

Improving the Screening Process to Facilitate Trade at U.S. - Mexico Ports of Entry

Elyse Golob

University of Arizona

Aaron C. Elkins

University of Arizona

Gertie Agraz

Tecnológico de Monterrey, Campus Sonora Norte

Abstract

This research evaluated the screening and inspection systems and processes used at the Mariposa Port of Entry in Nogales, Arizona and Sonora, Mexico. We suggest that relevant technological advances and novel bilateral policies, both on the regional and national levels, can improve the flow of goods and people. These measures, in turn, can contribute to the regional economic development of the border region. We utilized a systems analysis approach combined with ethnographic research to evaluate technologies and processes that are common and complementary between the countries, identify mismatches, and provide design and policy change recommendations.

Improving the Screening Process to Facilitate Trade at U.S. - Mexico Ports of Entry

The U.S. - Mexico Ports of Entry (POE) face the constant challenge of facilitating trade and travel while ensuring national security and safety. Spanning nearly 2,000 miles from San Diego-Tijuana in the west to Brownsville-Matamoros in the east, it is the most frequently crossed border in the world. Both sides of the border must be secure while enhancing processes, avoiding mistakes, mitigating risk, and implementing solutions that are beneficial for both countries. As the Department of Homeland Security Customs and Border Protection (DHS-CBP) Commissioner Alan Bersin recently stated, "Our function is to keep dangerous people and dangerous things away from our homeland. We need to do that in terms of time. The earlier we discover things that we want to identify as being risky, the better off we are, and the further away from our physical boundaries, the better off our people will be as well" (CBP, 2010b).

In the U.S., CBP's Office of Field Operations (OFO) is responsible for daily operations at the 25 Land POEs on the U.S. – Mexico border.¹ Duties include screening cargo and visitors entering the country, enforcing import and export laws and regulations, and carrying out immigration policy and programs. In addition, personnel perform agriculture inspections to prevent potential carriers of animal and plant pests or diseases from entering the country.

In Mexico, there are 19 POEs operated by federal Customs officers. From 1997 to 2006, Mexico's customs operations evolved from a protectionist framework in which every operation and collection was done with 100% manual inspection, to an automated system. Other upgrades include improved infrastructure and equipment, redesign of the Comprehensive Automated Customs System (Sistema Aduanero Automatizado Integral / SAAI-M3) and risk

¹ There are 79 land POEs on the U.S. – Canada border.

analysis automation. In 2007, Mexico launched its Customs Modernization Plan² (Aduana México, 2007) to ensure better information processing and utilization, customs process re-engineering, and regulatory reform.

Because the viability of these commercial corridors is of critical importance to the economic competitiveness of both nations, a smart border strategy must be able to secure flows of people, passengers, and cargo while protecting sovereign security. Current DHS programs initiatives for commercial freight include the Container Security Initiative/Secure Freight Initiative (CSI), the Customs-Trade Partnership against Terrorism (C-TPAT) and the Automated Commercial Environment (ACE) (CBP, 2010c). CSI involves close cooperation between CBP officials and host customs administrations to establish security criteria to identify high-risk containers, including the use of non-intrusive technologies to screen cargo before it is shipped to U.S. ports. C-TPAT provides importers who meet designated security standards with expedited processing benefits, thus allowing officers to focus resources on unknown or high-risk shipments. ACE is a modernized commercial trade processing system with features designed to consolidate and automate border processing.

The primary goal of this research was to evaluate the screening systems and processes used at POEs and suggest ways to improve the flow of goods and people, thereby improving regional economic development. For the purpose of this paper, we have focused foremost on commercial vehicles as the purveyors of international trade. We utilized a systems analysis approach combined with ethnographic research to evaluate technologies and processes that are common and complementary between the U.S. and Mexico, identify mismatches, and provide

² Plan de Modernización de Aduanas 2007 – 2012

design and policy change recommendations. To do so, we conducted a case study at the Mariposa POE in Nogales, Arizona and Nogales, Sonora.

While POEs have numerous functional commonalities, each has unique characteristics. These include traffic volume and wait times (bottlenecks at ingress and egress routes, processing time within POE), commodity flows (produce, electronic equipment, etc.), infrastructure and resource capacity (number of inbound and outbound lanes, inspection booths, assigned personnel), local terrain (rivers, mountains, deserts), as well as the regional economies (urban vs. rural, population). Due to the diversity of these facilities, we used a single-case study approach at the Mariposa POE to pursue an explanatory analysis, not merely an exploratory or descriptive one (Yin, 1989). This allowed us to investigate organizational and managerial processes and consider the causal links in real-life situations that are too complex for the survey method. In this case, our objective is to pose a set of explanations and recommendations for a particular locale, indicate how such explanations may apply to other sites, and provide insights that can stimulate further research and policy development.

Description and history of Mariposa Port of Entry

The Mariposa POE, located in Nogales, Arizona, is the third busiest land port in the U.S. It serves as the major gateway for fresh produce entering the country from Mexico and the primary produce distribution point on the southern border. Located on the western side of Nogales approximately 1.5 miles from the central business district, the Mariposa POE sits atop a small mesa on 43 acres owned by the U.S. General Services Administration (GSA). Directly to the southeast is the City of Nogales, Sonora, Mexico. Due to its large volume of fruits and vegetables shipments (70% of Mexican winter produce), the Mariposa POE has a highly seasonal type of traffic that peaks in the winter months. The cluster of maquiladora plants in Nogales,

Sonora contributes to the bi-directional flow of truck traffic through the Mariposa POE (electronics, equipment, apparel, etc.).

