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Solving identity crises

Logical Properties has created software that enables companies to properly identify the goods they import so customs can enforce domestic regulations

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One can only imagine what Randy Rotchin says when people ask him what he does for a living.

He might start by saying that he's a partner with Stephen Yanow in the Montreal-based software development company Logical Properties.

But the real challenge would come when Rotchin is asked to explain the very esoteric work that Logical Properties does because it's about as complex as international trade itself is these days.

"We develop systems that automate the error-prone and labour-intensive processes of Harmonized System commodity classification and H.S. code verification," Rotchin said.

Say what? Translation: the two partners have created a software that enables companies to properly identify the goods they import so customs can enforce domestic regulations, assess duties, collect trade statistics and target high-risk shipments.

In 1988, the Brussels-based World Customs Organization created the Harmonized System (known in Rotchin's biz as the H.S.), an international convention that ascribes a numerical code to every item that can potentially be imported. Each country assigns a specific code to every product and component that crosses its borders.

"The H.S. codes are used to levy duties, to enforce laws and restraints, to assess risk and to do statistical analysis," Rotchin said.

So far, so good. The problem, he added, is that there's often misclassification of goods.

In 2003, for instance, Canada's auditor-general found widespread misclassifications - between 30 and 50 per cent of imported goods - in 90 per cent of the companies visited in three sectors: footwear, textiles and apparel and steel.

"There were $11 billion in trade-data discrepancies because of misclassification. That's $11 billion in either over-assessment or under-assessment of the value of trade," Rotchin said.

Misclassification can result in lost tariff revenues to government.

"Duty underpayment in the U.S. on average has grown to about $1 billion a year since the 9/11 terrorist attacks because the U.S. is looking more at security in its ports than on tariff compliance," he said.

And in Canada, where customs resources are equally stretched, "it's $100- million-a-year net average underpayment of duties because we don't have the resources to monitor it."

"Under the Harmonized System, every importable item has a numerical code, from cherry tomatoes to nuclear reactors and all the parts of nuclear reactors," Rotchin said.

"It's a nomenclature. Someone sent us a data set for a television and it had 17,000 parts and components. We put the list into our technology tool and tried to categorize all 17,000 parts."

Logical Properties' software, called 3CE, uses artificial intelligence to read and analyze available product information and to automate the process of classifying commodities.

Rotchin said about 70 per cent of all imports do not arrive with enough "narrative product information to enable validation of the code." And that makes it difficult to affix correct tariffs to those goods.

One of the reasons, he said, is that product descriptions on commodity manifests can be very different from the descriptions of the Harmonized System.

Consider, for instance, electric toothbrushes, he said. Under the Harmonized System, electric toothbrushes carry the numerical code 8509.80 and are described as follows: "Electro-mechanical domestic appliances, with self-contained motor, other than vacuum cleaners of heading 85.08."

And a blow-dryer is described as "an electrothermic hairdressing apparatus."

"The key is to bridge the gap between how products are described by industry and how they're described by the Harmonized System," Rotchin said.

That's what his company's software does.

"We've been in research and development for the past five years with 3CE and have spent $6 million building this product," Rotchin said.

He and Yanow are both entrepreneurs.

"Stephen was Canada's leading duty remission broker and I was in the private label women's apparel business," Rotchin said.

In 1998, Yanow created a quota exchange that would allow Canadian companies to trade tariff preference level quotas, required by NAFTA.

"There was a hunger among companies to know what they should be paying in terms of tariffs," Rotchin said. "We were introduced to the Harmonized System and learned how important it is to cross-border trade."

A year later, the two shifted their focus from the exchange to the development of the 3CE software. They began by assessing the scope of the problem and then consulted with the academic community about creating possible solutions.

"We scoured the world to find people who could advise us and we created a board of directors of customs officials and logistics people. They were the leading people in the customs world," Rotchin said.

He and Yanow also recruited employees internationally.

"We use domain experts in every domain - from biochemistry to textiles," he said.

The 3CE software generates H.S. codes for importers and audits commodity declarations. It acts like a search engine.

"We can look at huge volumes of customs declarations and assess whether they're correct," Rotchin said.

"And given the fact that in Canada there are 30 million customs entries made every year, that's far beyond the capacity of individuals to assess.

"Like photo radar, 3CE enables automated enforcement of customs compliance. We take electronic commodity manifests and feed them into a batch auditor and essentially measure two things: whether there's sufficient product detail and whether the declared code is correct."

The software is licensed to companies.

"The companies give us their data or get their customs brokers to do it."

The software has caught the attention of the World Customs Organization in Brussels, the body that created the Harmonized System.

"The World Customs Organization is a big fan of ours," Rotchin said. "We're participating in projects with them in the developing world. And here in Canada, the federal government uses our software along with companies that are importing and exporting goods."

He said Logical Properties worked on a pilot project for the Canadian government.

"We were given 1.4 million customs declarations, which represented 20,000 man-hours of work. We ran them all through our search engine within two days and found tens of thousands of errors because of commodity misclassification," he said.

When the World Customs Organization in 2006 held an H.S. classification competition, 3CE was the only machine in the competition.

"We were pitted against 195 human experts from government and industry, and although we didn't win the contest outright, we finished in fifth place with a score of 93 per cent," Rotchin said. "The average score from the government sector was 77 per cent, and the private sector scored 68 per cent."

Getting it right will become increasingly important as global trade continues to grow, he said.

"Some estimates say shipping will triple in the next 20 years," Rotchin said.

And government coffers aren't the only things that benefit.

"Importers are responsible from a compliance point of view for knowing who is shipping what," Rotchin said.

He said he knew his company's product had made an impact when he was at a World Bank conference two years ago.

"The deputy secretary of the World Customs Organizations pointed at me across a room and said: 'It's the H.S. man.' He didn't know my name, but he knew what I do."