

*IBM Institute for Business Value*

## Expanded borders, integrated controls

*Achieving national prosperity  
and protection through  
integrated border management*

Government



## **IBM® Institute for Business Value**

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# Expanded borders, integrated controls

## *Achieving national prosperity and protection through integrated border management*

### Executive summary

Government leaders who are responsible for border integrity face rising complexity in accomplishing their missions. Around the world, the threat of terrorism and the promise of globalization are reshaping the fundamental nature of borders and how they are managed. In leading nations, control operations are now executed beyond the physical border and before arrival at a nation's official points of entry. The result: a much broader and more complicated scope of operation for border management.

To obtain a hands-on perspective on how governments are coping, the IBM Institute for Business Value interviewed 25 executives in customs, port operations and other border management agencies worldwide. The study concentrated on countries that are actively pursuing modernization and standardization, particularly the avant-garde that are implementing advanced border management practices. A number of themes emerged from these discussions:

- *Respondents agree on importance of integration, differ on implementation.* A few nations have fundamentally reorganized, consolidating border-related functions into a single organization. But most are implementing border security programs through existing agencies directed by national security documents and cross-agency coordinating committees.
- *Challenges more complex ... and more commonplace.* Border management challenges are undoubtedly complex, but they are also relatively common across nations. Legal and policy issues top the list. And though information and communications technology (ICT) is considered an important enabler, it was not a primary concern.

- *"It will never happen here" attitude dissipates.* Nations are increasingly aware that the threat of terrorism is pervasive. And how easily global terrorist and criminal networks can move people, finances and tools depends directly on the actions governments take to control borders.
- *Risk management aspirations exceed abilities.* Although every nation surveyed has some type of screening process in place, most continue to struggle with implementation of a fully integrated risk management approach based on timely, factual information.
- *National security and intelligence remain segregated from other agencies.* Even among those countries that have reorganized to facilitate increased collaboration, national security and intelligence agencies are rarely included fully.
- *Adoption of new methods gaining momentum.* More nations are making investments in border management such as traveler registration, identity credentials and screening. And the pioneers that began experimenting with new enabling processes and technologies are pushing past the pilot stage and putting these practices into operation.

The insights offered by these border management leaders, coupled with the results of our research and experience with clients worldwide, suggest significant implications for governments:

- *Integration is no longer optional.* Terrorist networks and criminal cartels now employ sophisticated strategies and techniques that require coordinated interagency and international responses. In addition, traders and travelers expect integrated electronic government services similar to those widely available in the private sector.

- *Control and efficiency are not mutually exclusive.* Though security and facilitation seem to be diametrically opposed, they are actually opposite sides of the same coin. As the experience of leading nations has demonstrated, their mutually reinforcing nature helps improve overall risk management.
- *Travel, cargo and frontier border management disciplines can learn from each other.* Leading practices and international standards vetted in one domain can be used as models for the others, accelerating progress and facilitating greater integration. For example, standards bodies in the travel and immigration arena could develop a set of guidelines that parallels the World Customs Organization (WCO) Framework of Standards to Secure and Facilitate Global Trade 2.0.
- *A structured approach to strategy development is necessary.* The inherent complexity of the trade, travel and frontier border environment – and the broad base of diverse yet interdependent responses to it – demand a structured method for rationalizing and synchronizing strategies at a national level.

Despite unprecedented levels of complexity, citizens and corporations are counting on governments to keep their nations safe while supporting international trade and travel. An integrated border management strategy can help governments accomplish that mission.

### **A matter of national urgency**

In nations around the world, a heightened sense of urgency – driven by terrorist threats, global economic competition and national fiscal responsibilities – is permeating every domain of border management. Customs and cargo, immigration and travel, frontier border management, and police and intelligence are all experiencing tremendous pressure to respond to a rapidly changing environment. Though the intensity may vary from nation to nation, most countries are facing three major demands:

### **Global economic competitiveness**

For most nations, political and economic stability depends on participation in a complex international trade network. Some countries depend on the export of manufactured goods, while others rely on tourism. Some countries require raw material imports or labor from neighboring nations. And many nations have diverse economies with a complex mixture of all these elements. Whatever form they take, achievement of national economic goals has been an enduring force guiding border management throughout history.

