

Chapter 6 of "Return to tomorrow - 50 years of computing in New Zealand"

Progeni, 1968 to 1989 – Success and Failure

- by Perce Harpham (Managing Director throughout)

"The dreamers of the day are dangerous men, for they may act their dream with open eyes, to make it possible." - T. E. Lawrence.

Progeni was the first software company in New Zealand. It started in 1968 as Systems & Programs Limited.

Progeni was made up of highly talented people - most of whom shared the vision that we could establish a software industry working out of New Zealand – running a “software factory” here and implementing systems in other places. Inevitably, in this account, there will be a preponderance of “I” but in fact I was a small part of a great team.

The impetus for the start of the company was Britains announcement, in 1967, that it was joining the European Common Market. New Zealand’s privileged position as a supplier to “mother” would disappear. There was gloom and despondency with dire predictions about the collapse of our economy.

In 1957 I had been seconded to ICI in England by my employer, Dulux Paints, with the assignment to look at anything interesting and report back. I reported back that “one day the whole of the ICIANZ group might be able to afford a computer but I doubted it as computers were not cost effective”. Three years later I found myself recommending installing a computer into Dulux New Zealand alone. Whatever way I looked at it the cost/benefit had become nine times better

That machine was thought to be BIG in terms of computing power. 12k of memory and 4 meg of disc with 2 tons of air conditioning. It was the fourth computer in New Zealand. I had had a dramatic introduction to the forthcoming revolution.

I joined in the debate about how New Zealand could survive economically. One of my papers “New Zealand – Laboratory of the South Pacific” was published in The New Zealand Company Director in June 1968 and outlined how this could be accomplished by using our own government market and legislation to promote developments. Much of it is still relevant and I still see the same battles being fought by new entrepreneurs. So I will give some prominence in this account of relevant experiences as we tried to realize our vision for the software industry in New Zealand.

Throughout 1967 and 1968 I tried to persuade politicians that they had the tools in their hands to promote the development of software in New Zealand. With the import licensing structure then in place it would have been possible to grant licenses for the import of computer hardware only in proportion to the value of software developed here. IBM for example could well have established a software development laboratory in New Zealand.

It seemed to me that New Zealand had particular advantages as an English speaking country with competent professionals paid less than in most other places. Also that

there were many small businesses which were competently run but had little room to grow so they could form great “pilot plants” for the proving of computer systems.

My advocacy fell on deaf ears so, being persistent, I decided to start something myself. Three friends joined me to begin with. We gave up our jobs and took the gamble in 1968.

There was then still little general awareness of computers let alone the idea of software. The hardware companies downplayed the cost and complexity of software. Many of our struggles were those of any start up company but were compounded by the fact that we had to make a market. The idea of “outsourcing” was not even articulated then. The late 1960s were recession years and managers generally had little comprehension of software and associated costs so that even fixed cost proposals were often not well received.

We got work from my old company and from several bureaux but I recall “Black Friday” when Ron Jarden rang to say he had decided not to proceed with the first computer system for a New Zealand sharebroker. There were seven of us with no work for Monday. I spent the weekend designing a system for our own time-billing purposes in the hope that we would need one and so that others would have something to do in the next week. Fortunately, with a bit of persuasion and after getting some work of his own Ron decided to move ahead.

This system was a spectacular success. It was designed to handle a maximum of 80 trades a day. We had only been running it for a month when a share market boom erupted. Most brokers could not cope with their paper based systems but Ron could recruit clerical people with no sharebroker experience and carry through the trades. He never had to reject any trades or to restrict himself to existing customers. He was shortly handling nearly 500 trades a day, including a lot of Australian trades. As the boom died away customers stayed with Jarden & Co. It became an entirely different business from before the boom. I still retain the, now valueless, share certificates in Republic Petroleum which Ron showered on all of us. Some of the others sold theirs when the \$1 shares were selling at over \$3 each.

But Ron’s Australian agents then wanted us to develop a system for them and this took us to Australia for the first time. A sharemarket collapse and scandals meant that the project only went a short distance but it was very instructive.

