Cadastral automation and related e-government initiatives in New Zealand

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FIG International Seminar

e-Land Administration

Innsbruck

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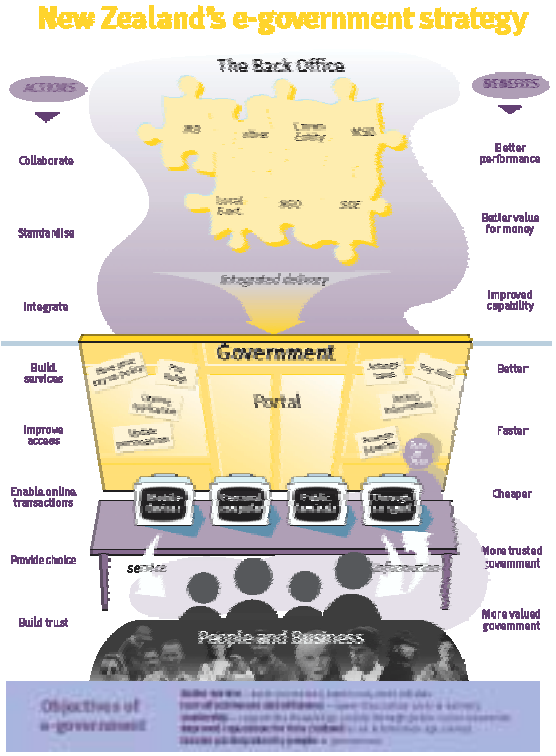
Presentation Outline

- e-Government in New Zealand
- Cadastral Automation - Land*online*
  - Automation Vision
  - Implementation
  - LandXML data exchange format
  - Survey-accurate Cadastre
- Cadastre 2014
- Related e-Government initiatives

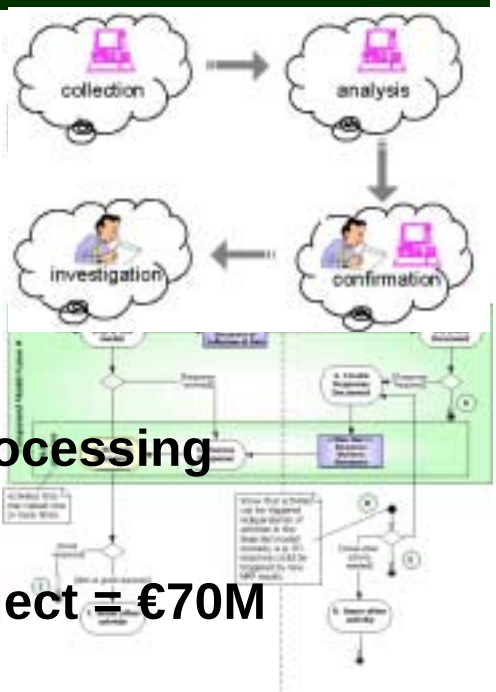
e-Government Strategy



- Internet will be dominant access for citizens to government
- Portal to back-office government functions
- Emphasis is on citizen to government links
- Land*online* is land professional to government links

The Land*online* Vision

- Intelligent Record
- Business Rules
- Automated Transaction Processing
- Land*online* - NZ$140M project = €70M