### **National security**

The reality of recent terror attacks has magnified this concern in the minds of citizens and governments alike. Terrorism is no longer confined to regional hotspots, but has erupted on five continents, threatening all major markets. Understandably, governments want to safeguard travelers and cargo from this increasing threat. Meanwhile, they must continue their focus on maintaining the safety and integrity of goods traveling along international supply chains, preventing illegal entry and reducing human trafficking.

*“If we don’t strengthen our border controls after fifty casualties in London, I don’t know when I should do it.”*

*– Nicolas Sarkozy, Interior Minister of France<sup>1</sup>*

### **Operational efficiency**

Despite the importance of achieving national economic and security goals, border management operations are often asked to process greater volumes of goods and travelers without commensurate increases in resources or budgets. Increasing operational productivity is critical. And the need for greater government efficiency will only escalate in the coming years as governments are forced to meet expensive social obligations associated with their aging populations, such as pension payments and healthcare costs.

With border pressures mounting, how are countries coping? How are they rationalizing so many complex, and sometimes conflicting, objectives? Where are border management agencies facing the most challenge and experiencing the most success?

## The state of border management

To obtain a realistic understanding of these challenges, the IBM Institute for Business Value interviewed 25 executives in customs, port operations and other border management agencies in different parts of the globe – modernization leaders that are investing in improvement initiatives and actively participating in the definition and implementation of international standards.<sup>2</sup> As we analyzed the responses from our interviews, a number of themes emerged:

**Respondents agree on importance of integration, differ on implementation.** A few nations have fundamentally reorganized, consolidating border-related functions into a single organization. But most are implementing border security programs through existing agencies directed by national security documents and cross-agency coordinating committees (see Figure 1).

**Challenges more complex ... and more commonplace.** Within border control functions, complexity is the watchword. Complicated supply chain logistics and heterogeneity of participants make international trade integration difficult. With the war on terror fought on a world stage, border agencies need unprecedented levels of collaboration across agencies, among nations and with the private sector. And any type of modernization effort requires intricate coordination among many diverse functions and initiatives.

**Figure 1. National priorities were evident in approach to integration.**



In the UK, officials have adopted a steering group approach whereby the Director Generals of the major agencies (Customs, Police and immigration) work together on a common strategy.



In Sweden, Police handle immigrants and passports. Customs and Police are collaborating together on an “as needed” basis. There is no border management strategy covering all areas.



In France, coordinated operational processes are in place among the four ministries involved: Equipment, Defense, Interior and Finance. There is no strong intention to consolidate fully.



In Japan, work is coordinated via the cabinet and the Ministry of Land, Infrastructure, and Transport, with emphasis on facilitating trade. Responses to security are reactive to comply with international or bilateral standards.



Although major initiatives around passenger/cargo travel and immigration are currently taking place in Australia, no formal integrated border strategy exists. Currently, a more “elastic” border management approach is being pursued.



