zealand to start the work. And subsequently was enticed to England by an English guy, who travelled to New Zealand to meet me, and who would phone me for hours on end from England. Eventually, he paid for me and my wife at the time, a Hong Kong Chinese lady, Jennifer, to move to England to take over his company and rebrand it Hartley Computer. And that's how I ended up in England with the next generation of accounting software, which ultimately became Hartley-Accounting. Along the way my Chinese wife gave up on me and returned to Hong Kong and divorced me. The next wife in 1998 was English, of Polish descent. Shortly after we got married, she developed Primary Progressive Multiple Sclerosis. She correctly felt that a hotter, drier climate would help her. That was what prompted the premature sale of Harley Computer UK and that's how I ended up in the Caribbea. We sold to Sage for 2.7 million pounds. We were neck and neck with another company in the market in the UK, at the time, who also sold to Sage a few years later, for 40 million pounds. Our premature sale was expensive.

Yeah, a few stories like that in the industry.

Indeed, indeed. So that's how I ended up in the Caribbean. I had to do something different once again. This time we stupidly developed an online lottery. Yes, at the time. Antigua was an offshore gaming centre. It was one of the biggest online gaming centres in the world. We developed this system called The Lotto and I cooked up lots of different maths and with different payouts it was going to be the best online lottery in the world. We got all that developed, ready to launch by 2007. At which point, the USA changed the rules about use of credit cards on gaming sites. Antigua took the US to the World Trade Organization and won. But Big Bad Daddy USA ignored the judgment and to this day has never settled. To this day Antigua is trying to get settlement from the United States on that judgment. We had obtained interested parties, including some courtesy of an ex World Bank guy, for funding the launch of Le Lotto and the greater amount of capital required for building it up. But of course, they pulled out and that was the end of that. In hindsight, I was not proud of having gone down that path. It was a wrong direction.

Can we change the emphasis a little bit now? Can we talk about innovation? And particularly in the Australian context, what do you think was the most innovative thing you ever did?

Oh, the most innovative thing we ever did clearly was the development of the 3900 hardware and operating system. Yes, yeah. RT86.

What made it so?

We made multiuser multitasking computing available as a real product for business use.

The idea how did you develop it? What was the catalyst?

We wanted to do better for our clients than we could do with the existing systems, the boxes from DEC, Data General and Wang, that were all too techie, too limited for the average accountant with a whole lot of accounting capable people, but not tech capable people. Remember, this was in the early 1980s. We managed to deliver something that was powerful yet that such people were comfortable with and could use effectively. We were well on the path to making the tech invisible like the old definition of a successful technology is when you don't even notice it. And so we achieved that. But to my disappointment, it's still is not the case, largely as we all battle with Windows still and other tech too. It's not as easy as it should be. The Tech is still not as good as it should be. For the business users in our market we had achieved this in the early 80s. Sad.

How did you do it? The operating system what role did you yourself have?

I was just a cheerleader. I mean, the guy supposedly organizing the money, not the ultimate good result. It was Eddie Boyes and his team of people who did it. And you know, they were the good guys. There were some ladies. They were not all male. I suppose I was the one who was brave enough or mad enough to say yes, we can do this so we went and did it. But in a business sense, it was a bad move.

What was innovative about the hardware, you were using an 8086 and I imagine you moved on to lighter microprocessors. What was that I can understand the RT86 operating system was innovative but wasn't the hardware essentially standardized then?

The 8086 was not common then, we were one of the first to use it. The others around were using Motorola chips at the time. Intel was not established at that time as the dominant chip supplier. The IBM PC made it so. But we adopted this or chose this chip before IBM did and before any of the others did. So but that was a sourcing decision, a tech decision. We didn't have any input into the design or development of the 8086 chip itself.

You were pre IBM PC, so you were designing your architecture pretty well from scratch.

Yes, yes. And, you know, we didn't make basic errors like IBM did, having tables at the top end of memory, that limited things to 640 K. You know, as Bill Gates said, at the time, who will ever need more than 640k? I mean, I can remember when we when we had 16k. Wow. And then 32k and then 64k, oh, wow. So yeah, 640 seemed huge. But we didn't make that mistake. Our memory could grow as hardware grew. Our operating system didn't have to go through all the contortions of having memory, printer tables and other such stuff stuck in the middle of memory.