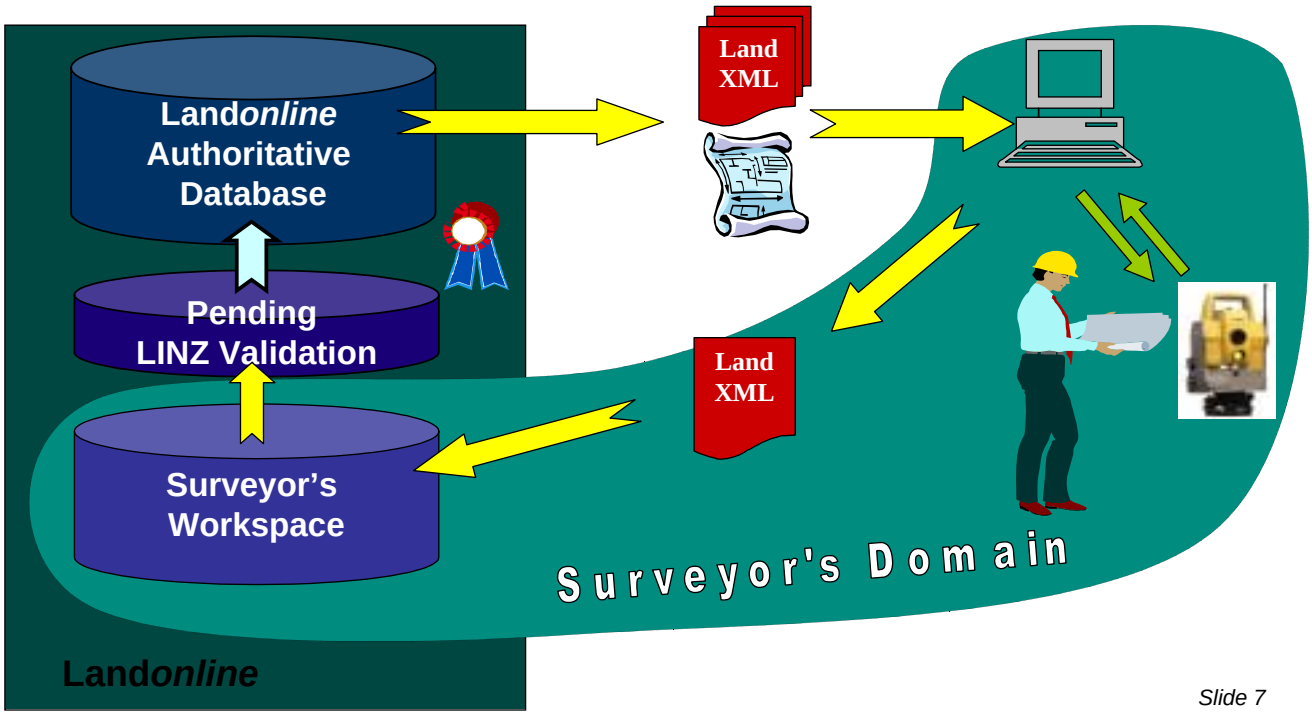
Land*online* Stage One

- Implemented in 2000
- Created a survey & title database
- Paper records imaged and data captured from images
- Automated cadastral & land registration processing within Land Information NZ
- Online survey & title searching

Land*online* Stage Two

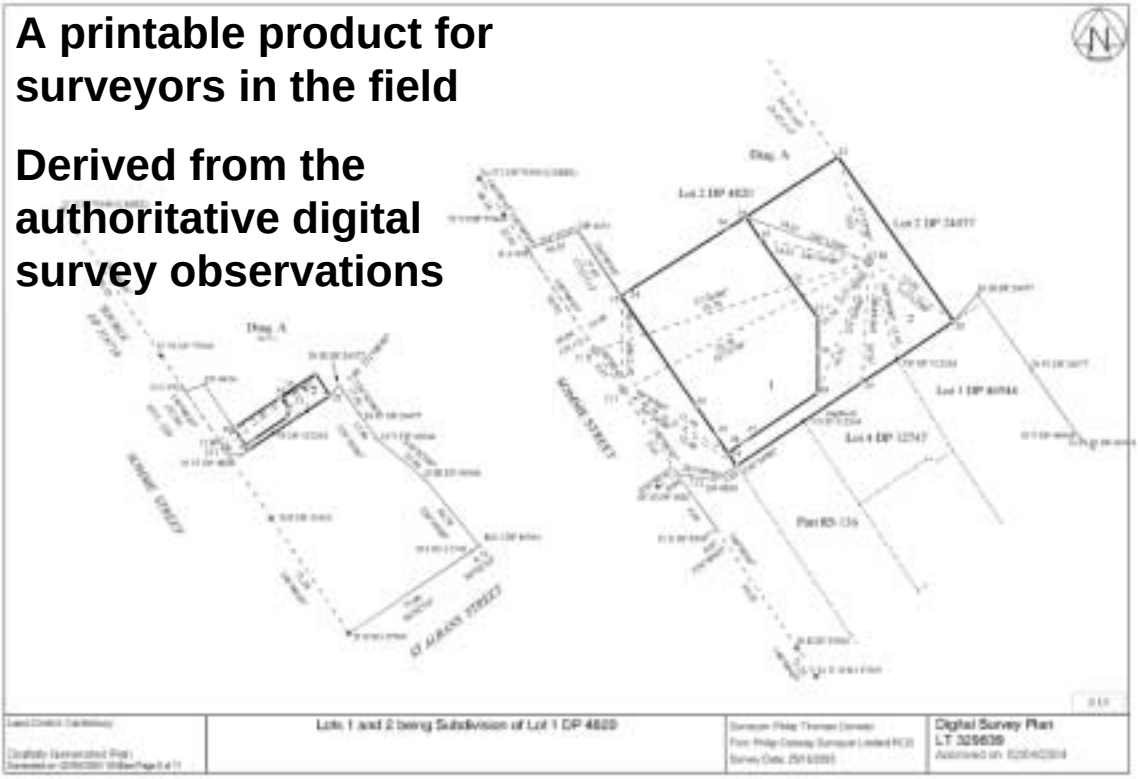
- Implemented in 2003
- Lodgement capability for digital surveys
  - LandXML interface with surveyor's software
  - Online validation of surveys
- Lodgement capability for land registration (title) transactions
  - Automatic registration for simple transactions