Export incentives had been set up here such that it was better for us to market in Sydney than in Auckland. We found that, in Australia, we did not have to deal with the assumption that because we were local we were necessarily inferior. But it was viciously competitive. We went slowly, establishing our Melbourne office in 1978 followed by the Sydney office in 1979.

Finance was always a problem as we grew. We had to establish internal infrastructure for marketing, selling, accounting, project management and the like. Methods, procedures, quality control and other infrastrucure had to be developed. Our recruiting policy was highly selective based on the quality of the people regardless of their background. So we had people with purely computer backgrounds as well as others with bachelor to doctoral qualifications ranging from electrical engineering to music and philosophy.

The costs of developing long-term professional career paths are high. But so are the payoffs. Philosophers for example deal with the logic of yes, no and maybe in “logical calculus”. It turns out to be useful in things like scheduling. Training had to be mostly by the individual themselves and in-house.

In 1971 we got two small grants from the Industrial Research and Development Scheme. One allowed us to develop the beginning of our PROgram GENERator. This was a part of our concept of having a “programming factory” and gave rise to the name “Progeni”. The other let us further develop the School Timetabling System which we bought from Dr Charles Kent when we recruited him.

Some six schools used the Timetabling system in New Zealand. The Education Department, which investigated the system ad nauseum, never made a financial or other contribution. Charles eventually left us and went to England where he found that a half million pound study had concluded that computers could not help with the problem. We took him back on the payroll and he sold the system to four of the UK provincial education authorities. We had to fight off a Norwegian company which also had a system and which made much of the fact that we had not sold our system to the New Zealand Department of Education. Then the National Computing Centre in Manchester, which was charged with bringing advanced computing to the UK, bought the system from us for \$50,000 and extended it to other authorities. That, in 1972, may have been the first overseas sale of a package from New Zealand. I retain memories of this negotiation as it was the first time that I was the sole negotiator with a drinking team separate from the negotiating team on the other side.

Our first experience of bidding on a New Zealand Government procurement was for a traffic and roading modelling contract with the Transport Department (separate at that time from Police). They had asked four overseas companies to bid and would not even give us the names of the companies so that we could try to get a subcontract. We thought we had useful modelling experience and that, importantly, we knew New Zealand. We formed a Joint Venture with a well qualified US company and, after complaining loudly, had a bid accepted. The US company was able to tell us about a month before the announcement here that we were unsuccessful. This was a useful lesson in the way that contacts are used internationally.

The Breakthrough

Arthur Henley, then President of NZCS, and I met with Robert Muldoon, who was then Associate Minister of Finance, to complain about New Zealand personnel not even being considered by the State Services Commission when making two senior computer appointments. We were introduced to Ian Lythgoe, the State Services Commissioner, at the meeting. At a follow up meeting Ian told me that Government was going to procure a Law Enforcement computer system and we could maybe do something in that area. He said, presciently, “Univac will come in strong”. This was a surprise as Univac had no New Zealand presence.

A government team working under an American, Cleveland Bell, produced an excellent specification for what was initially called the Law Enforcement Information System. LIES, as the abbreviation, was thought to be unfortunate and it became known as the “Wanganui Law Enforcement Centre”. It was to serve the needs of Police, Justice and Transport Departments.

We formed a Joint Venture with an American and a British company to produce the required software. Then the Joint Venture negotiated an agreement to work exclusively with Burroughs who would supply the hardware and lead a joint bid. We produced a fixed price contract which, we understood later, was chosen by the government team as being the only fully compliant tender. But there were inexplicable delays in letting the contract. Things dragged on. For the 1972 election the National Government of the day trumpeted that this system was going to solve the crime problem. The Labour Party made great political capital from it and distributed a booklet "Your right to privacy" nationwide. This played on the big brother theme. A decision was delayed until after the election.

Labour won the election and Norman Kirk commissioned Roger Drayton MP to extract the greatest political capital from killing the project. Roger was conscientious and honest. He concluded that it should go ahead and his view was accepted.

Many months had passed and Mr Lythgoe decided to reissue the tender. He forced Burroughs to release the Joint Venture from the exclusive agreement and for it to enter into similar agreements with IBM and Univac as well as Burroughs.