What was it about you guys that made you be so innovative?

Stubbornness and arrogance. I mean, stupid things, really, that we didn't know better. And so, we did it. Yes. Because we didn't know any better. We didn't know that we couldn't do it, so we did it. If we had been better informed or better versed in the realities of the world, we would have been frightened off and never tried it. Because, you know, I'd had this success fall on my head, with the HAPAS on WANG suddenly taking off. For the final night of that particular year, 30th of June, I slept on the floor in the office and was there as some of the results came in. My accountant who'd also been there all night, came to me and said, congratulations, David, you're a wealthy man. I did not know what to do with this new-found wealth.

That was would have been 1976. Yeah. I reinvested everything in the company. Every bit of profit was reinvested in the company. I didn't take anything out. I was quite stupid. And I even fought the rules to avoid paying dividends. At the time, division seven of the Australian tax laws said that private companies had to distribute at least 40% of their profits and then pay tax on it. I didn't want to pay dividends. I wanted to keep the profit in the company to fund the growth of the company and to fund the development of this tech for Australia. I was involved politically in arguing against this division seven rule which subsequently was removed but we got into contortions, tax avoidance schemes involving a football club and other such nonsenses, trying to avoid paying dividends so that we would pay tax. And the result was that I reinvested everything in the company, everything went back into building the company and the tech. So, when things went belly up, I ended up with nothing.

Yeah, that's one, I lost a few fortunes over the years.

Indeed, indeed. That's the nature of being an entrepreneur or so I'm told. But that was part of the reason why we did it. Because that was this mindset of everything, everything is in it.

David, it's quite interesting to see that the tax legislation at the time wasn't quite in favor of what we take for granted these days, that tech company reinvest all their proceeds into growth and the development of the core business. And I want to stay a little bit with this to try and understand the environment in which you were in. In terms of the IT industry, were there a lot of it businesses at the time? Or were you pioneering things? We're talking the time of the RT86. And, you know, when you were already a sizable company?

Yes, there were others. We were not alone, we were just the most vertically integrated of any, we were the only one selling on the basis of a vertical market. We were the only one that had software and end user software to go with the hardware. There were others. Bill Caelli on the Gold Coast with Eracom. There was MicroBee and others as Graeme has listed in his book A Vision Splendid.

How organized was the industry, did you have visibility in Canberra?

Yes, there was an Australian Computer Equipment Manufacturers Association - ACEMA, which I was president of for one year. I wasn't the only voice. And we did have the ear of some people. When Labor was in power Barry Jones was Science minister and he was supportive. Senator Button attended the launch of one of our 3900 models in Sydney. Then subsequently in the Paxus years, when Paxus wasn't quite sure what to do with me I got appointed to the CSIRO Advisory Council by Barry Jones. So I would attend the CSIRO advisory council meetings. And remember, this was also the time of the famous quote by Lee Kuan Yew in Singapore that Australians were heading in the direction of being the poor white trash of the Pacific. And that's indeed how it looked at the time. And I repeated that phrase in my speech in 1982. Now obviously, I was in a pretty down state at the time. The company was in receivership, things were looking pretty dire, and they were dire. And I had just had these threats made to me about a hitman out of the Philippines and having my car burned. The situation for Australian tech (and me!) was looking dire.

Despite all of these innovations happening in Australia the focus very much then fell to the US and a lot of, the industry, broadly capitalized on it outside of Australia. What was missing in Australia or what were the things that you would have liked to see to grow ICT as an industry? Computing as an industry in Australia?