eSurvey Process using LandXML



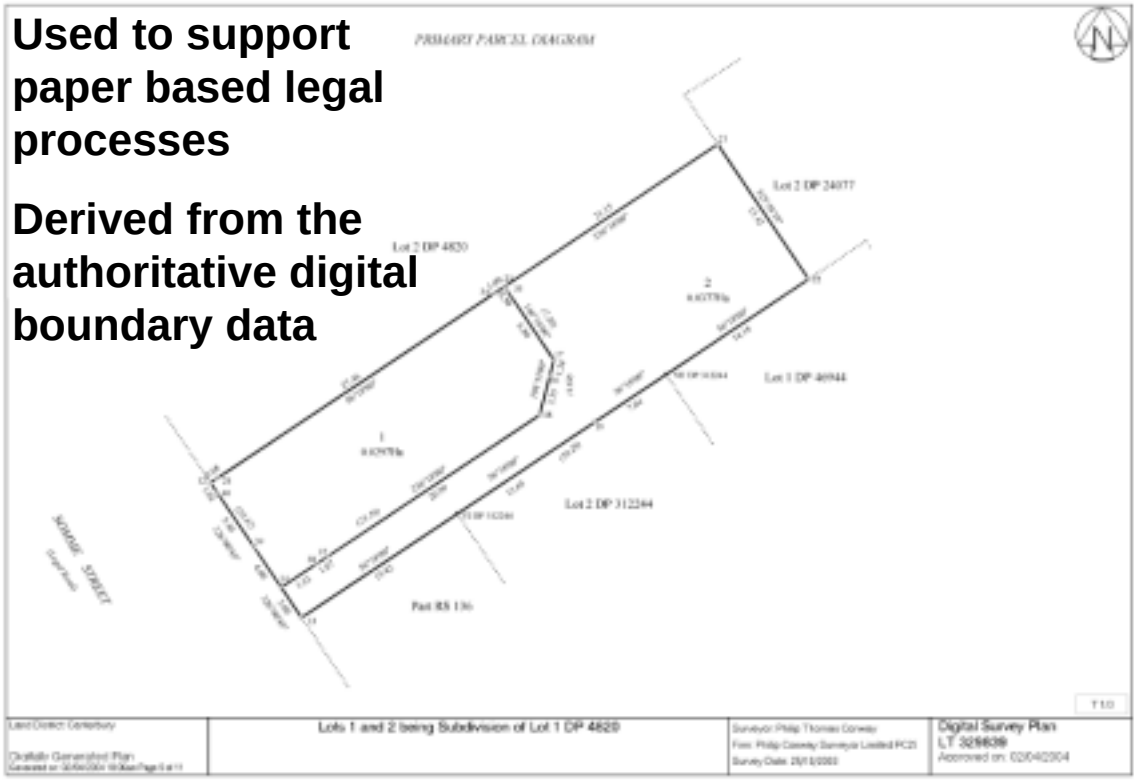
eSurvey Plan - a plan view of the structured survey data

- A printable product for surveyors in the field
- Derived from the authoritative digital survey observations

