

LINZ and the development of Landonline (A)

“Fix it. Create uptake,” was the brief given to customer services manager Katrina Jacobsen when she joined Land Information New Zealand (LINZ) in January 2004. A former marketing manager with Unilever, Katrina had run her own company for the past seven years, providing marketing advice to businesses delivering services over the internet, including New Zealand Post, ANZ Bank and Telecom. Now, in her first foray into the public sector, her task was to find out why LINZ’s Landonline service – the world’s first fully automated and integrated land title and survey system – was being used by only a fraction of the anticipated customers.

The development of Landonline, initiated by a National Government in 1997, had been a massive undertaking. One of New Zealand’s most heavily-funded public sector IT ventures,¹ it had involved the conversion into digital form of some 7,000,000 survey plans and records of land titles, dating back 150 years. It had enabled surveyors and lawyers to search these records, lodge new survey plans and conduct title dealings online, securely and virtually instantaneously. The implementation of Landonline had also involved huge change for LINZ itself, which now conducted much of its core business (approving survey plans, processing land title registrations) electronically.

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¹ Peter Isaac, ‘Plague Year’, in cio.co.nz, 7 April 2003. There were some popular misconceptions about how the project was funded: the costs of developing Landonline were in fact recovered from users via a levy on transactions, and ongoing user fees.

Many major obstacles had been overcome to get to this point. The original budget expanded dramatically, prompting accusations that Landonline was on track to be another INCIS.² More problems came in 2001 with the collapse of Terralink, a state-owned enterprise subcontracted to convert survey data for Landonline. The project faced operational problems at every stage.

The full implementation of Landonline in 2003 had been greeted with satisfaction. “This is a big day for Landonline and Land Information New Zealand,” then-chief executive Russ Ballard said when the first live pilot began. “[This] heralds a new era in the way conveyancers and surveyors will work.”³

But less than two years later, it appeared that many of those customers were decidedly unwilling to embrace the “new era”. Katrina Jacobsen was staggered to discover that Landonline was only being used for 1.4 percent of title transactions and 2.3 percent of surveys. What could be done to encourage greater uptake and deliver the many benefits it promised? As chief executive Brendan Boyle told her, “a whole new approach was going to be necessary to unlock Landonline’s potential.”

Automation – the tangible and intangible benefits

The idea of a fully automated system for survey and land title information was already in the air when Land Information New Zealand was formed in 1996 out of the Ministry of Justice’s land title division and parts of the Department of Survey and Land Information. One of the key challenges for the new organisation was to anticipate a future in which land titles registration and survey transaction approval would be digital.⁴ That same year, Cabinet gave approval for an automation programme to be investigated.

The sheer volume of legal paper work and survey plans that LINZ dealt with, some dating back to the nineteenth century, was substantial. These documents defined land property rights and provided a definitive record of the country’s underlying survey framework. As such, they were vital in allowing the property market to function, commercial decisions to be made and banks to extend loans. As Brendan Boyle explained: “Having a good, effective system for maintaining certainty around property rights is a fundamental part of any well-functioning economy.”

The survey and title records were also a valuable historical resource and, for many Māori, they were taonga – treasures to be preserved for future generations. Yet, with no back-ups, the paper records were vulnerable to disaster, decay and damage.

Moreover, the volume and complexity of land transactions were growing. LINZ registered around 900,000 land transactions a year and approved some 18,000 survey plans, both services paid for by user fees. A kilometre of extra shelving was needed each year to handle new records. It was clear that LINZ could not operate a manual, paper-based system indefinitely.

² ‘Landonline: Incis all over again’, media release, Jim Sutton, 27 October 1999. INCIS was a major IT project for NZ Police in the 1990s. It attracted ongoing controversy due to time and cost overruns.

³ LINZ media release, 21 November 2002.

⁴ J. Needham, ‘Benefits of Stakeholder Involvement’, p4, http://www.fig.net/pub/fig_2002/Ts7-14/TS7_14_needham.pdf, accessed 20 April 2006.

Automation was not only a pragmatic solution: it also offered economic benefits. There would be reduced costs for LINZ through fewer staff and facilities, and faster turnaround times for document processing. Lawyers and surveyors would make savings by searching for title and survey records from their own desktops (rather than having to visit the local LINZ Office) and making transactions electronically – savings which would be passed on to their clients. The two professions' compliance costs would reduce, as automated business rules removed the need for discretionary processing by LINZ. In total, savings to the legal and survey sectors were estimated by LINZ in 1997 at \$17.48 million and \$8.33 million respectively (after six years). Finally, automation would support the Government's wish to encourage new technologies that gave business and citizens better access to government information and services.