Well, in those days, of course, the one thing that would have helped would have been a change in the tax laws, so we didn't have this dividend rule to fight, which ended up wasting a lot of time and money. The environment was confused with the different state and federal interests. It was. And the usual one of the lack of venture capital at that time. The situation is much better in Australia today than it was. We were faced with the situation of very little venture capital available. Finding that million dollars was remarkable, though it turned out to be funny money. None of the Australian manufacturers at the time were adequately capitalized. We certainly were not alone. So the development of a capital market has improved things a lot for Australia. It's a very different place. The dire predictions that Lee Kuan Yew had made and I also in 1982 did not eventuate largely because of the opening up of Australia that subsequent Labour governments brought into their credit, the relaxation of restrictions and rules, which were not expected at the time. And the fall in the power of unions incredibly, has made Australia a very much better place today for doing things than it was. Once the opening up changes started the country started to improve. The improvement that came about was quite unexpected, or hard to foresee from 1982 perspective, at least by me, when we supposedly had a business-friendly government. You know, from my perspective, Queensland, subsequently invited me to act on their Technology Advisory Committee, which was sort of like an apology. To me, it was the closest I ever got to an apology for what they had done. But the experience in Australia was not encouraging for me to want to do anything new in Australia, as for the blockchain developments as to where accounting and management should go in the 2020s, I mean, what I'm working on now. What we're working on now is the most innovative thing I've ever done in my life, more so than 3900 and what we did with Hartley. Triple entry accounting for business and the world built on distributed ledger technology, not blockchain per se, and making that scalable and realizable for all business in the world is huge. I mean, what we're really talking about with Pacio and triple entry accounting is the biggest improvement in management and accounting in 500 years since Pacioli, and the invention of double entry accounting in the 15th century.

That is what allowed the expansion of trade that has built up the world. And then the good and the bad. I mean, things like the slave trade used double entry accounting too. But it is triple entry accounting which will enable the next burst of improvement in business and in productivity, to give us the wealth that is needed to tackle the ills of the world like climate change. And so delivering triple entry accounting can have an impact measured in trillions of dollars of economic benefit to the world per annum. I mean, just the fraud in business at the moment is estimated to 4 trillion a year, which triple entry accounting cannot totally prevent but largely reduce.

How far away are you from productizing this?

The first bits of it will launch next year. We have one product in alpha now. The main parts of it will be launching next year. But it depends on once again on investment. I'm currently seeking investment to fund this properly. We're currently talking with the gentleman in three weeks time for an investment of 16 million US if it comes to pass. Not done deal yet. But if it happens as he's talking, then we'd have that funding to keep things along a bit better.

I mean Wirecard and their big collapse recently, which triple entry accounting would have revealed. Now they blew up \$23 billion worth of stock market value. They have missing billions within the Philippines.

I just need to follow up what you said about government support? Did you get any kind of government support when you were setting up in Queensland? Any kind of government funding?

No, no, the one and only thing was this government guarantee for a whole \$300,000 government guaranteed Loan. And that was of course, as I said earlier, was the kiss of death. It was what killed us in the end. So the government support we got was what killed us. At the time we were also severely hurt by strikes, industrial action. Not impacting us directly. None of our staff were on strike. But cargo handlers strikes hurt us badly.

And can you maybe explain here a bit the supply chain that you relied on? And how that worked?

Yes. We were importing components from the US largely and it all came by air. We had quite large shipments in May and June when we were trying to build lots of machines. So any delays were catastrophic in terms of our meeting our order commitments under this double decider double the incentives for people to buy they had various incentives that ended at 30 June so if we fail to deliver by the 30th of June there was a big cost to our customer. So we would get cancelled orders. We had situations where we will be going out on the last couple of days in June with multiple systems via station wagons and with more on top in a roof rack, dumping them at accountants, as many as we could get on site by the 30th of June. When we had this cargo handler strike, it was bad news. That was our total government incentive, and the government incentives otherwise were talk but negative in terms of tax as we had to fight all the way to not paid dividends and tax. So government was a hindrance not a help.

David, you had some really clever people working with you. Was there ever a problem getting good software engineers or hardware engineers, in terms of the education in the country that fed into the IT sector?

No, we did not have that as a problem in that sense, probably because we were one of the early ones, one of the few, there wasn't such a lot of other employers to compete with prefer smart people who were in the field or had studied it. The quality of people we were able to attract and hire was part of the reason for the success. And yes, obviously, the environment in Australia had very good people. They were educated in Australia. I mean, one of the ladies Kathy, who was working on Wang HAPAS, was an American import, but she was living in Australia, all the others, basically, were Australian born and bred.

So when I get this correctly, the brain power was here, the government wasn't really helpful, you were let down by having to source from overseas, right? The hardware would have been easier if you were closer to the source of the hardware you needed, correct?

Yes. And we did source things locally like steel frames, and you know, plastic, we were using plastic injection moulding for keyboards and monitors, and so on. We did the injection moulding stuff in Australia. And we did the steel assemblies. I mean, the 3919 had quite a big steel case on wheels. The pictures are on my hall of fame record. So that sort of stuff was sourced locally. We designed our boards and had the boards made locally, they were printed locally, but essentially all the chip components and disk drives and monitors and printers were imported.