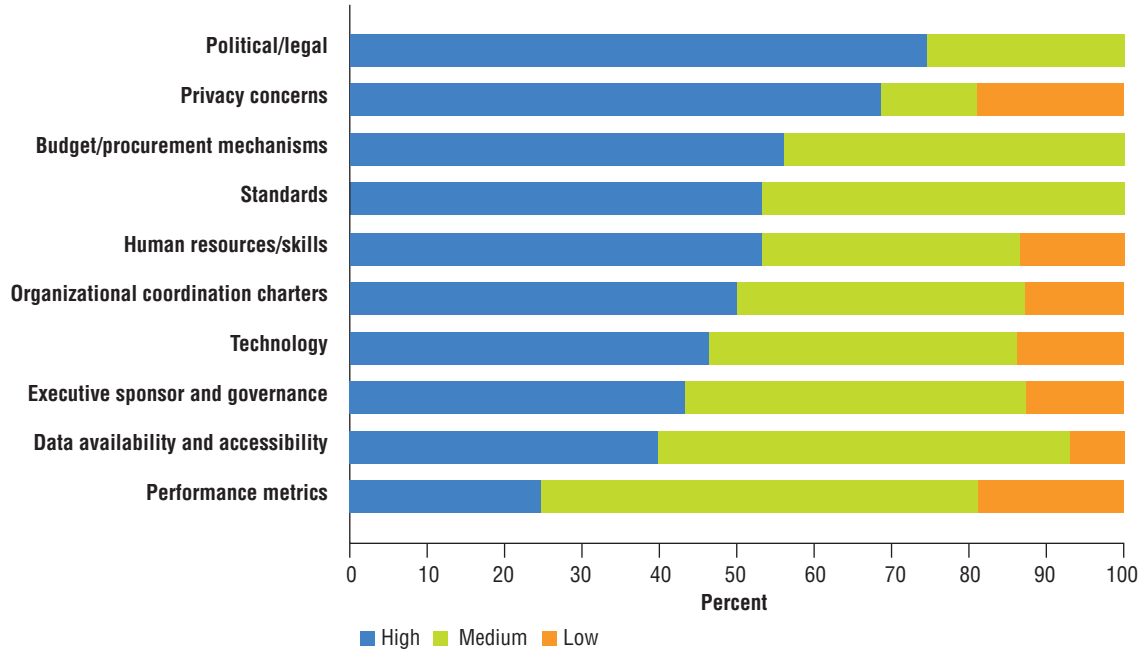
The U.S. has a clear strategy and a centralized approach via the Department of Homeland Security (DHS), with an emphasis on security. Customs and Border Protection are in one agency under DHS, unlike in most other countries.



Canada started integrating the Canada Border Services Agency (CBSA) under Public Safety and Emergency Preparedness Canada, focusing primarily on security and facilitation of trade.

Source: IBM Institute for Business Value Border Management study.

**Figure 2. Respondents ranked the significance of issues faced in implementing integrated border management projects.**



Source: IBM Institute for Business Value Border Management study.

The challenges are undoubtedly complex, but they are also relatively common across nations. The study revealed great similarity among those surveyed as to the top challenges inhibiting integration (see Figure 2). Legal and policy issues topped the list. Improving border management is an intensely political endeavor – one constrained by existing trade and privacy laws, national policy and public opinion.

Although ICT is considered an important enabler, it was not a primary concern of most executives. The clear priority was process and organizational change.

**“It will never happen here” attitude dissipates.** The wake of terror attacks in the UK, US, Bali and Spain has shaken governments worldwide. Although security may not be the top priority in every country, national leaders understand that the threat of terrorism is pervasive – and are aggressively addressing it. No nation is immune. Around the world, how easily global terrorist

and criminal networks can move people, finances and tools depends directly on the actions governments take to control borders.

**Risk management aspirations exceed abilities.** Risk management is the key integration point for border management – and, for many, the main impetus for improving integration. Although every nation surveyed has some type of screening process in place, most continue to struggle with implementation of a fully integrated risk management approach based on timely, factual information. Compounding the challenge, every country has a different view on who and what constitutes a security risk, which makes internationally integrated risk management even more difficult.

**National security and intelligence remain segregated from other agencies.** Even among those countries that have reorganized to facilitate increased collaboration, national security and intelligence agencies are

rarely included fully. Despite the criticality of intelligence information to risk management and effective border management, the ability to share intelligence information effectively has evolved slowly.

**Adoption of new methods gaining momentum.** More nations are making investments in border management such as traveler registration, identity credentials and screening. And the pioneers that began experimenting with new enabling processes and technologies are pushing past the pilot stage and putting these practices into operation.

### New directions at the border

Faced with compounding challenges, countries are reinventing border control practices at formal points of entry and between them. From our recent interviews, secondary research and consulting experience with clients worldwide, it is clear that border management is headed in a new direction – with significant organizational, process and ICT implications for trade, travel and the frontier.

### Trade

Governments usually have separate and unequal processes for managing exports and imports. The high priority given export facilitation often results in reduced controls at departure. With clear revenue and security incentives to control incoming cargo, imports are more rigorously managed. Risk assessment for import cargo release is commonly performed *after* goods arrive at their port of entry.

Encouraged by the WCO, leading nations are adopting a different perspective. Instead of viewing cargo movement as discrete departure and arrival transactions, they see it as an end-to-end, integrated process from point of manufacture to final delivery destination. Sometimes referred to as an “elastic border” model, customs in the arrival country expands its formal control horizon beyond physical borders – back to the shipment’s origin and forward to the ultimate delivery location. To facilitate this sort of international and public/private sector integration, the WCO has established standards for mutual recognition, certification and risk management.