Presented with this mix of tangible and intangible benefits, Cabinet approved LINZ's proposal to automate its land title and survey system in November 1997. The estimated cost, \$95 million over five years, would be recovered through user fees over a 15-year period (a schedule of fees as at July 2005 appears in *Exhibit 1*).

The project would be broken into two stages. Stage 1 involved building and implementing an interactive database which brought together geodetic⁵ and cadastral⁶ survey plans with title records, all in electronic form. Bringing the historic records into the system alongside the "live" records was essential: this involved converting all existing land titles and most survey parcels (approximately 1.4 million, or 70 percent of the total) to digital form. Also in Stage 1, LINZ's processes for approving new survey plans and issuing land titles would be converted from manual to electronic. By the end of Stage 1, surveyors and conveyancers would be able to search the information stored on the Landonline database from remote locations.

The full benefits of Landonline would be delivered in Stage 2, expected to be complete towards the end of 2002. At this point, lawyers would be able to electronically lodge routine land transfer transactions (a facility that became known as *e-dealing*), to be processed automatically by Landonline. Surveyors too could electronically lodge most survey transactions (*e-survey*), and much of the work to validate them would also be done within Landonline by LINZ staff.

By the time the new system was fully implemented, seven LINZ branch offices around the country would have closed. Many of the records they had formerly held in paper form would now exist in digital form,⁷ and the services they traditionally provided manually would now be done electronically.

Landonline thus offered not only a practical means of protecting a valuable asset: it also promised to dramatically update practices within the survey and legal professions, and to transform the way government conducted New Zealand's land survey and title business. LINZ was confident that the benefits it promised would be quickly embraced by the survey and legal sectors, who they had already consulted via

⁵ A geodetic survey defines land in relation to a network of survey marks covering New Zealand.

⁶ A cadastral survey defines the spatial position of land parcels, and the spatial position of 'interests' in land, such as easements. Cadastral survey plans are linked to land titles of ownership.

⁷ Some records were not converted: these paper records continued to be stored at LINZ regional offices and made available to the public on demand. They are then usually scanned and added to Landonline.

their respective professional organisations, the Institute of Surveyors and the Law Society.

From “least-cost” to risk management

No other country had attempted the automation of a fully integrated survey and titles system. Some jurisdictions had partial automation: Ontario, for example, had partially automated its land title system but had no national survey system akin to New Zealand's. Some Australian states and the United Kingdom had also automated part of their title systems, but attempts to do likewise with survey approval systems had failed due to technical complexities.

It did not take long for these complexities to present themselves to LINZ. When Cabinet agreed to proceed with automation in November 1997, preliminary work was already underway: the core business requirements for an automated system had been determined, existing manual processes were being rationalised, and PriceWaterhouseCoopers had started designing systems to automate the processing of transactions. These tasks were due to be completed by the end of 1997, allowing the system-building phase to begin.

But by June of 1999, Landonline was back on the Cabinet table again. Not only had the initial work run over budget by \$10 million due to technical problems, but it appeared that the data-conversion project would cost roughly 50 percent more than initially estimated. The original \$95 million budget now looked hopelessly inadequate.

Recalled Russ Ballard, who helped establish LINZ and was its chief executive from 1996 to 2003, the earlier estimates had been made at a time when a “least-cost” mentality strongly influenced public sector financial management.

“Whenever you put up a budget proposal, [Treasury] would say, ‘what is the least cost this can be done for?’ They’d try and take out costs, time, contingency provisions ... This approach is fine when it’s standard activity of a department at stake: when if you don’t produce something by a certain date, it simply rolls over into the next year. But with IT projects, with their technical risks and time-based business plans ... you were just set up [to fail].”

Perhaps the biggest influence on the budget “blowout”, he said, was the gap between LINZ’s estimate and the market’s assessment of the job. “A substantial part of the supposed cost overrun was the differential between the estimate and what the quote came in at once we went to market. It wasn’t a cost overrun. It’s what happens when the market does its own assessment, and looks at the potential risks and how they could be managed.”

Russ Ballard called this the “Roman galleon” effect, referring to a major bridge project over the River Thames which ran up massive costs and delays when initial excavations uncovered a buried Roman galleon.

“The probability of that being there was completely unforeseen. Once you’d built about 50 bridges across the Thames, you might be able to say there was a 15 percent chance of

hitting something of value and you could built [that risk] into future projects. But not until then.”

