BORDER MANAGEMENT -
A job for 4.7 million people?

Issues relating to borders, national security, immigration and free trade have made regular headlines this past year and are set to continue doing so. In this article, CARL BILLINGTON takes a closer look at how our modern concept of the border is evolving and the effect this is likely to have on our approach to security, trade and border management.

Rachel Butler

"The border is more than a line in the sand. For those who work in this area, borders mean the flow of people, goods and craft through our country," explains Rachel Butler, a Teaching Fellow at Massey University's Centre of Defence and Security Studies.

"It's about managing security while ensuring legitimate travellers and traders have a seamless border experience. In order to do that, our concept of borders had to change. Instead of stopping everything at the border, it meant pushing our border offshore and working with border agencies and industry partners and managing those risks upstream."

Dr Germana Nicklin, Deputy Director of the Centre, adds, "In the trade space particularly, biosecurity and customs processes have been hardwired into the global trading system under the World Trade Organisation rules."

"The trade space is about making trade easy and facilitating the smooth transfer of goods – that's where international interests are aligned. However that also creates risks, which is where sovereign interests tend to butt up against international interests, creating a tension between the two."

"In New Zealand, because we're a fairly isolated island, we're used to seeing the edges of our country. In Europe, even though the United Kingdom is also an island, they have lived in extremely close political and economic connection with their neighbours – and our other traditional trade partners, the US, have really different concerns again because of how they relate to their land borders. So we see the dialogue around Brexit and talk of walls in the

US."

"We don't think like that – New Zealand's psychology is very different and we run a much more open border. You could say, we don't need a wall because we already have a moat!" Nicklin says.

In terms of formalising New Zealand's modern concept of borders, Nicklin and Butler point towards Andrew Ladley's and Nicola White's landmark 2006 publication *Conceptualising the Border*.

Ladley and White trace the historic role of borders as a mechanism for territorial authorities to mark out the scope of their sovereignty and clarify the limits of their claim and authority over the territory they would govern and defend. Land treaties and the border agreements they contained were a critical component in ending hostilities and bringing an end to catastrophes such as Europe's Thirty Years War. In the modern era, our concept of border has evolved a much broader scope and scale of protection beyond the state itself and the physical safety of the population to also include the economy, the environment, New Zealand culture and society, and New Zealand's reputation and standing in the international community.

This broader concept of border opened the door to different paradigms that balance security requirements with opportunities for increasing the flow of and income from trade and tourism. The ability to take our borders offshore has been one of the crucial developments in making this approach possible.

Taking the border offshore

The numbers involved are staggering. In the 2015/16 financial year, New Zealand border agencies processed 11.8 million trade items,

12.8 million travellers, and collected $13.2 billion in Crown revenue [1].

They also intercepted $417 million in illicit drugs and 53,000 counterfeit goods that were otherwise destined for our streets.

Ministry for Primary Industries statistics show a 37 percent increase in the volume of sea containers, 47 percent increase in air passengers, and a 216 percent increase in mail parcels in the decade from 2003 to 2014 [2].

"Every day we get more people and more cargo arriving. With new airlines landing in New Zealand and new shipping routes opening up, we have to treat risk differently and it can't be at the expense of the free flow of people and trade," explains Deputy Comptroller Operations at the New Zealand Customs Service, Bill Perry.

"We are well past the days of being able to stop and search everything. That means we have to be more informed, which means connectivity – across agencies and industry in New Zealand, but equally offshore," Perry says.

New Zealand leads the world in bringing this increased connectivity to a growing range of collaborative partnerships across New Zealand agencies, their international peers, and commercial operators whose facilities have been approved as Customs-controlled areas.

"Commercial operators recognise that their

NANOTECH - A NEW OPPORTUNITY, A NEW THREAT

One of the problems with innovative technology is that it eventually becomes available to potential offenders as well as enforcement agencies. In the case of nanotechnology, this may yet be some time away but it's already on people's minds.