We appointed separate project managers for each manufacturer and maintained "Chinese walls" between them. I was the only person in New Zealand from the Joint Venture to see all three bids. The Burroughs bid was very clearly the winner in my view – both technically and financially.

The original evaluation team of 12 from the Government side had been disbanded and a new evaluation team of three people then chose the Univac bid.

But the fun had only just begun. Mr Lythgoe then sent Univac a letter to say that they must carry out the project "entirely from their own resources". This allowed Univac to dispense with the Joint Venture – otherwise they were legally bound to use us.

Between the three members of the Joint Venture we had spent about \$250,000 in bidding on this contract. We were not about to give up lightly. We took out an injunction to prevent Government and Univac from proceeding without us.

Old friends crossed the street to avoid meeting me.

I came to admire Roger Drayton. I haunted Parliament buildings and Roger took up our case. Roger set up a meeting with Norman Kirk. The US and British Joint Venture heads came out for the meeting. Mr Lythgoe was present and was in an uncomfortable position when Mr Kirk was called away to see his doctor. He died a few weeks later. Everything stalled.

On Roger's advice we briefed the opposition. When the State Services budget was being debated they did a great job of having each of their speakers ask a relevant question about the project. Then Roger, when it came time to respond, took his career in his hands and agreed that the whole thing was scandalous. He told me later that he expected to be ostracised in his party but fortunately the reverse was the case.

The substantive court hearing on the injunction was a week away and interrogatory questions had to be answered. Suddenly we had a letter from the Minister for State Services, Mr Tizard, to say that the letter to Univac was intended only to note that they were entirely responsible for the project and that it did not prevent them from subcontracting. We were away at last.

With Univac we completed the project on time, at the fixed price, exceeded the specifications, made a profit and paid tax. There were 16 people from Progeni, 6 from overseas and two from Government in the team. Interestingly, our generating tools, project management and administration were used to advantage. To prevent “project creep” we certainly needed the highly experienced, authoritative, somewhat abrasive American project manager but, for the rest, our people were well up with the play. Funnily enough we never got another Government project that came under State Services.

This Wanganui Law Enforcement computer system ran for some thirty years. Most of the programming was in COBOL but there were none of the basic packages that are taken for granted now. We had to program the interchange of heartbeats between the dual computers, the database structures, the roll forward, rollback and recovery for the 24/7 system.

This one project was of enormous importance to us in terms of credibility, professional development and finance. We later had a smaller job with the Victorian Police Department in Melbourne which also went extremely well.

Growth & Development.

The Accident Compensation Corporation was set up in 1974. Initially they did not really know what they were going to do with a computer system but they knew when they were going to do it and wanted a computer system to do it with. Not exactly a dream specification. But it all hung together reasonably well and was not rebuilt until several years after replacement had been planned.

We set up a “Control Systems Division” which was characterised as “computers with overalls on”. It got an amazing variety of work. This ranged from simply controlling the start up and stopping of motors, conveyors and dispensers in the right order to the actual weighing and monitoring of ingredients for animal feeds and concrete batching plants. There was also the use of voice response units to automate operations in a meat works, control of remote radio stations, a quarter million dollar control system in an Australian biscuit factory, systems in luxury yachts and the like.

This experience gave us capability and credibility such that we supplied a team to work in the US, for Boeing, to develop the initial navigation and surveillance systems for New Zealand’s Orion aircraft and then to do follow up maintenance. We also brought to fruition a very interesting system devised by the Defence Science people to facilitate maintenance of military, or other, electronic devices.

There were various commercial systems, payroll and finance systems. A particularly challenging task was rebuilding and running the PSIS system after the organisation went into Statutory Management. We were pleased that we were given credit for our part in the recovery. We managed the Fiji Sugar Corporation’s installation for seven

years. We took on several agencies and installed one of these proprietary products, a geographic information system, for the Lands & Survey Department.

Many of these activities required people who not only knew about computers but who understood what they were trying to do with them. Our broad base of capability paid off many times.