Although primarily a commercial port, the Mariposa POE also handles traffic from privately-owned vehicles (POVs) and pedestrian crossings.³ Within the facility, federal inspectors conduct pre-screening, primary, and secondary inspections for commercial and non-commercial vehicles, as well as bus and pedestrian inspections. In an annex belonging to the State of Arizona and operated jointly by state and federal authorities, vehicle safety inspections are conducted. Access from Nogales, Arizona is via State Route 189 (SR 189, also known as Mariposa Rd.), which has an interchange with I-19 approximately 3.1 miles north of the border crossing. Access from Nogales, Sonora, Mexico, is through a modern, eight-mile-long, six-lane highway, called the Fiscal Corridor (“*Corredor Fiscal*”) that connects to Mexican Highway 15 at its southern entrance.⁴

The U.S. Mariposa POE opened for commercial traffic in 1976 and expanded to handle POVs in 1983. Mirroring the growth of maquiladora assembly and manufacturing plants in Mexico and the impetus to cross-border trade provided by the North American Free Trade Agreement (NAFTA) in 1994, the Mariposa POE has grown from a modest beginning to an important entry point from Mexico into the U.S. Originally designed to handle 400 trucks daily with an expected utility life of 25 to 30 years, the facility now handles up to 1,500 trucks a day during peak season.⁵ In 2009, the Nogales Ports of Entry processed over 276,000 trucks, nearly

³ Two additional POEs are located in downtown Nogales. The DeConcini POE serves private vehicles, pedestrians and rail containers; and the Morley Gate is restricted to pedestrians.

⁴ For POVs, there is also access from the Nogales, Sonora city center through a connector and interchange with the Fiscal Corridor just south of the Mariposa POE.

⁵ U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Database (which also includes Border Crossing/Entry Data, based on data from U.S. Department of Homeland Security, Customs and Border Protection, OMR database).

3 million automobiles, and more than 4 million pedestrians⁶. Several binational groups convene regularly to deal with common concerns such as traffic flows, operational issues, and technology usage. In the past decade, regional population growth, increased law enforcement activity, and national security requirements have all further contributed to the demands on the Mariposa POE's capacities.

In Sonora, Puerto Fronterizo Nogales III (Nogales POE) is the commercial port located 8 miles from the border at the northern end of the Fiscal Corridor, and leading into the U.S. Mariposa POE⁷. The port is in charge of import and export operations related to year-round maquiladora parts and finished products, as well as fresh produce transported during the winter months (January to April). It employs nearly 150 people for administrative and operative duties, including auditors (verificadores), and fiscal and customs inspectors (Aduana México, 2007). As part of the Customs Modernization Plan, all employees receive continuous training to ensure labor force development allowing workers to progress in different levels of the organization. A special emphasis is made on promoting values and integrity (Aduana México, 2007).

Recent Developments

As cross-border traffic grew and the facility aged since its inception, port managers at the U.S. Mariposa POE faced increasing challenges in processing cargo and servicing travelers. In 2009, the GSA deemed the 35 year-old facility outdated and inefficient and incapable of effectively carrying out CBP's mission of cross-border safety and security. To improve

See also Doyle, Gary, "Environmental Fatal Flaw Screening and International Regulatory Issues," August 2001, p. 7. http://www.canamex.org/PDF/Environmental_and_International_Issues.pdf

⁶ Source: Research and Innovative Technology Administration (RITA), U.S. Department of Transportation, Latest Available Data : December 2009 as of 6/1/2010

⁷ There are three POEs in the city of Nogales, Sonora: Puerto Fronterizo Nogales III, leading to the U.S. Mariposa POE from the Fiscal Corridor; Puerta México, adjacent to De Concini POE; and El Sásabe.

conditions for port officers, distributors and travelers, the GSA launched a Recovery Act project for a \$213 million four-year plan to expand and modernize the port as a new, state-of-the-art, energy-efficient facility. Approximately 13 acres adjacent to the port were acquired to accommodate the expansion. The project was also expected to promote local economic growth and create new jobs in the area (GSA, 2011).

During the first phase, crews filled in three ravines adjacent to the port to expand the footprint to 57 acres, up from 42 acres (McCombs, 2010). The ongoing second phase consists of new inspection booths and lanes. When completed, the new port will have 21 lanes, primary and secondary inspection areas for semis and noncommercial traffic, a new administration building, a pedestrian-processing facility, and a new kennel for inspection dogs. The southbound inspection lanes will be larger and better equipped for officers to monitor outbound cars and trucks. Despite the three-fold increase in size, stakeholders believe that the facility will be obsolete from "day one" due to operational limitations and increased traffic volume⁸ (Coppola, 2010).

Improvements are underway by the Mexican authorities to match the expanded capacity of Mariposa POE. First, Mexico will add new vehicle lanes to match the increase of southbound entry lanes from 4 to 8 (Gobierno de México, 2009). In addition, it will expand the export platform from 9 to 13 inspection stations. According to Nogales POE authorities, further expansion of cargo lanes will be necessary to allow for better movement of trucks through the border.