In the case of Landonline, the Roman galleon took the form of the existing paper-based data that needed to be digitised. EDS, which in 1999 won the data conversion contract, attempted to gauge the quality of the 7,000,000 documents to be converted when preparing their bid. Robert Gray, EDS’s managing director, saw it as

“a huge area of risk. So we engaged some experts to do sampling at titles offices in different parts of New Zealand... The quality of the documents varied widely: some were very old, some were impossible to read. And based on that sample, we had to put a price on [the conversion] – obviously with contingencies, because we needed to cover ourselves.”

Reflecting the expanding costs and the many unknowns inherent in such a ground-breaking project, LINZ put a new proposal to Cabinet founded on risk-based analysis. Funding of between \$144.4 and \$154.4 million was sought – a range that reflected the uncertainties in time and cost for the different components of the project. Costs would be monitored closely, and there were strict rules for LINZ to access funding. The project was split into 13 components: for each, key dates and budget limits were set at the 15th, 50th and 85th percentile levels. LINZ was automatically funded for each project component up to the 15th percentage level, but any additional appropriations had to be approved by a Ministerial Subcommittee. A wide range of risks that could have an impact on financial outcomes and timing was identified, and ranked according to likelihood and impact. It was acknowledged that the risk profile would change over time, and needed to be constantly monitored.

Cabinet agreed to this revised proposal, with its stringent financial monitoring and reporting conditions, on 14 June 1999. The State Services Commission was highly supportive as it recognized the fundamental need to protect an essential asset. As for Treasury, Russ Ballard believed that “by that stage, they had started to move away from the least-cost approach. I think they’d seen the consequences, and saw that if it continued, every single government IT project would fail. And that was potentially very damaging to New Zealand, to public service administration and to the economy.”

Landonline was back on track, but it was under intense scrutiny. INCIS – New Zealand Police’s contentious project of the 1990s – had made government IT projects big news, especially if they appeared to be heading off the rails. The Labour Opposition (which would soon assume responsibility for Landonline) seized on the revised costs. “At \$141 million, with more to come, Landonline is bigger than INCIS,” announced Labour’s lands spokesperson Jim Sutton in October 1999.

“It has already blown its budget by \$39 million and we still don’t know the final cost... There is obviously something very wrong with the way government departments like the Police and LINZ buy computer systems.”⁸

Meanwhile, Landonline continued under the new, more rigorous arrangements. An Advisory Committee replaced the earlier steering committee: it contained representatives of Treasury, the State Services Commission, and the survey and legal

⁸ Press release, 27 October 1999

professions, as well as an independent IT expert. LINZ also reported monthly to a Ministerial Subcommittee, whose membership changed with the election of the Labour government in November 1999.

With Landonline now on a more realistic footing, the real work could begin.

The conversion project: uncharted territory

For EDS, which had successfully bid to convert the title records and surveys into digital form, and to host the Landonline system once it was built, this was a major project. The government sector was an important customer for EDS globally, and at the time, provided approximately 40 percent of EDS New Zealand's total business.

In the vital conversion project, EDS knew its main strengths lay in the titles side – its parent company had international experience which it could draw on in New Zealand. Converting survey data, however, was uncharted territory, recalled Robert Gray.

“We needed survey skills if we were going to put in a proper bid, so we partnered with Terralink [a state-owned enterprise specialising in land information systems, spatial data capture and mapping] because that's where their expertise was. Also, being an SOE, we felt it was probably quite a good fit when working with government.”

The conversion project commenced in April 2000. Robert Gray, who watched some of the first documents being converted, soon realised it was “a huge task. It was tedious, you had to be very exact, a great many processes had to be put in place to ensure that no documents were missed. Then they had to be QA'd once they were converted to make sure they were right.”

Converting survey plans was a big challenge. “This wasn't just a case of scanning paper documents,” explained Paul De Wijze, who would later become LINZ's national systems manager responsible for the technical aspects of Landonline.

“It was actually the electronic creation of the cadastre⁹ – they were trying to create a [definitive] base on which new surveys could be captured. So when you got two pieces of paper that recorded survey data for two adjacent parcels of land, every single point ... had to line up geospatially. And as you added more and more parcels of land, it became more and more complex, as there were more relationships abutting each other.”

The conversion project started late after software problems delayed the survey conversion pilot. By July 2000, the delays were compounding. By August, EDS had advised that the South Island titles – the first to be converted – would not be completed until February 2001, two and a half months after the contracted date. The conversion of survey plans in the first region, Dunedin, would not begin for three months after the agreed date, delaying the whole South Island conversion by an unknown time. By October, EDS said that delays in every region's conversion schedule were inevitable, and the company had to pay liquidated damages to LINZ to offset the costs and lost savings resulting from these delays. By the end of the

⁹ A cadastre is a register of a country's real property, with details of the area, the owners and the value.

conversion project, EDS would pay an estimated \$4.4 million in liquidated damages.¹⁰

EDS hired more contractors and devoted maximum resources to the conversion, including bringing in specialist consultants to review its processes. However, recalled Robert Gray, “it was a losing battle”. The document sampling the company had commissioned earlier proved of little value: the quality of old documents was far more variable than anticipated, the number of documents had been under-estimated, and the sheer complexity of the survey conversion was anticipated by no-one. Some delays were also caused by LINZ having insufficient qualified resources to undertake quality assurance. At times, conversion stopped completely due to software problems.