We extended our operations to offices in Auckland and Christchurch as well as Melbourne, Sydney and Canberra. Micro-processors were coming on the scene when we were appointed as consultants to the Melbourne Fire Board to advise on a control and command centre. As a result we were able to design sensor units which were not only smoke alarms but which advised the control centre when they had a low battery. The saving in failures and false alarms was spectacular. We were allowed to bid on the implementation of the system and took great pleasure in winning it ahead of our old friends in the Law Enforcement Joint Venture .

Our customer list grew to include federal, state and local government bodies, commercial, financial and other organizations in New Zealand, Australia, Fiji, USA, UK and South Africa. And, as will be described below, China.

We continued to develop our generating tools and, in 1978, set up an office in Los Angeles to market them. One of our most talented people, Jean-Claude de Verrier, had established the office in Los Angeles and was returning there after making his second sale when he was killed in an air crash. The trauma for his family and the sense of loss for all of us took a long while to overcome.

The generating tools played a vital part in our modification of a Westinghouse system for the New Zealand Broadcasting Corporation. This also was, technically, a very successful project. When it was all running smoothly the Corporation brought in an Indian company to secretly monitor the system and copy the programs in the expectation that maintenance costs would be lower. Then they locked us out. Some ten years later there was an out of court settlement for \$432,000 for the breach of contract. Unfortunately the cash went to the receivers.

The Poly project

Here, for once, New Zealand very nearly did something right. Two electronics lecturers from Wellington Polytechnic saw the possibilities of computers in education and developed a brilliant “proof of concept” for helping with the problem of education in an increasingly complex world. The Education department got behind it. Instead of going to some overseas supplier, Government charged the Development Finance Corporation, which it owned, with coordinating the development (shades of NASA coordinating putting a man in space).

I had long advocated the development of an education industry in New Zealand so we were greatly excited by the approach as well as by the project. We were approached by DFC to see if we would take part in the development and commercialisation. We were assured that if the Education Department was satisfied with the development that Government would buy 1000 units a year for five years. New Zealand would have a new industry. The Department would develop the courseware and whole systems could be sold overseas.

So, in 1981 Progeni agreed to provide the central software and the technical professionalism to get the “Poly” computers into production . All told we contributed some \$250,000 for our share of the company set up by DFC for the purpose.

Some 60 teachers gave up their Christmas holidays to develop course material and about 30 suppliers made or supplied parts. The whole development went brilliantly.

Yet, when the lengthy evaluation of the first two classroom trials showed that all expectations had been met, Government reneged on the deal and decided to do nothing about computers in schools. Why? I still don’t know but Warren Cooper, then a Cabinet Minister, told me that he and his colleagues in Cabinet “could see no reason why Government should spend money so that teachers could do even less work”.

Many people at that time genuinely believed that nothing of a world leading technological nature could be made here. Also there were vested interests, such as the local Apple agency, which lobbied intensively against the project.

DFC then insisted that their cast- iron assurances were undocumented and unenforceable. We did not have resources to pursue the issue legally. We took over the joint company and started to do well. Then Apple paid us a huge complement by offering their first education deal outside the US to precisely our market. They severely undercut us by selling their machines at one quarter of their normal retail price. Our secondary school market evaporated.

The result of the government decision was that schools then struggled individually to buy a great diversity of machines without any central direction or courseware provision. Millions of dollars were wasted in the confusion. The legacies remain. The Poly was about 18 months ahead of overseas developments and should have led to a computer-based industry in New Zealand creating thousands of jobs in education, electronics and software.

We commenced selling Poly’s in Australia. Education thinking there was, if anything, even more confused than in New Zealand. Our only real success was, in 1983, winning a contract with the Australian Army against 42 other bidders. Three years later the New Zealand Army made a similar purchase from us because of the success of the Poly’s in Australia using the course we developed to teach recruits to use the NATO keyboard.

We took Polys to China in 1982 and got considerable interest and a few sales. We then further developed the machine to the PolyC which handled Chinese Characters as naturally as English by using a separate graphics processor. We built a software generator, called “Forge”, so that teachers could develop courses without programming.

We also developed “Smart Tape” so that ordinary VHS video-tape controllers could be accurately controlled to show video clips on the computer screen with overlays of text and graphics – probably another world first on personal computers.