⁸ In November 2010, GSA pulled \$29.4 million from the expansion project after cost estimates came in under budget, and reallocated the anticipated savings to another project.

Mexico's International Highway 15 is being extended by 3.5 miles on each side with new concrete materials. Two additional stretches from Benjamin Hill to Santa Ana are also under construction, and one from Navojoa to Obregón is under bid.⁹

The Nogales POE is also improving security measures at the facility to protect employees and customers. The Customs Office Confinement program will raise the two walls that protect the building. The first wall will be 3 meters high for exterior confinement, and the second 3.5 meters high for interior confinement. Both walls will have wire netting and surgical blades.

Methodology

The U.S. authors interviewed and received briefings from officers at the Tucson Sector OFO headquarters and the Nogales Station. These included administrators, mid-level managers, and operators. The goal was to better understand the kinds of technologies and processes used, cooperation with Mexican counterparts, and what changes they would like to see in the future. In addition, we spoke with officials at DHS CBP headquarters in Washington, DC to discuss long-range concerns and objectives.

As background to this and related studies, the U.S. authors conducted information gathering activities with OFO and Office of Border Patrol (OBP) to gain first-hand information from officers and agents working in the field. One activity included a group collaboration session using ThinkTank software (GroupSystems, 2010) that allows participants to anonymously voice their opinions on ongoing discussions, thus fostering greater overall participation. In this session, 12 agents from OFO, OBP, Immigration and Customs Enforcement (ICE) and the FBI participated. The goal was to bring agency representatives

⁹ The stretch on the north side of Hermosillo costs approximately 220 million pesos (\$US 1.75 million), and 350 million pesos (\$US 2.8 million dollars) on the south.

together to discuss issues they face in their daily work. We found that there are numerous common areas of concern for CBP personnel, as detailed below:

Inter-Agency Collaboration. Without exception, all participants called for better inter-agency coordination, especially for information sharing. While roles and responsibilities in the field are fairly well defined, participants believed that better coordination at the political and high-level leadership levels would improve information sharing and resource allocation/sharing.

IT System/database Integration. A major challenge is managing DHS' disparate databases. Every component develops and maintains its own set of databases for tracking relevant information, and restricts who else can access it. Furthermore, when one database is updated, related information in another database is not automatically updated. When dealing with a high volume of border crossers, extra work is required to determine information accuracy. Also, when databases are shared but not integrated, officers must use multiple login/password combinations.

Field Communications. One of the biggest security risks is field communications. Many agents cannot talk directly to local law enforcement, and must carry field radios, cell phones, and blackberries to enable mobile communication and coordination. Universally, all agents interviewed requested a single, reliable voice and data communications system for the field.

Methods/Processes. Officers stressed that Standard Operating Procedures need to be improved, particularly when multiple agencies are involved. This often is a highly political issue, especially when it involves the processing, detention, prosecution, and/or deportation of illegal immigrants. Each agency theoretically follows DHS protocol and/or state and federal

laws, but the interpretation of what is acceptable in the field can vary. Officers would like stronger leadership and inter-agency cohesion in this area.

Detection Technology. CBP personnel would like to see technology fielded that will aid in the detection of illegal immigrants, criminals and contraband. Most were very open to new ideas and methods for identifying people at or between POEs. Their only request is that new technologies are practical, useful, and impose no additional burden on the already over-tasked personnel.

The Mexican authors conducted interviews with Customs Operations officials at the Nogales POE and representatives from the Sonora Maquiladora Association in the city of Nogales, Sonora. Major concerns expressed by Mexican authorities include southbound weapons and ammunition shipments, drug traffic, and money crossing the border. They have frequent communication with the U.S. Port Director, as well as weekly meetings to analyze common problems and offer solutions. These issues are elevated to the federal level, when necessary.

The Nogales POE does not have communication to the several military checkpoints (PRECOS) located on Mexican highways, especially the one in Querobabi, Sonora, where inspection of passengers and cargo is conducted to detect drugs or weapons. According to commercial vehicle drivers, this military checkpoint is the primary cause of delays for trucks approaching the border (del Castillo, Peschard-Sverdrup, & Fuentes, 2007).

In addition, all authors analyzed previous studies, official documentation and online sources.

POE Screening Processes

U.S. Screening of Northbound Commercial Vehicles

Commercial vehicles entering country the U.S. must first pass through a pre-screening area located hundreds of feet from the border. It is mandatory that their cargo manifest (eManifest) be reported electronically 24 hours prior to arrival. This data is transferred into the ACE system to track cargo, cab and trailer, driver, product, importer, and exporter information (Golob, Chiu, Mirchandani, Agraz, & Jang, 2008). Trucks then pass through radiation detectors, drug-sniffing dogs, inspection platforms, and the Arizona Department of Transportation (ADOT) installed weigh-in-motion scales.

Upon entering primary inspection, the driver presents documentation to the officer, including driver identification and cargo manifest. The officer then visually assesses the vehicle and the driver, and may choose to ask further questions concerning the occupants' identification, origin, cargo, etc. If satisfied, the officer grants permission for the vehicle to enter the U.S., or else directs it to secondary inspection.