For Russ Ballard, this was further proof of the need to plan for the Roman galleon phenomenon. LINZ’s contract with EDS was tight:

“Not only did it require them to wear the cost of delays, but they also had to pay us liquidated damages. And our lawyers had secured a parental guarantee [from EDS’s US-based parent company] that they would deliver.”

By the end of 2000, EDS had turned a former car assembly plant near Wellington into a massive document conversion “factory”. More than 150 people worked there, digitising millions of documents from LINZ offices around the country. While the facility was impressive, LINZ believed that the level of throughput it was capable of achieving was not being reached.¹¹

Nonetheless, both parties said the relationship between LINZ and EDS remained positive. “EDS behaved very well,” said Russ Ballard. “They were always amenable to putting more people on the job... They always had the commitment: ‘look, we’ll get this done, but you might have to be a little tolerant over the times.’” Robert Gray also remembered a constructive approach to solving difficulties. “Whenever we had a problem, no one would point the finger,” he said. “It was a case of: how do we fix it.”

But one Monday morning in January, Robert Gray received a phone call telling him of an event that was potentially the project’s biggest problem yet.

The collapse of Terralink

On 15 January 2001, EDS’s sub-contractor Terralink Ltd was placed in receivership and most of the company’s staff were made redundant. They included around 80 working on the Landonline survey conversion project, the biggest job on Terralink’s books. Once again, the media and political spotlight fell on a major government IT project that appeared to have hit the rocks.

¹⁰ Office of the Minister for Land Information, Progress Report to the Cabinet Committee on Government Expenditure and Administration, 27 October 2000. In fact, the cost to EDS could have been much higher: in order to keep the project on track, LINZ chose not to enforce all the penalties it could have.

¹¹ Office of the Minister for Land Information, Progress Report to the Cabinet Committee on Government Expenditure and Administration, 27 October 2000, p5.

For EDS, heavily reliant on Terralink's expertise and resources, it was an unexpected bombshell. In making their bid, EDS had consulted closely with Terralink about the likely costs, timing and challenges of the survey conversion. "We had certainly gone back and queried them, but they were the experts," said Robert Gray. It was now clear that Terralink's assessment of its own ability to do the job had been inadequate.

Russ Ballard agreed. "Terralink had been unable to develop suitable software to do the conversion at a cost that was within what they had bid. So they floundered and floundered, and kept having to invest money to try and get the thing to work as efficiently as they wanted it to... I think they probably just over-estimated their technical capacity. And of course eventually they went under."

Contractually, the failure of Terralink was not LINZ's problem: Terralink's contract was with EDS. Strictly speaking, LINZ was entitled to sue EDS for breach of contract. However, this course of action would have been the death-knell of the project, or certainly the survey conversion side of it – and, as an integrated system, Landonline's future usefulness depended on having digitised survey information.

The collapse of a state-owned enterprise sent a shockwave through the government sector. "It was a really interesting situation," recalled Brendan Boyle, who at the time was Director of the State Services Commission's E-government Unit. "Here you had a state-owned enterprise that had been contracted back, via EDS, to a government department. And it was going under, and saying to the ministers of the new Labour Government: bail us out."

It was a major test of the state-owned enterprise model, and of the Government's commitment to it. Often perceived as benefiting from implicit Government backing, New Zealand's state-owned enterprises had never before confronted the stark reality of commercial failure. Now Terralink's demise demonstrated unequivocally that SOEs could fail: if they decided to take commercial risks, the Government would not step in to save them.

Some senior executives at EDS's Texas base advised their New Zealand subsidiary to take the Government to court over Terralink's collapse. But, said Robert Gray, "the focus of our business was Government. What would [going to court] mean for us in the long-term?" Instead he focused on keeping the survey conversion project going. Faced with few choices (there were no other vendors with suitable survey expertise) EDS instead undertook to contract back as many former Terralink staff as possible.

On 21 March, EDS formally undertook to complete the survey conversion project. For its part, LINZ agreed to adjust some project milestones to cover delays caused by Terralink's collapse, but it paid no additional costs – they would all be borne by EDS. To Robert Gray and Russ Ballard, overcoming the Terralink collapse was another example of the mutual sense of commitment shared by purchaser and provider - an attitude that they both knew was pivotal to Landonline's future success or failure.