"Technology is changing the field and there are still many unknowns. With the arrival of 3D printing, there are potential impacts as well as opportunities – that may be a drop in the volume of items crossing the border because people can print them themselves, leaving travel as a luxury for the elite. These are some of the issues for Customs to explore. And then there's nanotechnology," Massey University's Germana Nicklin reflects.

Germana Nicklin

"How on earth do you police nanotechnology with its capacity to create real challenges in terms of people and things crossing the border?"

In simple terms, nanotechnology refers to the practice of interacting with, or manipulating, objects at a molecular level. It draws its name from the ability to develop objects with a (microscopic) dimension of less than 100 nanometers.

It has huge potential for improving technology in the areas of detection and security – the possibility of molecular imaging and sensors with unprecedented sensitivity that can scan microscopic vapours to identify viruses and harmful chemicals, as well as the possibility of decontamination equipment that detects and responds to toxins at a molecular level.

"How on earth do you police nanotechnology with its capacity to create real challenges in terms of people and things crossing the border?"

This sort of technology sits behind the terahertz cameras that the Ministry for Primary Industries is researching to help find organic matter in luggage. The technology uses an electromagnetic wave to determine the molecular makeup of materials by measuring the energy absorbed or emitted by the materials.

Nanotechnology offers an astonishing array of potential applications – both to authorities and those who seek to operate outside the law. Given it operates at a molecular level, tracking it will require increasing sophistication – the haystack is getting bigger while the needles are becoming microscopic, so to speak.

"Although there is an increasing focus on flows and networks, the prevailing paradigm in most people's mind still tends towards physical borders. This needs to shift if we are to respond to the implications of rapidly evolving technology and the increasingly borderless digital environment – trends that will continue to stretch and challenge our concept of sovereign borders and sovereign states," Nicklin says.

Bill Perry

profit depends on the speed of freight through their channels, so they have as much incentive to manage the risk in advance as we do," says Perry.

"The joint border management system that was implemented last year not only introduced the single trade window for importers, it also introduced the World Customs Organization's data model – a combined set of data collection and sharing protocols that supports cross-border collaboration."

"We are well past the days of being able to stop and search everything. That means we have to be more informed, which means connectivity – across agencies and industry in New Zealand, but equally offshore."

"It means that we can share information with traditional partners such as the UK, the US and Australia and also with more recent trading partners such as China, and be sure we're all comparing apples with apples. It's a big step forward that enables a lot of trust," Perry explains.

When questioned about the challenges of partnering with new and emerging trade partners who have significantly different cultural perspectives from our own, Perry sees the differences but also points to the obvious common ground.

"The legal and political structures may be different, but they see the same risks as we do in drugs, pests and disease and economic threats. They're also looking for the same things we are – opportunities for our exporters and ease of entry into our markets. That's where the incentive lies to make this work."

I spoke with Roger Smith (Deputy Director-General Operations) and Steve Gilbert (Director Border Clearance Services) about the approach the Ministry for Primary Industries is taking to managing border flows on and offshore.

"In cargo, we get 8.1 million entries a year – that can be anything from someone importing a tractor to a pair of shoes. We simply can't inspect every single one of those items at the border, so that's where our industry partners and transitional facilities come in – those that we have given authority to undertake biosecurity responsibilities on our behalf.

"We shift the initial part of the process off-shore by setting agreed import health criteria and standards with our trade partners and then we train our ports and approved industry operators in our risk management process and accredit them to open and inspect containers for us," Gilbert explains.

Steve Gilbert

"For example, the Port of Napier is as committed to biosecurity as any of our frontline staff. We also have a biosecurity partnership with the Port of Tauranga, the Regional Council and key local fruit and vine growers. Inspections that once might have been seen as an intrusion are now seen as a vital part of maintaining confidence in New Zealand industry, and the ports simply refuse to discharge container items unless we've had the opportunity to randomly inspect each load. It's a high-stakes game. Everyone involved takes it every bit as seriously as we do."

Preparing for when things go wrong

Roger Smith explains a bit more of the context behind MPI's approach: "We don't see it so much as a border; we see it as a biosecurity system. It begins in the offshore, off-the-border environment and we manage as much of the risk there as possible.