Some POEs, including Mariposa, offer low-risk commercial vehicles the option of a Free and Secure Trade (FAST) lane. This FAST lane requires prescreening (i.e., background check) of the driver and vehicle in exchange for shorter wait times and less inspection. Only drivers "carrying eligible goods for an approved carrier, importer, and shipper" can receive FAST clearance (Golob et. al. 2008). Vehicles with a FAST permit can still be questioned by an OFO officer, but typically do not need to wait in the longer and slower queues. To date, 1,143 Mexican companies are FAST-certified in Mexico, representing 60% of imports and 70% of exports (Aduana México, 2010a).

Even if a manufacturer is certified, the freight companies must comply with customs regulations (e.g., complete documentation, authorized trucks, authorized drivers, etc.), or else the shipment can be detained at the border for several hours or days. A list of authorized transportation companies is issued by the Mexican Customs Authorities and Secretaría de Hacienda. However, according to Maquiladora Association representatives in Nogales, problems persist with freight companies. For example, “cruzadores”¹⁰ (Golob et al., 2008) are often used by these firms to relieve unauthorized drivers of their trucks and allow passage through the border.

If secondary screening is required, the officers may open and inspect all of the cargo. This inspection includes checks for hazardous materials, weapons, narcotics, and agricultural pests. The vehicles may also be imaged with a back-scatter x-ray image. The x-ray is mobile and mounted on an OFO truck, and provides a clear picture of any hidden drugs or contraband in hidden compartments. If an infraction is identified, the truck and cargo are impounded. The driver is questioned for knowledge or involvement, but may not be detained for long because the tie between driver and contraband is often difficult to prove (i.e., the driver says he doesn’t know how the items got there). The contraband is removed and the truck’s owner is called to collect the vehicle and allowable cargo.

U.S. Screening of Southbound Vehicles

Most vehicles leaving the U.S. are now automatically screened. Drivers approach a computer, scan their identification, and answer questions regarding whether this is a temporary exit or a permanent one. Officers can ask additional questions if desired, and are primarily looking for those laundering money, escaping warrants of arrest, or transporting weapons.

¹⁰ Cruzadores are truckless drivers with border-crossing documentation that wait to swap places with inbound drivers at the Mariposa POE.

U.S. Screening Challenges

CBP's dual mission of restricting the illegal entry of people and goods, while promoting the free flow of trade makes the screening process a demanding one. On a typical day, OFO nation-wide processes over 1 million people, 58,000 containers and 271,000 autos. In addition, officers refuse 616 entrants, arrest 107 criminals, intercept 72 fraudulent documents, and seize 6,600 kilograms of drugs, \$300,000 in undeclared or illicit currency, and nearly 5,000 prohibited plant, and animal byproducts and agricultural pests (CBP, 2010a).

During primary inspection, officers have 7 to 9 seconds to make a decision as to whether secondary screening is warranted. During this time, they must check several databases and visually inspect the vehicle and its occupants. Unofficial estimates say that up to 70 percent of illicit cargo (humans, drugs, etc.) get through POEs undetected.

Kommentar [AE1]: Is this true? Do we have a citation for this?

Mexico Screening of Northbound Commercial Vehicles

Following the release of the Customs Modernization Plan, several technology changes were installed in Mexico's POEs, including Nogales, to conduct non-intrusive inspections.

These include:

1. Mobile X-ray systems
2. Gamma ray scanning equipment for commercial vehicles
3. Manual radiation detectors to detect non-declared radioactive material
4. Manual scanning equipment to detect chemical products or powders
5. Endoscopy devices to inspect difficult to access hidden spaces, like vehicle doors or gas tanks
6. Densimeters to detect density differences in places where illegal merchandise can be hidden, like vehicle doors and tires

All northbound commercial vehicles have their freight manifest (pedimento) checked with an optical scanner in a process called Modulation (Modulación). This scanner reads a bar code in the manifest and makes a risk analysis of this information, including goods transported, import tariffs, and price of goods. This process can take from 2 to 6 minutes per manifest. Since a vehicle can carry more than one manifest, the time required depends on the special characteristics of the freight.

If no discrepancy is detected, the vehicle is given a free customs dispatch. If there is some doubt, the vehicle is sent to secondary inspection (Reconocimiento Aduanero) where all merchandise is checked and compared with the information in the cargo manifest.

Before leaving the facility, every vehicle goes through a Gamma Ray non-intrusive inspection. This determines if the freight has been contaminated with drugs, arms, ammunitions or any other non-declared merchandise. The total inspection process can take from one to two hours for more than half the trucks entering the U.S. from the Nogales POE (del Castillo et al., 2007).

Mexico Screening of Southbound Vehicles

For commercial vehicles, the screening process is similar to the U.S. Vehicles can be detained at the border if incorrect documentation is presented or if the vehicles are driven by unauthorized drivers (Aduana México, 2010b).¹¹

¹¹ Passenger vehicles entering Mexico are scanned using the SIAVE System (Sistema de Supervisión y Control Vehicular /Vehicle Supervision and Control System). Every vehicle is subject to a complete risk analysis that includes weighing the car, license plate scanning, car imaging, and a general scan of the vehicle. The complete process takes 8 seconds with the car moving at 10 km per hour. If the vehicle does not pass the risk analysis, a red light turns on prompting a customs official to direct the driver to the secondary screening area.