Landonline takes shape

While EDS and LINZ were struggling through the conversion project, other components of Landonline were taking shape. LINZ's Dunedin regional office had

been chosen as the site for the pilot of Stage 1, and by October 2000, all new title and survey transactions lodged at the office were being completed electronically and uploaded to the Landonline database. Gradually, other regions followed suit, finishing in 2002 with Auckland – LINZ’s biggest and busiest office.

But some LINZ offices continued to struggle with operational issues well after Landonline had been implemented. Throughout early 2001, the South Island offices could not meet service delivery targets: reducing the backlog there delayed the rollout of the system to other areas. A problem with Informix software caused data to be lost, and threatened the integrity of the database. Fixing these performance issues took time, and compounded the delays already associated with the conversion project. They also attracted negative publicity in the survey and legal professions at a time when LINZ was trying to encourage practitioners to trust, and eventually use, Landonline.

But by March 2002, Stage 1 of Landonline (barring the conversion project) had been fully implemented across the country. LINZ’s manual processes for approving survey plans and issuing land titles were now being done electronically. Surveyors and conveyancers had remote access to the electronic survey and title records maintained in the Landonline database - notwithstanding the ongoing conversion of older documents from some parts of the country.

But even this slow process was drawing to an end. The conversion of titles was finished in August 2002. The last paper survey document was converted to electronic form towards the end of 2003 – approximately two years after the contracted date.

Meanwhile, work on Stage 2 – in which lawyers and surveyors would be able to conduct electronic transactions directly with LINZ – was also advancing, although not without delays. The \$8.8 million contract to design, build and implement Stage 2 was awarded to PriceWaterhouseCooper (PWC; soon to become IBM) in March 2001. In November 2002 (after a delay of several months which meant PWC had to pay LINZ liquidated damages), 13 survey firms and 17 conveyancers piloted the electronic transaction facilities known respectively as *e-survey* and *e-dealing*. Enhancements, especially to the *e-survey* facility, were needed before the two facilities were rolled out nationwide during 2003.

The implementation of Stage 2 required the amendment of two key pieces of legislation (the Land Transfer Act 1952 and the Survey Act 1986) to legally empower the switch from manual to electronic transactions. Legislative change was contentious, as automation was seen by some to weaken the security of the land title system. But after lengthy consultations between LINZ and the surveying, conveyancing and finance sectors, the new legislation was enacted in May 2002. One provision allowed for electronic lodgement of survey and title transactions to be made mandatory at some point, subject to consultation with stakeholders. This provision foreshadowed a future in which electronic channels would be the only means by which survey and legal practitioners could do business with LINZ.

By the end of 2002, the Landonline project office had been disbanded, signalling the switch to “business as usual”. It was a milestone greeted with satisfaction, and some

relief, by those involved. The project had cost in the order of \$140 million,¹² within the 15th percentile of the recalculated forecast put forward to Cabinet in 1999. For Robert Gray, it was testimony to the strong provider-purchaser relationship and the tenacity of Russ Ballard as project sponsor.

“In my view, once improved user uptake is achieved, it will be one of the most successful Government IT projects. In hindsight, the major challenge revolved around the quality of the paper-based records.”

The users’ experience

Throughout Landonline’s bumpy development, what was the experience of the system’s users? They were of two main kinds: LINZ staff, who used the system to approve survey plans and process land title registrations, and external users, who used it to search for records and to make *e-survey* or *e-dealing* transactions with LINZ.

Substantial internal changes at LINZ had been planned for since the start of Landonline. All staff knew that seven LINZ branch offices would close, and more than 200 staff positions would be lost. Remaining staff would need to develop new capabilities so they could use the unfamiliar technology to do their jobs. Landonline required them to deal with LINZ clients in an entirely different way, via a largely electronic interface.

Russ Ballard believed the internal change management was handled well. The initial business case recognised it as one of the key risks facing the project, and set aside funding for staff training, organisational design, the retention of key people, and more. An agreement was reached with the Public Service Association about staff redundancies and transfers, he said:

“We had no strikes during that time. We put an enormous amount of time and effort into communication, and the training of people. The staff had a long lead-time: [from the start] we told them about the whole project, the consequences of it and the approximate time frames...And for the ones who stayed during the transition, they learned a lot.”

Some staff were able to transfer to other parts of the business, while others used their knowledge of Landonline to move into jobs in the private sector – as title search agents, or in the offices of surveyors and lawyers.