### Where’s the line?

“Borders? I have never seen one, but have heard they exist ...”<sup>3</sup> Despite barbs from explorers about being invisible, borders are certainly not imaginary. They have played a critical (and sometimes controversial) role in defining nations’ political boundaries for centuries. But as international trade and travel practices have evolved, the age-old concept of the border has changed too.

For instance, where countries were bordered by the sea, national boundaries were stretched to include “territorial waters,” giving rise to the operational and jurisdictional concept of “maritime domain awareness.”

The advent of air travel introduced the need for further delineation of borders. Although national airspace has typically been an issue during war, heightened national security concerns have made it a peacetime concern as well. The US Department of Homeland Security (DHS) is considering a measure that would require aircraft flying over (not landing in) US territory to provide a passenger manifest.

Economic incentives have prompted further blurring of the border. In most countries, free trade zones and transit regimes have been established to stimulate economic development. Through bilateral and multilateral treaties, neighboring nations are adopting border controls around the perimeter of a contiguous group of countries – for instance, Schengen within the EU and Canada and the US – facilitating efficient trade and travel inside the perimeter, while strengthening controls at its edge.

Recently, the concept of the border has become even more fluid. The WCO Framework calls for export inspections in the port of departure, if requested by the nation of destination, shifting that nation’s “virtual border” overseas. The US DHS’s “global security envelope” concept calls for a chain of trust throughout a shipment’s lifecycle – from manufacture to distribution. This expands the domain of border control even more – moving the starting point back from departure to point of origin and pushing the final step beyond the arrival port to the ultimate delivery destination inland.

Building on this expanded operational view, more advanced nations are establishing trading partner certification programs that streamline processing for known and authorized entities and focus limited resources on the “unknowns.” Stakeholders are investing in increased physical security in supply chain facilities and using advanced information, certification programs and digital seals to safeguard a container’s contents and integrity throughout its journey, thereby strengthening control while accelerating throughput. Supported by a wealth of electronic information, automated processes help stakeholders reduce chances of error, theft and fraud. Nations that are adopting these new approaches are rapidly disproving the popular notion that national security and government efficiency are mutually exclusive goals.

*“A common misconception among traders is that the more information provided, the more exams of trader’s shipments will result...in [the Bureau of Customs and Border Protection’s] strategy, the opposite is true.”*

*– Michael Mullen, Director of Trade Relations, U.S. Customs and Border Protection<sup>4</sup>*

#### **Seaports become e-ports**

The Chinese government has established an electronic platform to enable “one-stop service” and direct retrieval of information for import and export transactions. Through an Internet portal, private enterprises interact with more than a dozen government agencies. These agencies, in turn, access the information they need without requiring enterprises to enter data multiple times or places.<sup>5</sup> Other nations around the world have similar “single window” systems in place.

These trade initiatives are highly dependent on common, international standards. To make these models work, diverse parties across the international trade supply chain must be capable of exchanging and accessing appropriately authorized information. Single parties, single nations, single systems can no longer provide effective security or efficiency independently.

#### **Travel**

As with cargo, current government departure controls for passenger clearance are usually limited – if not absent. Typically, airline personnel – not government officials – check passports at departure gates; this manual verification provides only limited protection against passengers boarding with counterfeit credentials. Despite transmission of arrival information during transit, the paper-based process leaves insufficient time for prearrival review and validation. Upon arrival, any passengers who are denied entry are typically returned to their origination point at the airline’s expense – a dire consequence for financially strapped air carriers.