U.S. - Mexico Screening Concerns

Both Mexico and the U.S. have many common concerns regarding cross-border movements (Valeriano & Powers, 2010). The most prevalent are drug, weapons and ammunition trafficking and related crime, money laundering, terrorism and immigration.

Drug Trafficking

Drugs enter Mexico via four routes: 1) by air, landing in Petén, Guatemala and entering Mexico through the Guatemala - Belize border; 2) by sea, through the Pacific from Colombia, to the coastal states of Oaxaca and Guerrero; 3) by air, from South America to Cancun; 4) by air and sea, to the Yucatan Peninsula from the coasts of Venezuela through the small Caribbean islands.

From there, drugs are distributed to 10 points along the Mexico-U.S. border. The two major routes are from Baja California (Tijuana, Mexicali) to California, and from Coahuila and Tamaulipas to Texas (Benítez Manaut, 2006). Due to greater enforcement efforts in Texas and California in recent years, the Tucson Sector in Arizona has seen the most drug apprehensions along the border, over 50% of the total. Despite the increase in drug-related violence in Mexico, Sonora is not considered among the Mexican states with the highest levels of drug-related violence (Gobernación, 2010).¹² However, according to the Port Director of Nogales, this national security situation has made the POE a busier facility.

¹² The report, *Información del Fenómeno Delictivo en México* (Information of the Criminal Phenomenon in Mexico) states that from December 1st 2006 to July 31st 2010, the Mexican State of Chihuahua has accounted for the highest share of drug related crimes in Mexico, including 30% of all homicides. The states of Chihuahua, Tamaulipas, Nuevo León, Sinaloa, Baja California, and Michoacan have the highest incidence of drug related violence in the country.

Illegal Immigration

Undocumented migration, combined with human trafficking and other criminal activities, is a significant cross-border concern. Migration issues in Mexico are dominated by the outflow of Mexican migrants and Central and South American transit migrants to the U. S. Mexican authorities estimate that approximately 315,000 people illegally cross to the U.S., and 2 million into Mexico annually (SOPEMI, 2010).¹³

These migration flows have dramatically fallen in recent years due to the global economic crisis and stricter U.S. border enforcement. This is demonstrated by the drop in unauthorized foreigners detained along the U.S.-Mexico border, from over 1.6 million in 2000 to less than half that in 2008 (SOPEMI, 2010). New estimates from the Pew Hispanic Center found that there were 11.2 million unauthorized immigrants living in the U.S. in March 2010, virtually unchanged from a year earlier. The number of unauthorized immigrants in the workforce, approximately 8 million, also did not differ from 2009. Both the population and workforce estimates are below their 2007 peaks, apparently driven by a decline in the number of Mexicans, the largest group of unauthorized immigrants (Passel & D'Veira, 2011).

¹³ Mexico is concerned about terrorist groups moving into the country and staying there. Since the 1980s, Mexico's southern border has been considered a matter of national security because of armed conflicts in Nicaragua, Guatemala, and El Salvador (Benitez Manaut, 1999). Since the early 2000s, illegal migration and human trafficking increased due to the major economic crises in Central America, increased crime rates, and the appearance of the "marras," an organized gang from Guatemala that is expanding in Mexico (Benítez Manaut, 2006). To better monitor migration flows and crime along its southern border, Mexico designed a comprehensive strategy including the development of border infrastructure, better coordination of federal and local investigations, and tax incentives for border communities to use legal trade channels. Also, readmission agreements have been signed with Guatemala, El Salvador, Honduras, and Nicaragua (SOPEMI, 2010).

Money Laundering

As noted by the Mexican Government in its National Strategy for the prevention of Money Laundering and Terrorism Financing (Secretaría de Gobernación, México, 2008), there is concern about money laundering (the crossing of large amounts of money from drug dealing). These funds are often moved across the border by foot or by car to be laundered in Mexico.¹⁴ In response, the government has issued a “Federal Law for prevention and identification of money operations with illegal precedence funds and terrorism financing.” A four point proposal underlies the law (“El gobierno federal delinea cuatro ejes contra el lavado de dinero,” 2010).

1. Implementation of a strategy to effectively detect money laundering operations.
2. Prohibition of real estate operations in cash or the acquisition with cash of any good costing more than \$100,000 pesos (U.S. \$8,000)
3. Improvement of the utilization of intelligence information relative to international transactions and customs operations. New methods to detect cash money entering the U.S. will be implemented as well as to spot import and export operations that may utilize resources of illegal precedence.
4. An effective social communication policy will be implemented to make all these measurements clear to the public.

Wait times

The major concerns about cargo shipments to the U.S. are usually related to wait times. This includes transport of perishables items, such as produce, as well as industrial shipments with very specific delivery dates (just-in-time manufacturing). During peak season, the queue to enter the Mariposa POE from the Fiscal Corridor can reach 8-10 hours.

¹⁴ The document (Secretaría de Gobernación, México, 2008) defines money laundering as the processing of earnings derived from criminal activity to cover their illegal precedence, allowing the criminals to use them without risking their source.

According to representatives from the Maquila Association in Nogales, there are 106 maquilas in the city whose freight crosses the border daily, both to and from the U.S. From their point of view, the infrastructure improvements at the Mariposa POE are not being matched on the Mexican side of the border. When asked about the main cause of delay for cargo trucks, their response was that Mexican and transportation companies are not complying with regulations at the border.