But what of the thousands of Landonline users beyond LINZ itself? At the time, there were approximately 350 survey firms and 1195 firms involved in conveyancing (mostly law firms, but also some conveyancing specialists and search agents). The 1997 business case assumed that within a year of Stage 2 being implemented, these users would be making 80 percent of their survey and titles transactions electronically, and 95 percent in every subsequent year.¹³

¹² From Office of the Minister for Land Information, report to the Cabinet Business Committee 20 January 2006, p22.

¹³ Office of the Minister for Land Information, report on baseline funding to the Cabinet Committee on Government Expenditure and Administration, 25 November 2002, p 11

These uptake projections were based largely on LINZ's conviction that the cost benefits from faster turnaround would provide sufficient incentive for users to switch from their traditional paper-based practices.

LINZ also felt confident that they had consulted stakeholder groups, and continued to communicate with them closely. Senior members of both the Law Society and the Institute of Surveyors were on the steering committee that developed the Landonline business case, and actively supported the system's development. In 2000, surveyor Jeff Needham and lawyer Duncan Terris formally joined the Landonline project team as user representatives, at LINZ's cost. Their role was to act as advocates for customers and as a contact point between LINZ and their respective professions. Duncan Terris said at the time: "Having someone who is in practice as part of the Landonline team gives an external user foundation to the assumptions LINZ makes. In a way, it is a reality check."¹⁴

For LINZ, the reality check was sobering. Early in the development of Stage 1, Duncan Terris remembered attending meetings of "volatile and disgruntled" practitioners who opposed the imposition of a system many felt would primarily benefit Government, and which (they feared) would irrevocably transform the nature of conveyancing. They were also resistant to the closure of LINZ branch offices, their traditional point of contact.

Surveyor Jeff Needham encountered a mix of views from his profession. Many saw it as a technological advance that would enable them "to work smarter and faster. And because this could reduce customers' financial holding costs [when a survey was central to a property deal], surveyors who used it would become sought after." But the more cynical saw Landonline as a system primarily for the public good that was being built and maintained with private sector money (users paid a levy on transactions that covered the cost of developing the system).

Within both groups, there was a sense that while LINZ had prepared its own organisation well for the impacts of Landonline – and was now beginning to reap the benefits of automation internally – it had under-estimated the changes required for external customers, and their willingness to make them.

By the end of 2003, Landonline was being used for 1.4 percent of title transactions and 2.3 percent of survey transactions. It was a far cry from the 80 percent uptake level predicted initially.

Understanding customers

How did Brendan Boyle see the situation when he joined LINZ that same year?

"Up until then, the chief executive's job had been to set the vision, and get the project up and running. They'd sweated blood to get to this point. And now I saw it as my job to say, 'how do we get [users] to use it?'"

¹⁴ LINZ, 'Landsan', Issue 11, January 2000

In trying to understand the gulf between LINZ's expectations of uptake and the reality, Brendan Boyle sensed some important knowledge was missing.

“We simply didn't understand our customers that well ... We had some basic demographics, basic statistics. But we didn't really understand what made them tick. We needed qualitative and quantitative data to enable us to respond to the problem we were facing: why is uptake so low?”

One reason, he suspected, was that “we were dealing with an incredibly fragmented and dispersed group of customers.” They shared concerns about the need for – and cost of – staff training, new software and equipment, conversion costs and new work practices that Landonline required. But beyond that common ground, the survey and legal professions had widely differing needs and work practices. Even within each profession, there was great diversity: large firms and sole operators, generalists and specialists, big-city firms and rural offices, firms with hierarchical structures and those that were more egalitarian.

There was also a big difference in technological capacity and know-how. Some had sophisticated IT networks, while others (chiefly lawyers) still ran largely paper-based offices. Both Russ Ballard and Brendan Boyle described the surveyors as “generally more technically savvy”. Accustomed to using sophisticated new technologies, they expected high levels of performance. By contrast, lawyers were often wary of computers, or simply uninterested: many did not have PCs on their desks, content to leave electronic transactions to secretaries and legal executives. “I think, in hindsight, we underestimated the conservatism of the legal practitioners,” said Russ Ballard.

Paul De Wijze believed that one area where LINZ needed more understanding concerned the benefits that would motivate potential users. “In the conveyancing community, the cost of their services was simply passed on to the customer without a profit margin. The ‘faster/cheaper’ benefits [of Landonline] didn't resonate with them initially.” In fact, said Duncan Terris, once legal practitioners began making online searches and using *e-dealing* proficiently, “they realised the benefits were there.” For example, as new ownership is registered instantly upon settlement: “it meant there was one less letter you had to send to the client, one less time you had to retrieve the file.”

