



New Zealand Customs Service

When the NZ Customs Service needed strategic and operational reporting capability to help them patrol New Zealand's borders they turned to Cognos.

- The New Zealand Customs Service monitors travel and trade over NZ's borders.
- Cognos tools mean that data analysts who used to spend 80 per cent of their time looking for data now spend most of their time analysing it.
- 600 end users now have access to strategic, tactical and operational reports.

A 747 flight is en route from Sydney to Auckland. As flight attendants offer passengers their in-flight snack, few on board would be giving any thought to the detailed analysis of alerts being done by the New Zealand (NZ) Customs Service regarding several of the people coming in. Having received a risk assessment list of the flight the officers are busy cross-referencing and interpreting the data, matching it against their own. Suspected terrorists, tax dodgers, people traffickers and drug importers are all within their sights.

A sophisticated set of Cognos software tools is making huge improvements to the accuracy and speed with which the customs officers can fulfill their mission of monitoring travellers and trade to ensure control over NZ's borders. Plans for their implementation, known as the Nexus project, pre-dated September 11. But, according to NZ Customs Service IS Manager, Peter Rosewarne: "The improvements are especially timely in this era of increased fears over global security".

"Furthermore," he says, "September 11 prompted additions to Nexus such that threats can now be dealt with at an information level as opposed to a raw data level."

Immediate Return on Investment

Before Nexus, the NZ Customs Service had scant capability for information data mining. There was little potential for business intelligence gathering and minimal function for knowledge management such as automated risk management. But a strong emphasis by the NZ Government on E-Government has encouraged its agencies to make such initiatives a reality.

Customs, which is now in the third and final stage of this upgrade to its information systems, is already enjoying a substantial return on investment (ROI). Through Cognos' NZ partner CDP, it has successfully introduced a high level of information enablement to the masses of data it collects.

"The big payoff is actually based in the utilisation of existing resources. Things that used to take hours now take seconds. Queries that used to have to run overnight can now be run in an hour," Rosewarne says. As well as savings on labour, the security advantage of faster results on, for example, passenger alert queries is obvious.

Maximisation of revenue collection is another major benefit provided by the new technology. Better data matching ability makes it far easier to track evasion of trade tariffs and import duties.

Data Mart Strategy

To achieve all of this, the approach was to build a data warehouse with eight subject specific data marts containing the vast amount of information captured by Customs such as passport numbers, consignment note numbers and names of people or organisations typical to particular Lines of Business (LOBs).

According to CDP's National Sales Manager, Craig Catley: "For the Nexus project we have used Cognos DecisionStream as the basis for building the data warehouse and the eight data marts that reflect the various facets of the customs business."

Data mart definition is an important step in terms of decision support for transforming data into LOB information using analytical tools such as data mining and business intelligence. The NZ Customs Service has defined data mart categories to cover information relating to tariffs, drugs, terrorism, craft, passenger and goods movements, intelligence analysis, audit and business reporting to name a few.

CDP's Catley explains further: "From the warehouse in which the data marts are contained, a series of Microsoft Analysis Services Online Analytical

Processing (OLAP) cubes have been created. Reporting tools including Cognos PowerPlay, Impromptu Web Reports, Query and ultimately Visualizer are being implemented in an entirely web-based environment. This allows 600 end users access to a variety of strategic, tactical and operational reports."

Numerous Benefits

CDP's Catley sees the benefits of the new system as being both business and technological.

"The new system means that servers are now doing all the work, releasing processor demand at the desktop. And the correct form of data can now be supplied automatically, saving time and effort for users. Also, the deployment of a phased approach means Customs is gaining real business benefits throughout the project rather than at the end of it." NZ Customs Service's Peter Rosewarne



continues: "We can boldly assume that, in the past, we were spending 80 per cent of our time looking for data and integrating it with 20 per cent of the time performing subsequent analysis. Using Cognos tools we have flipped that around, so that the majority of time is now spent analysing data for tangible business benefit."

Specific examples of such benefits include the development of a report listing the Port of Discharge counts





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for all used motor vehicles. “This normally takes two days for an applications developer to write. Now it can be done within 30 minutes and only takes approximately ten minutes to run,” Rosewarne says.

Data Mining Capabilities

There is also now the ability to derive reports that previously could not be attempted because of the limitations of the system. Goods entries, for example, can now be brought up with clients’ names and addresses.



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National Sales Manager

“This has resulted in a paradigm shift for people working at the frontline who now have access to easy-to-use analytical tools that don’t require them to be technological,” says Rosewarne.

Now these people can look at their reports and get reliable information about where it is appropriate to do an audit of an import or export company. They can identify where patterns of behaviour are not normal, or where there are inconsistencies.

Another example, says Rosewarne, “may be an importer who complains that he is paying more duty on a widget than another importer who brings in a similar widget. The new data mining capabilities will make it easy to see whether the

difference is due to one widget being made in Italy and another in Australia.”

A key outcome is that the NZ Customs Service’s efforts are better targeted so that audits and other more in-depth investigations are being done on the basis of reliable analysis.

Being empowered with web enabled tool sets so that officers can run their own reports and queries from standard web browsers also means they can start to define their own ways of benefiting from the new system.

“They are starting to see the possibilities and be blown away by them,” Rosewarne says. The Cognos solution also means that the NZ Customs Service can preserve the integrity of its data so that it is not held on individual desktop

possible. Going forward both the NZ Customs Service and CDP are exploring methods of leveraging this information even further in an effort to create the ability to potentially predict illegal activity and utilise alerting technology to inform the appropriate individuals.

Examples of future abilities may be automated alert creation based on a trend or pattern of behaviour or the interrogation of airline records for passenger information ahead of actual travel.

Ultimately it is hoped the systems will be set up to learn and perform predictive modelling and undertake unstructured mining. An example of this would be that the systems spot something unusual and escalate a hidden or odd activity or threat that previously was not engineered as a “hard” business rule.



computers or laptops. “In the past people may copy data and make wrong assumptions,” adds Rosewarne.

Future Directions

As the warehouse grows and more data marts are created, greater levels of analysis will become

Forewarned is forearmed. By the time any plane or boat lands the New Zealand Customs Service will have an earlier and clearer picture of who is setting foot on New Zealand soil.



visit our website at www.cdp.co.nz to locate the Cognos office nearest you

CDP Limited
P.O. Box 27-503, Wellington, New Zealand. Phone: (64) 4 499 4280
P.O. Box 6847, Auckland, New Zealand. Phone: (64) 9 574 1770

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