U.S.-Mexico Policy Recommendations

We have identified four areas of binational policy recommendations that may improve the screening process and expedite trade flows at U.S.-Mexico POEs. These include improved bilateral cooperation on the regional and federal levels, technology enhancements, improved binational screening processes, and congestion alleviation measures.

Bilateral Cooperation

On the regional level, informants in both countries report that an environment of higher cooperation has developed over the past few years. As the responsible U.S. and Mexican agencies have become closer in technical abilities and training, communications and collaboration have improved as well. Several institutional mechanisms exist for cooperation between local agencies involved in POE operations. These include the Binational Port Security Committee, comprised of Mexican Customs officials and OFO officers. They deal with the “nuts and bolts” issues of port operation, such as hours of operation, peak season adjustments, etc. Other groups include the Border Violence Forum, Tunnel Workshop Group and the Fiscal Corridor Working Group. In addition, Mexican stakeholders regularly attend meetings of the Greater Nogales and Santa Cruz Port Authority, an organization established to improve local port

Kommentar [EG2]: WHAT ELSE?

facilities, streamline the crossing process at the border, and enhance economic development in the region (Greater Nogales Port Authority, 2011).

In January 2011, CBP Commissioner Bersin convened a Border Mayors Summit with representatives from 13 U.S. and Mexican border cities to promote economic development in the region. Common problems expressed include the need for more staffing at POEs, scientific research regarding border violence, and the impact of public perceptions regarding violence on the regional economy (“Border mayors team up,” 2011).

While regional cooperation is on-going and productive, informants indicated that that greater binational collaboration is needed at the federal level. Many of these concerns involve transportation-related issues. One issue is international regulations regarding the amount of hours a commercial vehicle operator can drive before resting. U.S. DOT regulations state that a driver cannot drive more than 10-12 hours a day. At that time, a driver must rest for 24 hours before completing the trip. This requirement produces a disconnect with the CBP regulation requiring a driver to submit paperwork 24 hours in advance arriving at a U.S. POE. For example, the trip from Culiacan, a major agricultural region in Mexico, to the U.S. border takes 14 hours. When the Mexican driver stops after 10 hours, he must find a new driver to cross the border. At that moment, the paperwork clock also stops and the document submission cycle begins again. This creates additional labor, transport and document costs for the trucking companies. New binational federal policies reconciling U.S. DOT and CBP regulations could alleviate these problems.

Another issue involves long-haul truckers crossing the border. A provision in the 1994 [NAFTA Agreement](#) would have allowed long-haul truckers from Mexico to move through the U.S. without mileage restrictions, but it was never put into effect. As a result, commercial

vehicles entering the U.S. from Mexico (and vice versa) are limited to a 25-mile radius of POEs. From there, Mexican truckers must drop their goods, which are then picked up by American truckers for transport to their final destinations. Labor unions, especially the Teamsters, have long opposed allowing Mexican truckers access to the country's interior out of concerns that U.S. trucking jobs would be lost and that roads will be made unsafe because of differences in safety standards between the two countries. Earlier this year, the Obama administration issued a "concept document" addressing many of the concerns that have blocked full carrying out of the provision (Aguilar, 2011).¹⁵

Technology Enhancements

New technology is not a panacea for improving the inspection process at the border. Properly implemented, however, it has great potential to alleviate current screening process challenges and provide a multiplier effect when implemented in conjunction with new bilateral policies. At the same time, caution must be taken to match the needs and operating characteristics of a particular POE with the technology specifications.

Technology that is not carefully adapted may create extra work or provide unneeded functionalities. As such, it is at risk of being rejected by POE personnel (Davis, 1986). For instance, OFO officers reported being inundated with databases that require separate queries during screening interactions. A new system that does not integrate with existing databases would not be useful, and would result in outdated and inconsistent records.

Since 9/11, DHS has been actively increasing the country's technological capability to secure its borders. There is a growing cluster of commercial security technology companies, both large and small, to service this niche industry. CBP officials have stated that they are

¹⁵ In 2009, Congress and the administration ended a two-year-old long-haul pilot program. After the pilot program ended, Mexico said the U.S. was in violation of NAFTA and put tariffs on \$2.4 billion worth of American goods in retaliation.

inundated daily with vendors “selling solutions in search of a problem”. These products may be touted as “one size fits all technologies” with exciting feature lists (e.g., vocal stress detection, credibility assessment, automated video identification). However, these systems may not operate reliably in the harsh and extreme border environment.

To ensure that technology provides the needed functionality and integrates into existing operations, a detailed systems analysis should be performed (Valacich, George, & Hoffer, 2009). This analysis would provide three important outcomes. First, it will identify changes or new processes that must occur before the technology is implemented. Second, it will select processes that can be automated or supported by technology. Finally, it will recommend metrics to gauge the success of these technology and process changes. After this thorough analysis, specific needs and functionalities can be matched against commercial technology solutions, or new customized systems can be developed.

This approach is not without challenges. First, it is costly, time consuming and requires a specialized information systems workforce not always available in-house to U.S. and Mexican governments (Kaplan, 2010). This can lead to large outsourcing projects that are large, risky, and inflexible. Secondly, creating overly specific screening processes or systems at a POE that is not consistent or applicable across all locations can introduce weak links or vulnerabilities.