LINZ also needed to better understand lawyers' fears about the security of the system. “They were really concerned that [*e-dealing*] would lower the standards of security around land titles,” said Russ Ballard. Despite the requirement for each individual user to have a digital certificate to work on Landonline, the elaborate processes for verifying digital signatures (involving 37 separate steps), and the electronic audit trail automatically created within Landonline, some remained unconvinced. One of Duncan Terris' main tasks was to demonstrate to practitioners that *e-dealing* actually enhanced security, meaning that routine title transactions could still be confidently delegated to more junior staff (as many firms had always done).

While surveyors generally embraced the new technology more willingly, Jeff Needham said some disliked the “end product” produced by Landonline. The traditional paper plan – often rich in ancillary data and artistic merit – had been replaced with a standardised computer-generated plan showing only the underlying

digital data. Some surveyors were concerned that it did not meet the needs of all customers (such as property owners, and territorial authorities).

Brendan Boyle recognized that the involvement of stakeholders in Landonline's development had contributed significantly to the project, particularly in identifying user requirements for Stage 2. Jeff Needham and Duncan Terris had joined LINZ staff in roadshows and presentations. Staff from PWC/IBM worked alongside a group of lawyers to understand and map all the steps involved in various title transactions. The PWC/IBM team also held workshops with surveyors, where Jeff Needham recalled them "helping to design how the [*e-survey*] screens would look, and which buttons to press." This kind of engagement was not only useful to those building the system, it also helped create buy-in. "Users felt like LINZ was really listening to their needs."

However, by the time the switch to business-as-usual occurred in mid-2003, the formal involvement of user representatives Duncan Terris and Jeff Needham had already ended. But LINZ still needed to sell the benefits of Landonline in order to build uptake. The original business plan had allocated no funding specifically to what could be called "uptake" marketing – promotions, communications, relationship management. Nor was there originally a budget for customer training, although the Law Society had pushed for this from the outset. LINZ's initial approach had been to "train the trainers" – people nominated by their professional organisations to train their peers. "We did not go round individual offices and train them up at that time," said Russ Ballard. "Our view was that if users wanted that, they could pay for it through an additional levy. But many users thought the government should pay for it."

By the end of 2003, Brendan Boyle saw that new approaches were needed. The level of voluntary uptake had fallen far short of expectations. Was this the right time to make electronic transactions mandatory? Whatever barriers to user uptake existed, a mandate would surely overcome them. But first, said Brendan Boyle, "I wanted LINZ to do everything it reasonably could to get uptake to a suitable level."

Customer Manager Katrina Jacobsen, with her extensive experience of how people related to services delivered over the internet, knew instinctively that the first step was to get where LINZ had not been before: standing in the customers' shoes. Only from that perspective could an effective uptake strategy be developed.

Exhibit 1

from <http://www.landonline.govt.nz/content/general/pricing.asp>

Note: For illustration purposes. Minor amendments may now apply.

Pricing

Firms purchasing a licence to use a Landonline service pay an upfront fee. At the time of signing up, you can pay the licence fee by direct debit, credit card, or be invoiced for the required amount to LINZ with your other physical documentation.

Firms will pay an annual maintenance fee to keep using licences. Maintenance payments for licences are due annually on the anniversary of each licence. If you have purchased several licences at different times, you may choose to consolidate the annual maintenance payments, which will be charged at a pro rata rate on the anniversary of your first registration. (All stated fees are GST inclusive).

Landonline licence and annual maintenance fees for services are:

	Licence fee	Annual Maintenance Fee
<i>e-search</i>	\$500	\$80
<i>e-search plus</i>	\$1000	\$200
<i>e-dealing</i>	\$600	\$105
<i>e-dealing plus</i>	\$1000	\$200
<i>e-survey</i>	\$1200	\$350
<i>TA e-certification</i>	\$1000	\$200

Note: If a firm later decides to upgrade any licences, it will only be required to pay the difference between the fee for the new licence and the original licence: e.g. an upgrade from *e-search* to *e-dealing* will cost \$100 per upgrade rather than the \$600 cost of a completely new *e-dealing* licence.

Digital Certificates

Registration and certification of Digital Certificates costs \$87. Annual renewal costs \$46. If a Digital Certificate needs to be replaced the fee is \$85.

Landonline Lodgement and Search Fees

Fees apply to each title or survey lodgement made through Landonline. As part of the sign-up process, a firm will be provided with a Landonline credit account. All fees incurred during online searches and lodgements will be charged to this account which can be paid by direct debit, or cheque.

Information on the fees charged for electronic title and survey lodgements and online searches is included in the [Table of Fees](#). The table also includes the fees for the equivalent manual transactions.