"Then we have the at-the-border environment, which is managed through Customs and MPI border staff at airports and seaports and with our accredited industry partners for goods and trade.

"And then you have the post-border environment – which includes our biosecurity "hotline", incursion investigators and response and readiness teams."

"The reality is that everyday things will get through. We have windborne diseases like myrtle rust and seaborne parasites like *Bonamia ostreae* that our oysters are vulnerable to at the moment, as well as a range of hitchhiker pests that can cross our borders in the clothes and luggage of passengers or cargo vessels."

"Planning for that is a big part of our business. If something gets through, people often tend to see it as a failure. For us, it's not a failure, it's a part of the system and we are prepared for that. If a Customs officer finds drugs at the airport, it's seen as a big success, but if our field staff identify a disease that's crept in and is feeding on our sea life or plant life, it's viewed by some as a failure. For us, it's how prepared we are to respond to and eradicate or contain these incursions that's the measure of success," Smith adds.

The conversation with Smith and Gilbert highlights one of the key challenges in biosecurity management – the challenge of planning for threats that are inherently unconscious and unintended. Smith explains:

"In Customs, the people they target are possible intentional offenders – for the most part, they have consciously decided to bring something that is prohibited into our shores. Because of that, you can design algorithms and risk profiles based on travel patterns, employment histories, legal records and other data. When it comes to biosecurity the problem is there is no profile – the person that's carrying the hitchhiker pest doesn't know they're the risk. It could be carried into the country on the shoes of a five-year-old girl, the suitcase of her 95-year-old relative, the passenger next to them, or anything in between."

"Yet the impact can be instant devastation to our economy. Fifteen fruit flies two years ago cost the country $15 million. We stopped a passenger who had a bag of apples in her travel bags just a few weeks ago; they were rife with fruit fly. If she'd gotten through and travelled down to Tauranga we could easily have seen devastating damage to our horticultural industries from something like that. The stakes are so high."

Gilbert adds, "Biosecurity is a system – there isn't a simple 'thin green line' we can police around the country. We're working to protect the whole ecosystem. Biofouling is one of the biggest threats to our aquatic environment and

we guard against it strictly – dirty ships create dirty harbours, and dirty harbours become dead harbours. We refuse entry to any ship or container that doesn't meet our standards.

> *"When it comes to biosecurity the problem is there is no profile – the person that's carrying the hitchhiker pest doesn't know they're the risk."*

"Just recently we sent one ship back out to be cleaned in deep water and refused to allow another to unload its cargo because the containers weren't clean. With each of these decisions costing the operators millions of dollars a time because they can't deliver or reload, the message soon gets through.

"Education is a key part of it. So are our trade agreements and offshore processes like our import health standards and phyto-sanitary certificates. However, mail is one area where we currently can't shift the process offshore – the only option at the moment is to use dogs or x-rays on each item."

"We're going to need some other ways forward as pressure grows in each of those pathways. Alongside closer partnerships and protocols with industry, technology is a key enabler we're continually exploring," Gilbert adds.

The **biosecurity** system

Biosecurity is implemented through a risk management system that involves many participants.

The system spans activities offshore, at the border and within New Zealand (see Appendix 1), which together contribute to the protection of four interlinked values:
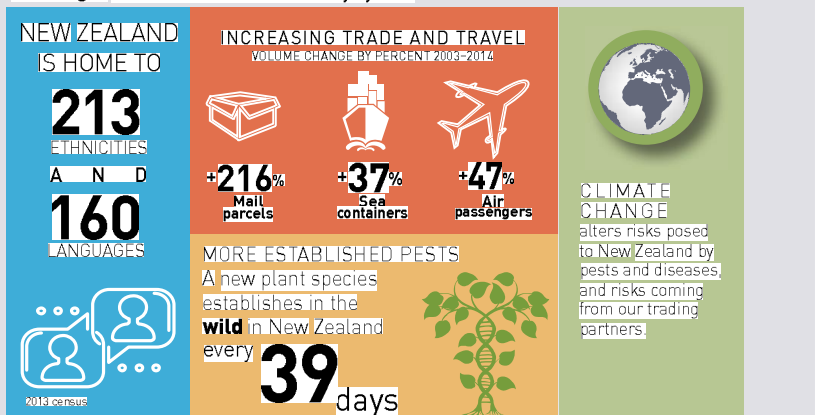
- **Environmental** – including indigenous biodiversity, ecosystems and landscapes, taonga species and valued exotic species