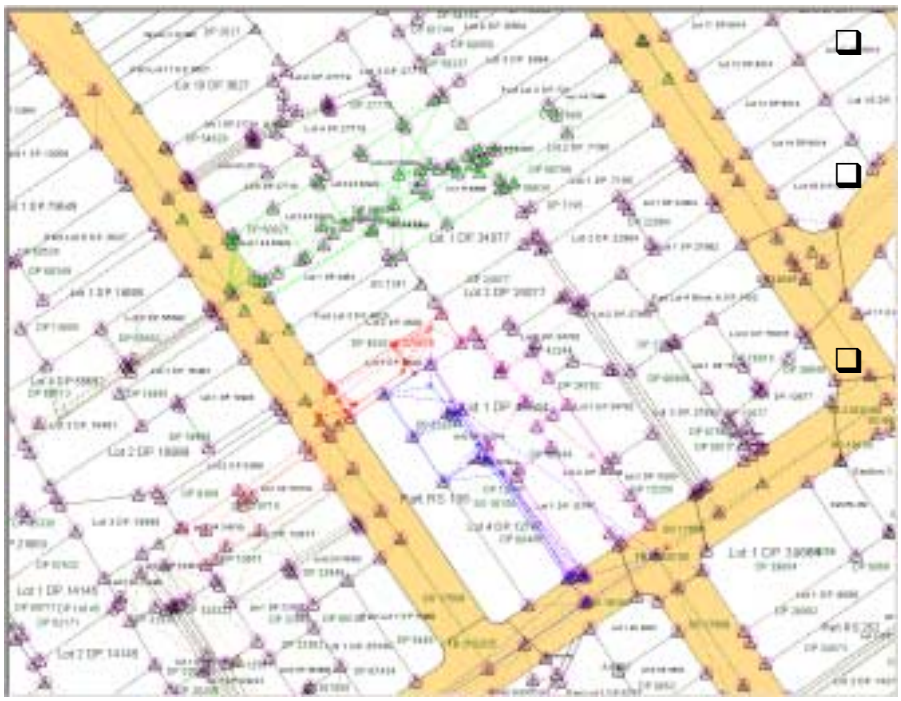


eSurvey Plan - a plan view of the structured parcel & title data

- Used to support paper based legal processes
- Derived from the authoritative digital boundary data



Network View (multiple surveys)



- Spatial view of data-rich database
- Survey marks and observations with full attribute data
- Maintains the history of surveys and survey data

Survey-accurate Digital Cadastre (SDC)

- Coordinates are "SDC" if:
  - Survey is connected to geodetic marks
  - Accuracy complies with cadastral standards
  - Coordinates checked by redundant observations
- Surveys generate new SDC points by least squares adjustment

Statement 1
Cadastre shows complete legal situation

- Land*online* records ownership and private interests
  - Doesn't show planning restrictions
  - Doesn't show large scale built environment
- Publicly maintained base layer, available to other agencies to overlay or interact with
  - Local Authorities use LINZ's cadastral database for recording other land use & resource data
  - Future opportunity for more interactive sharing or exchange of information

Statement 2
Separation Between Maps & Registers Abolished

- Landonline integrates survey & title processes and information
- Common spatial / survey standard provides links between all tenure systems
- Survey & Legal practitioners have direct access to cadastral maps and registers

Statement 3
Cadastral Modelling

- Form of the map no longer limits design or content
  - Database is structured to support many views
  - Spatial and textual data linked in integrated database
- Parcels able to be updated with new survey data, whilst retaining original dimensions
  - Contains survey observations and dimensions linked to a modern geodetic system

Statement 4
Paper & Pencil Cadastre Gone

- Traditional role of the survey plan and the record sheet changes:
  - from a medium of recording and transfer
  - to a view of the structured source data
- LandXML format to transfer data from surveyors system to/from Landonline
  - Transition - capture from paper plan to the database
  - Digital lodgement fully implemented in 2003