Based upon our observations, we recommend that U.S. and Mexican governments perform a systems analysis at POEs to improve existing processes and develop technology solutions. Additionally, new methodologies of systems analysis technology development should be established to balance system uniqueness against a common set of screening capabilities across all POEs.

In our related research, we have identified several nascent technologies that can be customized for binational border inspections. An Embodied Conversational Agent (ECA) based kiosk for automated interviewing and screening (Nunamaker Jr., Derrick, Elkins, Burgoon, & Patton, in press) could be implemented at the border. This kiosk-based system conducts rapid screenings at the border using artificial intelligence infused sensors to detect human behavior and physiology to make credibility decisions (i.e., send deceptive or hostile people to secondary inspection). Incorporating an ECA based- kiosk at POEs would improve security and detection of illegal activities (e.g., smuggling drugs, weapons) and allow officers, who are currently inundated with high volumes of primary screenings, to devote more time to secondary inspections.

Currently, vehicles and cargo cannot be tracked from their point of origin without interruption. Global Positioning System (GPS), the primary tracking technology, can be jammed and is unreliable in tunnels and canyons. However, there have been recent improvements in tracking and localization, (Bhattacharyya & Gebre-Egziabher, 2010) and tamper-proof cargo container technology. These technologies paired with a system such as ATaRS, a proprietary technology designed to screen commercial vehicles for hidden compartments containing contraband, would facilitate autonomous processing of vehicles, improve detection, and reduce the need for manual vehicle inspections.

Improved Screening Processes

Moving back the Border. POE authorities in both countries have expressed that many of the inspection processes can take place more effectively and efficiently before reaching the POE. For example, for many years, the Arizona Department of Agriculture conducted its grading inspections in Mexico. Due to concerns about violence in Sonora, it recently moved these

functions back to U.S. As a result, the time required to get produce over to the U.S. side and graded has increased by two or more hours. We recommend that both governments consider a wider vision at the border that looks at the supply chain back to its point of origin, and identifies optimal sites for pre-border inspections.

Binational Inspections. Since both nations are rapidly approaching parity in screening technologies and processes (non-intrusive x-ray, de-van/offload, etc.), informants have suggested that a common binational screening process be established. In this scenario, northbound traffic would have only one inspection conducted in Mexico that is confirmed by electronic seal, thereby eliminating the need for a second one in the U.S. Validation of each country's inspections could be scheduled on an on-going random basis, thus reducing redundancies in enforcement, expediting trade flows, and attaining greater levels of efficiency at POEs.

Binational Documents. Another recommendation set forth by informants is the establishment of a one-stop customs processing document operation for U.S. and Mexican shipments, a common practice in Central America. When Mexican packinghouses load a truck with produce, the growers submit information regarding the trailer's contents to the U.S. importer, and the U.S. and Mexican custom house brokers. The brokers then prepare the documentation necessary for the product to cross the border, which is usually submitted to CBP by the U.S. broker. This process could also be extended to in-bound documents, such as shipments arriving from Japan to Long Beach that are transported to Mexico. In this scenario, both goods and documents could be pre-cleared in Long Beach, thereby eliminating the need for a second set of documents for the same transaction in Mexico.

Congestion Alleviation

A major problem expressed by all stakeholders is the wait times for northbound vehicles entering the Mariposa POE. During peak season, the queues on the Fiscal Corridor can reach up to 8-10 hours. Better communication and information technologies connecting both POEs, paired training in merchandise auditing procedures and better law enforcement in the Fiscal Corridor should be evaluated to reduce these delays. For example, it is not uncommon to find vehicles parked (especially passenger vehicles) or people walking on the Fiscal Corridor, even though this is prohibited. Since the Nogales POE is 12 km (8 miles) from the border, this raises concerns about freight becoming contaminated with drugs or other merchandise while en route between the POEs.

Military checkpoints in Mexico are also deemed a major cause of delays for northbound traffic, over and above the wait times at the POE. Since similar technologies and procedures (gamma ray scanning, secondary inspection, laser ray equipment for baggage, etc.) are performed at military checkpoints and the Nogales POE, we recommend that the Mexican government certify inspection procedures used by military personal that could be accepted at the Nogales POE. This uniform process would reduce the total number of inspections for trucks coming from the Mexican agricultural states to the U.S. border. Another recommendation is the recognition of FAST-registered companies at Mexican military checkpoints.

Conclusions

The primary goal of this research was to evaluate the screening systems and processes used at POEs and suggest ways to improve the flow of goods and people. Because the viability of these commercial corridors is of critical importance to the economic competitiveness of both nations, as well as the regional economies, a smart border strategy must be able to secure flows

of people, passengers, and cargo while protecting sovereign security. Based upon our observations, we offer four areas of recommendations for U.S. and Mexican policy makers. First, bilateral cooperation on the regional and federal levels is needed to resolve discrepancies between various agency regulations. Second, a systems analysis should be conducted at POEs to improve existing processes and develop technology solutions. This evaluation should also balance system uniqueness against a common set of screening capabilities across all POEs. Third, authorities in both countries should expand their vision of the border, including common inspections processes and documents accepted by the U.S. and Mexico. Finally, the on-going efforts to alleviate the persistent congestion at the border must continue, including continued infrastructure upgrades on both sides of the border.