- **Economic** – including primary industries, trade and tourism

- **Cultural** – including Māori cultural and spiritual values

- **Social** – including New Zealanders' lifestyles, health and wellbeing, our national identity, and recreational and historical values.

> Biosecurity is the exclusion, eradication or management of pests and diseases that pose a risk to the economy, environment, cultural and social values, including human health.

Mission for the biosecurity system
The biosecurity system protects New Zealanders, our way of life, our natural and productive resources and our biodiversity from the harmful effects of pests and diseases.

Challenges to New Zealand's biosecurity system

NEW ZEALAND IS HOME TO

213 ETHNICITIES

A N D

160 LANGUAGES

2013 census

INCREASING TRADE AND TRAVEL
VOLUME CHANGE BY PERCENT 2003–2014

+216% Mail parcels

+37% Sea containers

+47% Air passengers

MORE ESTABLISHED PESTS
A new plant species establishes in the **wild** in New Zealand every **39** days

CLIMATE CHANGE alters risks posed to New Zealand by pests and diseases, and risks coming from our trading partners.

Borders and technology

There are three main areas where technology is having an impact on border management. The first is the impact of big data, which is enabling unprecedented levels of information sharing between border authorities, refining risk assessment and tracking processes.

The next is the range of improved tools that are becoming available as a result of developing technology – particularly in the area of disease testing and hazardous substance recognition. The final area is the impact of digital technologies and safety and security issues relating to the 'virtual border' of the internet.

MPI's Steve Gilbert picks up on the first theme: "An import entry is made for each cargo item and that gets logged in the Joint Border Management System, where the information is available to all of the connected agencies. The system tracks a range of algorithms for us that identify whether the cargo comes from a high-risk location, a known or unknown importer, and how long it's spent in each location – we can track not only the cargo itself but also the vessels it's conveyed on."

"Similarly with threats like the stink bug, we know they're marching through Europe at the moment. We can track each country where they are spreading and monitor travellers from those regions."

"We know if a disease has broken out and we know where. Our cargo teams and border teams are briefed on these updates every morning. It's about 'shrinking the haystack' so we are looking in a smaller, more targeted pool all the time and positioning our interventions where we know the needles are," Gilbert says.

Roger Smith picks up on the way innovative technologies are reshaping our approach: "We have 8,000 traps around Auckland as a precaution against fire ants and fruit flies. With the arrival of 3D printing, we can now print our own traps and tweak and tailor the design.

"If something does get through and we get a call regarding potential outbreaks of foot-and-mouth or myrtle rust, our field teams can be on a 'plane and onto the farm immediately with the tools they need to collect and test samples. We're developing new testing processes that can test in three hours what used to take three days," Smith says.

"We're also working on the equivalent of a pregnancy test for these sorts of diseases that will enable our teams to take a swab off a plant, add it to the test product, and confirm on the spot if there's a problem - if it turns blue we know it's myrtle rust.

"The quicker we can identify a problem, the quicker we can respond."

"We're working on a new range of technologies for our insect traps that use algorithms and sound to identify when specific bugs are caught.

"Every insect has a unique sound signature. This can be used to develop acoustic traps that distinguish between the signature of a moth and a fruit fly. These sorts of technologies weren't available just a few years ago."

One of the more controversial technologies that's of increasing interest to parts of the biosecurity community is gene editing – and its potential application for managing introduced predators and pests.

"Right now, New Zealand doesn't allow genetically modified organisms in our environment. The potential for gene-editing an introduced pest so it can't reproduce, rather than using poison drops and sprayed toxins, could offer a much less intrusive approach. The same technology could potentially be applied to disease molecules such as myrtle rust," suggests Smith.