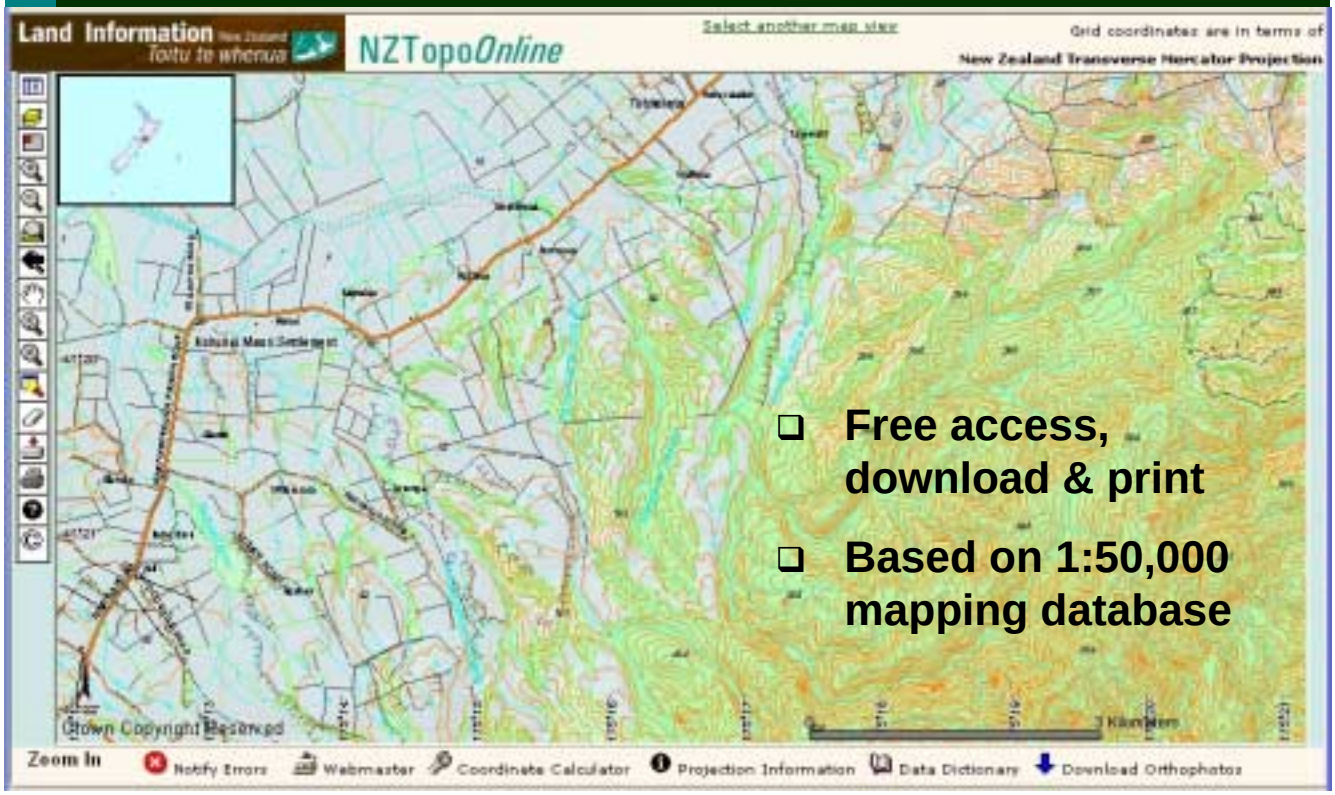
Statement 5
Privatised, Public & Private Sector Roles

- Landonline is a partnership with shared responsibility between Government and Private Sector
  - LINZ provides strategic and regulatory infrastructure, processes, and information systems
  - Private sector involved in all aspects of land subdivision
- Existing recognition of Surveyors role is privatisation of a statutory function
  - Surveyor is acting for the Crown as well as the Client
  - Practitioners ability to directly transact with the database – this in effect extends privatisation

Statement 6
Cost Recovery

- Cadastral system fully funded by transactions fees
  - Cadastral survey transactions fees also contribute to geodetic network control and maintenance
- Government policy that information already paid for should recover dissemination costs only
  - No data licensing issues
  - Bulk data (database tables) available at dissemination cost