References

- Aduana México. (2007). Plan de Modernización de Aduanas 2007-2012. Talleres gráficos de México. Retrieved from http://www.aduanas.gob.mx/aduana_mexico/2008/descargas/noticias/f_AvPlanMod.pdf
- Aduana México. (2010a). Empresas certificadas. ¿Ya gozas de los beneficios? Retrieved from http://www.aduanas.sat.gob.mx/aduana_mexico/2008/tramites/140_10495.html
- Aduana México. (2010b). Embargo precautorio. Retrieved from http://www.aduanas.sat.gob.mx/aduana_mexico/2008/importando_exportando/142_18109.html
- Aguilar, J. (2011, January 22). U.S.-Mexico Trucker Dispute Takes a Step Forward. *The New York Times*. Retrieved from <http://www.nytimes.com/2011/01/23/us/23tttruckers.html>
- Benítez Manaut, R. (2006). Mexico's Security Dilemma. Between Nation, North America and Latin America: The Labyrinth of Solitude (pp. 1-12). Presented at the National Defense University Seminar. Partners of Choice? A Western Hemisphere Security Conundrum.
- Bhattacharyya, S., & Gebre-Egziabher, D. (2010). Development and Validation of Parametric Models for Vector Tracking Loops. *Navigation*, 57(4), 275-295.
- Border mayors team up. (2011, January 25). *Nogales International*. Retrieved from <http://www.nogalesinternational.com/articles/2011/01/25/news/doc4d3eea58837e9515045770.txt>
- del Castillo, G., Peschard-Sverdrup, A., & Fuentes, N. (2007). *Estudio de Puertos de Entrada México-Estados Unidos: Analisis de Capacidades y Recomendaciones para incrementar su eficiencia*. Tijuana, B.C.: El Colegio de la Frontera Norte.

- CBP. (2010a, February). On a Typical Day in Fiscal Year 2009. Retrieved from http://www.cbp.gov/xp/cgov/about/accomplish/fy09_typical_day.xml
- CBP. (2010b, June 6). Commissioner Shares Trade Vision at CBP Conference. CBP.gov Newsroom. Retrieved from http://www.cbp.gov/xp/cgov/newsroom/highlights/trade_conf.xml
- CBP. (2010c, July). Snapshot: A summary of CBP facts and figures. Retrieved from <http://www.cbp.gov/linkhandler/cgov/about/accomplish/snapshot.ctt/snapshot.pdf>
- Coppola, M. (2010, November 2). Gov't yanks \$29.4 million from Mariposa port project. *Nogales International*.
- Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: theory and results.
- El gobierno federal delinea cuatro ejes contra el lavado de dinero. (2010, August 26). *CNNMéxico*. México, D.F. Retrieved from <http://mexico.cnn.com/nacional/2010/08/26/el-gobierno-federal-delinea-cuatro-ejes-contra-el-lavado-de-dinero>
- Gobernación, G. (2010). *Información sobre el fenómeno delictivo en Mexico*. Mexican Government.
- Gobierno de México. (2009). Tercer Informe del Plan Nacional de Desarrollo 2007-2012.
- Golob, E., Chiu, Y., Mirchandani, P., Agraz, G., & Jang, Y. (2008). *Mariposa Port of Entry Bottleneck Study: Facilitating efficient, secure and economical cross-border transportation movements*. The University of Arizona.
- Greater Nogales Port Authority. (2011). Who we are. Retrieved from http://www.nogalesport.org/who_we_are.html

GroupSystems. (2010). *ThinkTank*. Retrieved from <http://www.groupsystems.com/>

GSA. (2011, January). Mariposa Land Port of Entry Project Overview. Retrieved from www.gsa.gov/mariposalpoe

Kaplan, F. (2010, July 22). The Geek Labyrinth. *Slate*. Retrieved from <http://www.slate.com/id/2261462/>

McCombs, B. (2010, December 27). Expansion projected to give economic boost. *Arizona Daily Star*.

Nunamaker Jr., J. F., Derrick, D. C., Elkins, A. C., Burgoon, J. K., & Patton, M. Embodied Conversational Agent Based Kiosk for Automated Interviewing. *Journal of Management Information Systems*.

Passel, J. S., & D'Veira, C. (2011). *Unauthorized Immigrant Population: National and State Trends, 2010*. Pew Hispanic Center.

Secretaría de Gobernación, México. (2008). *Estrategia Nacional para la Prevención y el Combate al Lavado de Dinero y el Financiamiento al Terrorismo*. México, D.F.: Gobierno de México.

SOPEMI. (2010). *Recent Changes in Migration Movements and Policies (Country Notes) - Mexico*. International Migration Outlook. Organization for Economic Cooperation and Development (OECD).

Valacich, J., George, J., & Hoffer, J. (2009). *Essentials of System Analysis and Design*.

Valeriano, B., & Powers, M. (2010). United States - Mexico: The Convergence of Public Policy Views in the Post - 9/11 World. *The Policy Studies Journal*, (4), 745-775.

Yin, R. K. (1989). *Case study research*. Newbury Park, CA: Sage Publications.