Roger Smith

"There are some big issues to consider, but these sorts of possibilities need to be part of the conversation – we need to start looking at a bigger toolbox."

The impact of digital technologies is very much top of mind for Bill Perry and team at Customs: "They used to say that if something happened in America we'd get it five to ten years later, well now it's five to ten minutes later. Only a few years ago we were tracking evidence of potential offenders through border stamps in their passports and paper records in their wallets. Today, our histories and connections all sit on our smartphones."

"It creates some real challenges for us. We have legislation currently before the house that aims to provide the legal mechanism for obtaining passwords and access codes for digital devices where there is reasonable cause for suspicion. It's a controversial area and there are some important protections for individuals built into the legislation, but it's an area we need to start looking at," says Perry.

"With these technologies and the era of virtual borders, you can be sitting in your living room and effect something on the other side of the world. It's an enormous issue and, just like biosecurity, it's bigger than just one agency.

"We're working in close partnership with Department of Internal Affairs and the Government CIO, Ministry for Primary Industries, Police, Department of Conservation – and it's obviously an area Defence are very conscious of as well," Perry explains.

"It's too big for one agency to manage. It has to be a partnership. New Zealand leads the world in so many aspects of its border management and our success has always been driven through collaboration. This is what MPI are talking about with their target of a biosecurity team of 4.7 million New Zealanders – it's something we all need to tackle together."
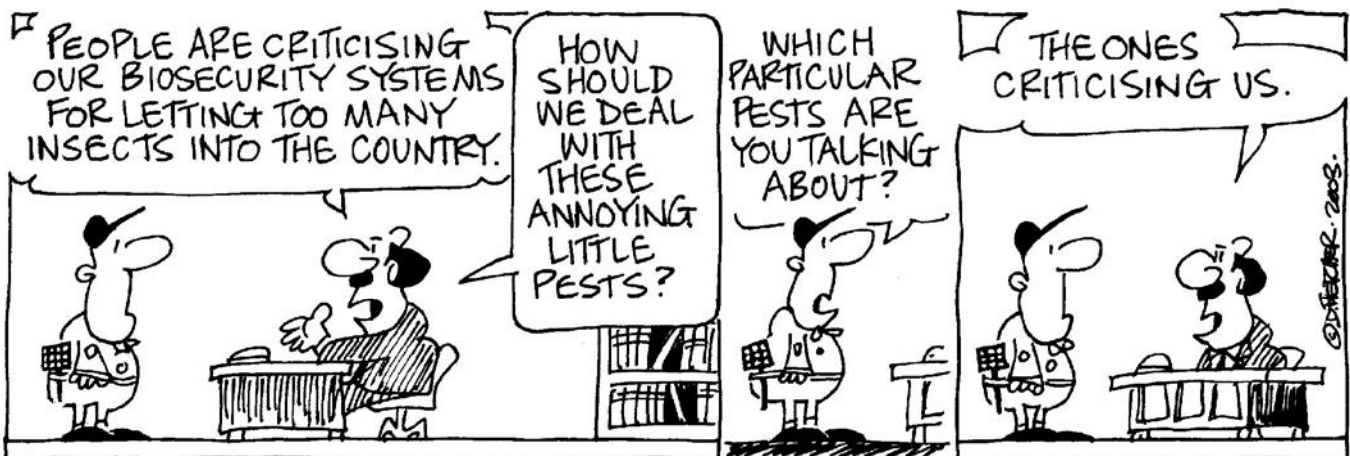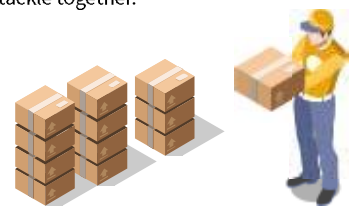
"People are criticising our biosecurity systems" 28 March 2003. Fletcher, David, 1952- :Digital cartoons. Ref: DCDL-0001145. Alexander Turnbull Library, Wellington, New Zealand.