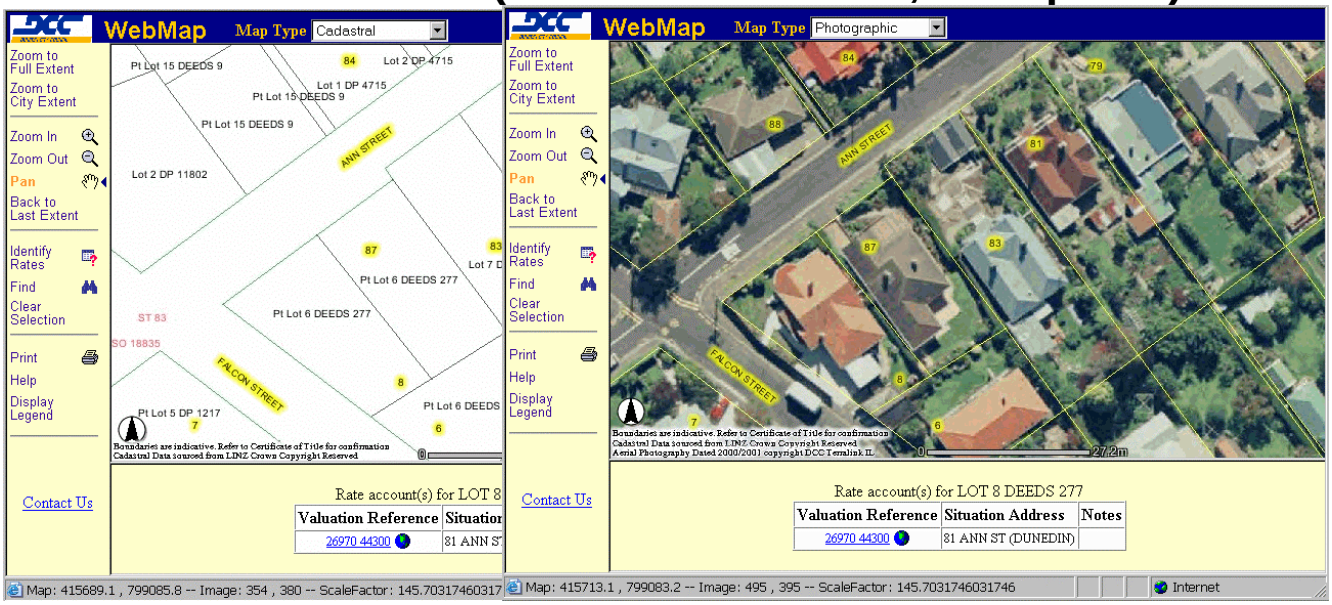
TopoOnline



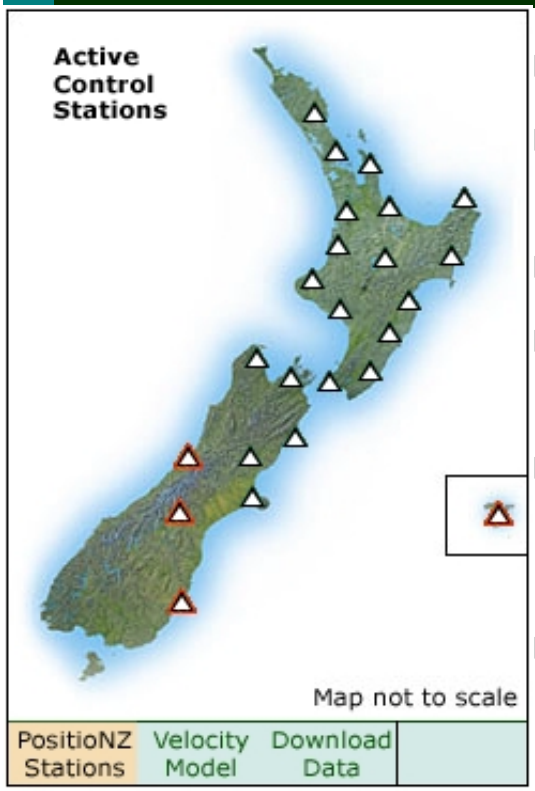
- Free access, download & print
- Based on 1:50,000 mapping database

Local Council Webmap

- Based on cadastral database
- Council data added
- Various themes (administrative data, orthophoto)



PositioNZ Network



- Network still being extended
- Permanent GPS Tracking stations
- Free data downloads
- Used to monitor earth deformation
- NZ Geodetic Datum 2000 has a built in velocity/deformation model
- Dynamic datum & cadastre

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