#### **Electronic authentication of traveler**

As an extension of the Schengen acquis, the European Union (EU) General Affairs Council has mandated that all newly issued EU passports contain digital facial images by mid-2006 and fingerprints by 2007. The biometric data and identification information will be stored in a chip embedded in the passport as well as in national databases and the Schengen Information System.<sup>6</sup>

Despite a massive volume of travelers, Hong Kong is maintaining effective border control with lower staffing levels through the use of reengineered processes and advanced biometric, credentialing and information and communications technology. Its Smart Identification Card, coupled with Advanced Passenger Clearance and Advanced Vehicle Clearance systems, uses facial recognition to validate identity and accelerate immigration clearance.<sup>7</sup>

Leading nations are beginning to take a more strategic stance on international travel – viewing each trip as a closed-loop process that begins with reservation booking and extends through the visitor’s stay until departure from the destination country. Electronically enabled credentials created through advanced traveler registration programs help authenticate and screen travelers, allowing authorities to identify and intercept high-risk passengers prior to departure. Leading nations, such as Australia and the UK, work closely with air carriers to preauthorize travelers, establishing the airline’s “right to carry” passengers prior to boarding.

**Flagging overstays**

The UK Home Office has launched an e-Borders program which is intended to deliver a secure, integrated border for the 21st century. Project Semaphore, developed by IBM, is an element of this program. The system screens advanced information on travelers destined for the UK against criminal and terrorist databases and logs those allowed to enter the country. It will also record departures from the UK, enabling the government to identify individuals who remain in the country longer than authorized.<sup>8</sup>

*“...it is vitally important that we are able to say who is in the United Kingdom at any given time.”*

– Geoff Hoon, Leader of the Common<sup>9</sup>

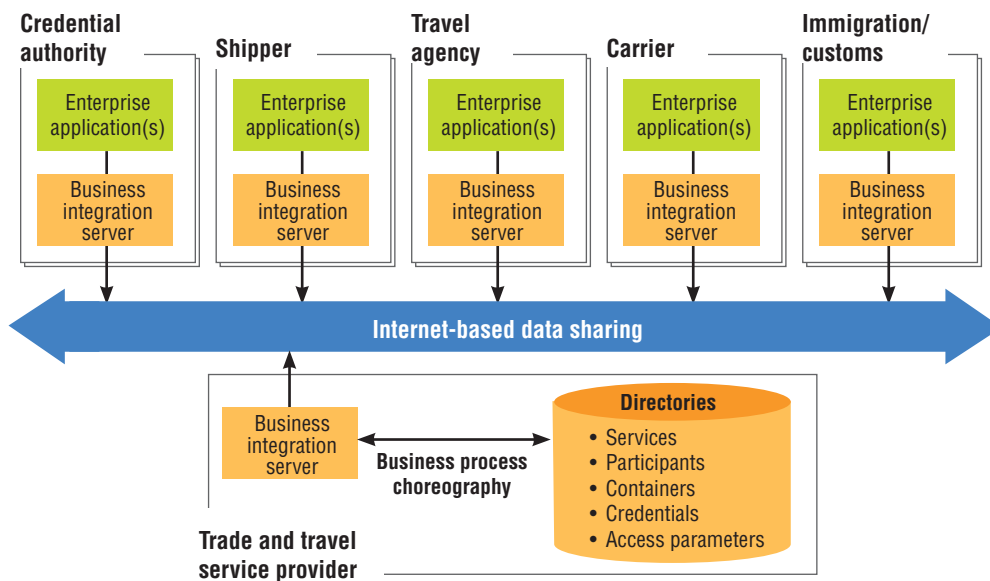
This expanded scope of passenger processing involves higher levels of integration and collaboration across the entire travel chain – immigration, border management, travel agencies and carriers. With passenger data involved, privacy becomes a pressing concern.

Stakeholders need a rigorous security model that complies with various national and international standards for protection of personal information.

As traveler management processes mature, international standards for advanced passenger information will gain broader acceptance and machine-readable travel documents with embedded biometrics will likely become pervasive. IBM expects that “secure travel services” will emerge in a similar fashion to supply chain security services for cargo. In these expedited “lanes” dedicated to prescreened frequent travelers, electronic credentials serve a similar function to the electronic seals on cargo, authenticating that the passenger is indeed who he claims to be. Like their counterparts in the cargo arena, these travel services help governments achieve both goals of security and efficiency at the same time.

Taking the similarity between secure trade lanes and secure travel services a step further, it is conceivable that an integrated system for managing cargo and passenger security could be constructed (see Figure 3).

**Figure 3. An integrated trade and travel service would allow participants to access only the data to which they were authorized.**



Source: IBM Business Consulting Services.