Part of the Poly installation for the Australian Army. Note the handles on the side of the Polys in the middle distance. These were to make it easy for children to carry machines between classrooms. They were dispensed with on the PolyCs.



Two surgeons from the Peoples Liberation Army General Hospital made a training video on heart transplants into a great interactive learning system. Note the video player to the right and the Chinese characters on the screen. The view on each monitor is the same. The body shown is of a dog, as is used in practice.

We were slowly heading for huge success in China. We were given great support by the New Zealand Embassy, trade officials and Prime Minister David Lange. Zhao Ling, an incredible woman who had been one of Zhou Enlai's interpreters and who had become a New Zealand resident, was a key figure with many contacts at high levels.

We supplied PolyCs to several organisations including the Beijing Institute of Aeronautics and Astronautics. In 1988 we were granted the first license for a wholly foreign owned company in Beijing.



Zhao Ziyang, Premier of the Peoples Republic of China, with his entourage and David Lange, Prime Minister of New Zealand, with his entourage witness the signing of our agreement with the Beijing Institute of Aeronautics and Astronautics in the Fishing Palace in Beijing, March 1986.

The End

Then in 1988, following the 1987 share market crash, our bank – the Bank of New Zealand – got into serious financial difficulties.

There has never been a public enquiry as to how the government owned bank had to be sold after losing well over a billion dollars. Such an enquiry might well have revealed useful lessons for the present financial crisis.

The BNZ twice had to be saved from bankruptcy. One capital injection was by Government alone and one with the investment bankers, Fay Richwhite (through Capital Markets Ltd.). They provided some \$200,000,000. Michael Fay became a director. It later emerged at the "Wine Box Enquiry" that his firm borrowed \$1,100,000,000 from the BNZ in violation of their own lending rules. (The Enquiry, to the astonishment of the many watchers, exonerated all the players in the Wine Box scandal, including Fay Richwhite. A Court of Appeal judgment later held that there was fraud involved but – incredibly – nothing ever came of it.)

The BNZ was then in desperate straits as a result and tried to extract money from its business customers – particularly from those the bank thought it could sell up quickly. There was, and essentially still is, no defence (such as the US chapter 11 of their bankruptcy act) against banks in New Zealand. Progeni was just one of the victims.

We resisted strongly but were not helped by the “Tiananmen Square” upheavals in China or the takeover of Applied Data Research by Computer Associates. ADR had been our major agency, particularly in Australia. Computer Associates abruptly terminated our agency in violation of our agreements with ADR and without any compensation for our investment in developing the business. The BNZ would not then allow us to pay our lawyers in Australia in order to sue Computer Associates.

To my utter disbelief receivers were finally appointed by the BNZ at the end of 1989. This is not the place to describe the destructive behaviour of the bank and the receivers. We did manage to get the receivers to delay publicity for a week after their appointment until after the visit of the Vice President of the Agricultural Bank of China. He liked to describe it as “a small bank with 1.4 million employees and 40,000 branches”. He was here to sign, and did sign, a letter of understanding to use the PolyCs exclusively as the bank’s educational machines. Almost a year later they placed their first order worth nearly \$200,000. Progeni was no more. But I was able to locate unused Polys to meet most of the order. We could supply no more. We had to turn away the Chinese Petroleum Research Institute and the Fermentological Institute which wanted to order machines.

The Poly could have been, should have been, and very nearly was, a model for the development of new industries in New Zealand.

Conclusion

The receivers basically thought that software was valueless. That had one good result. The team of New Zealanders we had by then established in Los Angeles bought the US operation from the receivers for a fraction of its value and have gone on to great success. As I write, in late 2009, they have just signed up another large IBM site, with hundreds of programmers, to use the generating tools we first built some thirty years ago. As their website, Progeni.com, says “Progeni’s first 1978 product customer is still a reference site for us today.”

The 172 Progeni staff were spread widely. I like to think that Progeni had something to do with their later success.

So all was not lost and the New Zealand software industry has done quite well. But it could have done better. Given a proper industrial policy it still can.