These **fees apply from Monday 5 July 2005** and are grouped under the following headings:

Search Fees

	Description	Manual/paper	Electronic
		\$	\$
Title search (with diagram or plan image)	A search copy of a computer register showing current information plus title plan/diagram	4	2
Title search (with no diagram or plan)	Current title data, such as current owners and interests (does not include title plan/diagram)	4	2
Historical title search	Current title data, plus historic title data (e.g. owners and discharged interests since title was converted) and image of original scanned title where applicable	4	2
Guaranteed search note	Current title data, title plan/diagram, and pending transaction in accordance with section 172A of the Land Transfer Act 1952	7	3
A copy of a document (from scanned image, detailed structured text view or paper record)	Includes instruments, abstracts, instrument detailed structured text view, but excludes plans/diagrams	7	3
Instrument structured text view (index view only)	Structured text view excluding the detailed view	4	Nil
Survey plan or diagram	An image of survey plan or diagram (all sheets)	4	2
Online spatial views	Viewing survey data through a spatial window (does not apply at LINZ counters)	N/A	37 cents per five minutes or part thereof

Titles Lodgement Codes and Fees

		Manual/paper	Electronic
		\$	\$
Caveats			
WX	Withdrawal of	50	21
PWX	Partial withdrawal of	50	21
Charging Orders/ Court Orders			
DCHO	Cancellation of Charging Order	50	21
DCHO	Cancellation of CHO Rating Powers Act 1988	50	21

DCHO	Memorandum of Satisfaction	50	21
DCHO	Discharge of CHO Family Proceedings Act 1980	Nil	Nil
DCHO	Discharge of CHO Child Support Act 1991	Nil	Nil
PCHO	Partial discharge of charging order	50	21

Compensation Certificates

DCC	Discharge of	Nil	Nil
PDCC	Partial discharge of	Nil	Nil
Discharges/Partial Discharges of			
DM	Mortgage	50	21
DM	Mortgage Disabled Persons Community Welfare Act	Nil	Nil
DM	Rehabilitation mortgage	50	21
PDM	Partial - mortgage	50	21
DENC	Encumbrance	50	21
PENC	Partial - encumbrance	50	21
DFBC	Family benefit change	Nil	Nil
PFBC	Partial - Family benefit charge	Nil	Nil
DCC	Compensation certificate	Nil	Nil
PCC	Partial - Compensation Certificate	Nil	Nil
DCHO	Charging order (See Charging Order)	Varies	Varies
PCHO	Partial - Charging Order	Varies	Varies
DSLCL	Statutory Land Charge (See Statutory Land Charge)	Varies	Varies
PSLCL	Partial - Statutory land charge	Varies	Varies

Mortgages

(for Discharges see Discharges of)

M	Mortgage	50	21
M	Mortgage to Disabled Persons Community Welfare Act	Nil	Nil

Notices of Claim

WNC	Withdrawal of NC	50	21
PWNC	Partial withdrawal	50	21

Public Works Act 1981

DCC	Discharge of CC	Nil	Nil
DSLCL	Discharge of SLC - s73, 74 or 107 (4)	50	21

Rates

DCHO	Discharge/Cancellation of CHO	50	21
DSLCL	Discharge of SLC	Nil	Nil
PSLCL	Partial discharge of SLC	Nil	Nil

Statutory Land Charges		Registration of Discharges - Manual/paper	Electronic
DSLCL	Discharge of SLC	Varies	Varies
PSLC	Partial discharge of SLC	Varies	Varies
Transfers			
T	Transfers	50	21
Miscellaneous Titles Fees			
For each additional title affected by an instrument		2	Nil

Cadastral Survey Lodgement Fees

		Manual/paper	Electronic
		\$	\$
Surveys:	Base fee;	304	107
	Parcel	116	35
	New easement or covenant	20	12 (waived)
Cross lease:	Base fee;	89	41
	Plus Building or part of Building	19	11
	New Easements	20	12 (waived)
Unit titles:	Base fee;	105	45
	Plus Unit	26	19
	New Easements	20	12 (waived)
Compiled and computed surveys:		60% of the above fees	60% of the above fees
Plans of survey data including redefinition surveys:		No fee	No fee
Plans not covered above:		50% of above fees	50% of above fees
Survey resubmission fee	Charged in the event of a requisition:		
	- first item	80	36 (waived)
	- each additional item	20	11 (waived)
	For each parcel altered (except where directed by the Department) or for each new parcel or sheet added	Full fee in this column applicable under item 7	Full fee in this column applicable under item 7
For plan deposit:		55	55