Integration is a central theme of Global Movement Management – an IBM initiative designed to address the critical business functions involved in moving people, goods and conveyances within and between countries in a safe and efficient manner.<sup>10</sup>

An integrated system for trade and travel services would require an advanced security model that allows authorized entities to access only the specific data needed for transaction processing and risk management. For this converged approach to be successful, privileged information – both individual and corporate – must be protected. However, the privacy issue is not simply about safeguarding information; it involves rationalizing an intricate maze of data-sharing protocols and legal regulations across a wide range of jurisdictions in order to develop the standards that allow integration.

### **Frontier borders**

As governments improve and “harden” controls at official entry points, traffic at illegal entry points typically increases. Along the frontier, where each crossing is a presumed violation, border police operations focus on enforcement activities – detection, response and interdiction. Collaboration with local authorities across several inland jurisdictions is frequent and typically well-established. But leading nations are taking additional steps to enhance the effectiveness of frontier border control through increased integration and the use of advanced technology.

To improve detection and enforcement, countries are forming interagency partnerships to consolidate and share critical information such as intelligence watch lists of known violators. Leading countries are also focused on better collaboration among law enforcement agencies – interdiction, response and successful prosecution in the courts demands interagency cooperation at all levels of government and across many jurisdictions. To increase efficiency and effectiveness, some governments are establishing joint command centers with cross-functional operational teams. Under these arrangements, officers from different agencies collocate and pool their

resources, information and tactics to focus on high-priority threats. These joint operations are usually coordinated by interagency committees that are responsible for implementing key national strategies.

Technology is also enhancing and supplementing the efforts of frontier border operations. For instance, in heavily populated urban ports and along extensive, unguarded land borders and coastlines, progressive governments are using electronic sensors and unmanned surveillance aircraft to detect and report illegal entry. In the field, wireless technologies provide officers with virtually “anywhere, any time” access to dynamic intelligence and enforcement data that is critical for maintaining officer safety and responding effectively to violations and threats.

Leading nations are also relying on technology to expedite legal border crossings. In the US, the DHS has implemented the Laser Visa program to accelerate processing for legitimate, temporary workers from Mexico. This border crossing card uses embedded biometrics to identify and authenticate Mexican citizens authorized to travel to and from the United States on a regular basis.

Implementing these types of collaborative initiatives involves several challenges. Agencies must articulate the value for public and commercial stakeholders to justify investments in infrastructure, personnel and new procedures. And within their own organizations, the initiatives that involve new technologies will likely require officer training – and perhaps different skill sets.

### **Risk management: The fulcrum for integrated border management**

At its most fundamental level, border management is risk management. If travel and trade were risk free, border control would be less critical.

But effective risk management involves balancing *both* control and facilitation – control meaning the identification, interdiction and deterrence of security violations, and facilitation meaning efficient operations and the management and expedited clearance of legitimate travel or trade. Their mutually reinforcing nature helps improve overall risk

management. Effective screening identifies low-risk travel and trade that can be expedited, while effective facilitation allows governments to focus scarce resources where the risk is higher or unknown. Operationally, these two dimensions are interdependent – they use the same data, revolve around the same events and are executed by the same personnel.

To enable a balanced and effective risk management approach, integration is an imperative. Terrorist networks and criminal cartels now employ sophisticated strategies and techniques that require coordinated, interagency and international responses. When criminals evade security controls at official points of entry, responses must be coordinated among frontier resources, border control officials and inland police agencies. In addition, traders and travelers expect integrated electronic government services similar to those widely available in the private sector. In fact, international standards now mandate “single window” (integrated) clearance processing at the border to expedite legitimate trade.

Adequately managing risk involves four distinct levels of integration:

- Business process integration to simplify and streamline agency operations
- Interagency partnerships to share information and coordinate or integrate field operations
- International collaboration among governments to integrate across boundaries, rationalizing entry/exit information, linking processes and establishing end-to-end visibility and control over shipments and visits
- Collaboration between public and private sector to share appropriate information that enables business partner certification, supports compliance reviews and validations, and facilitates legitimate trade and travel with fewer delays and lower costs.

Across border management functions, natural points of integration exist: for example, cross-functional control officer teams housed in interagency command centers, centralized portals for access, integrated information

from multiple sources, nationwide applications in lieu of regional or local systems, and screening tools that encompass controls of multiple government agencies and private sector enterprises.