So you said venture capital was not readily available? How about the banks? How forthcoming were they with financing for companies like yours? Was there ever a time?

Yeah, no. Zero! Only when we had the government guarantee could we get any money and that was \$300,000 versus \$4 million in EXIM Bank finance we had had when importing Wang gear.

What had you wanted most in the situation back then in terms of things that were missing in Australia as a an environment to build and grow your business.

The venture capital funding aspect. I mean, everything else we could come up with in varying degrees. And I mean, even things like a cargo handlers strike if we had the finance so that we could order things more in advance and weren't just in timing it out of necessity, then we would have coped with that too. So fundamentally it was finance. The banks just ran away. Anything to do with tech and this upstart nonsense of thinking we could manufacture computers for the world. Yeah. Our bank at the time was the Bank of Queensland and we had zero overdraft when we were turning over multiple millions with them. And our facility such as it was, was closed a couple of weeks before the receiver walked in the door. I mean, if I had my vibes half in tune with what was going on in Queensland, that should have told me something because the Bank of Queensland was part of the old boys network of the Joh club. So they obviously knew what was coming. They knew in advance of us that the receiver was being appointed. So the banks were near totally useless. That's one of the things that is a pleasure to see coming with the advent of distributed ledger technology and what we're doing, that banks are going to be reorganized. Totally. There won't be any tears shed here over the end of banks.

Before we wrap up, I've just one question on the current environment. How much are you in touch with the environment in Australia? And would you today build an IT business in Australia?

Oh, firstly, I'm not very much in touch. I haven't been in Australia even physically since 2016. I maintain some contacts of course, online. My two co founders, directors of Pacio are in Australia, and so I have contact with them daily. But it's primarily about the Pacio business, and so on. I have the various newsletters and the like. But most of my contemporaries, such as Bill Caelli, have retired. The people I was working with before retired and not stupid like me and want to keep going. But that's one of the exciting things about the current situation, as far as I see it. Longevity science has advanced so much that this whole idea of retiring is redundant.

We might wrap it up. Thanks so much for your time. Any final comments you'd like to make?

Oh, thank you for listening to my raving out. I did realize that I would not have too many gems of wisdom about the current situation in Australia because of being divorced from intimate involvement with it. One final bit just company organization and structures for the for the new era. There are many moves to bring digital ledger technology into company and corporate law and initiatives in the Caribbean in that regard and in Europe, and some in Australia, but it's such an area that Australia could do a lot more in, but certainly the activities in Australia in regard to monitoring and privacy and what is going on with Facebook, in regard to Australia, are worrying and would be a reason for me not to do what we're currently trying to do in Australia. So once again, the political issues in Australia are negative right now for doing significant tech in Australia, as far as I see it.

So you mean the, the Australian Government's trying to basically regulate platform businesses? Is that what you're saying?

Yes, now, we, in terms of what we're doing with Tender and scalable distributed ledger technology, no friends of Google and Facebook, how they misuse people's data. I'm not saying that that should be endorsed or protected. Not at all. And we would seek to give control of people's data to themselves, courtesy of distributed ledger technology, and ultimately replace email with a better system, that DLT based tender based, that gets rid of all the security issues with email, but the Australian Government approach of insisting on backdoors is very worrying.

I think Australia is very much at the top of it when it comes to one hand secrecy, in terms of, you know, lack of transparency when it comes to the governmental use of IT, and interference with private data and companies, for purposes of, you know, government access to data. I think you are absolutely right. I thought you were referring to the more to legislation around privacy, protection of consumer data, which Australia has done a little bit, but not as much as in Europe.

Yes. GDPR from Europe has become a de facto standard. You have to implement that anyway. And that is valid. I mean, it's correct, that people's privacy should be protected. But it's the other aspect of what the Australian is doing, I agree that it would be a very good reason for us not to try to do what we're currently doing in Australia. Sadly.

David, thank you so much. You've helped a lot with the project. And we were interested more in what happened at the time. So the question about today is just an add on. And can I just say, you also did a really good job.

Well, thank you. Thank you. I've got my archives from those days, which of course, were pre digital phones, and pretty much on paper, 55 archive boxes and four trunks of stuff in storage in Antigua. For the book one day!

Thanks so much for your time.

End