Even though largely segregated today, cargo and travel processes have numerous similarities. These common components create opportunities for cross-functional learning, reuse and potential consolidation – forming the foundation for integrated border management:

*“...multiple approaches to passenger security across different agencies can coalesce into shared methods and common legislation. This is immensely powerful and productive.”*

– Mark Goulding, eBorders Director, UK Home Office<sup>11</sup>

- *Risk management methodology* - Empirical measurements of compliance and operational performance are the foundation of a risk management methodology. Metrics provide the language used to communicate the objectives of intervention and mitigation programs. For both cargo and passenger processing, rules-based screening using timely, factual information allows governments to selectively apply resources according to the level of risk.
- *Advanced information* – Effective screening depends on advanced information. For cargo, risk assessment begins with submission of advanced information from as far back in the supply chain as the point of origin. For travel, the border clearance process should begin as early as possible in the travel process – prior to arrival at airport or border post.
- *Targeting teams and tools* – Customs organizations are establishing targeting units for specific high-priority threats. Similarly, immigration agencies are creating passenger analysis units and joint command centers to aid in screening. Cargo processing is somewhat ahead of passenger processing in the use of advanced analytics.

- *Integrated risk assessment* – Sharing data and performing risk assessments on a broader set of information – from multiple government agencies as well as multiple countries – increases overall effectiveness. The WCO Framework identifies the need for countries to adopt common definitions and criteria for determining high-risk cargo and for sharing risk assessment results. It also calls for mutual recognition of trading partner “certifications” (e.g., low-risk participants). Sharing alerts and lookouts across agencies and governments is a prime example of such integration. This increased standardization also enables automation; the WCO standard for automated risk assessment has been widely adopted by customs departments. For immigration agencies, integration of all available passenger risk information is also a key priority, but must be balanced with privacy concerns.
- *Facilitation of low-risk passage* – Several nations have implemented expedited clearance for authorized traders as outlined in WCO standards. Similarly, countries are establishing “trusted traveler” programs that clear low-risk passengers through an expedited process.
- *Authentication, inspection and protection technology* – Nonintrusive inspection technologies, such as x-ray, gamma-ray and explosive detection, are helping control officers increase efficiency and security simultaneously. To achieve those same dual goals with passenger processing, immigration agencies are beginning to issue “smart” credentials that rely on facial recognition and biometric technologies for traveler identification and credential matching. Radio frequency identification (RFID) tags and sensors are being used for monitoring and tracking both cargo containers and passenger baggage; sensors are also playing a role in preventing unauthorized crossing of frontier borders.

*“For a lot of issues, access to standardized solutions is there, but Customs does not have a budget for implementing. It is a budget and time, not a technological, issue.”*

– Vidar Gundersen, CIO, Swedish Customs<sup>12</sup>

#### **Distorted data safeguards identity**

Across the private and public sectors, fear of the ultimate identity theft has hindered widespread use of biometric information for authentication. Passwords and PINs are easy to change when compromised – but fingerprints and faces are not. Storing biometric data involves risk.

But now there’s an alternative. IBM Research has recently developed a “cancelable” biometrics system, in which a transformation algorithm deliberately distorts the representation of an individual’s biometric data. This “distorted” biometric trait is then used for identification purposes. Should this information be stolen, it can be canceled and recreated using a different transformation algorithm. More importantly, the distorted trait cannot be reversed to recreate the original, even if a thief has the transformation algorithm.<sup>13</sup>

- *International standards* – As standards evolve in each discipline (see Figure 4), opportunities for synergy are emerging. As an example, many of the core elements within the WCO Framework can be extended to the travel arena. Unfortunately, despite the recognized need for global consistency to enable integration, standards adoption has been slow, dictated by skill availability, budget and priorities of individual countries.

*“...the attitude toward standards is very pragmatic. Where they exist and they will not harm the project objectives, then they will be implemented... Where they do exist – but there is a conflict with national interest – national interest takes precedence.”*

– Mark Goulding, eBorders Director, UK Home Office<sup>14</sup>

- *Closed-loop case management* – An integrated border management strategy must provide for closed-loop processes to manage border-crossing cases that remain active for multiple years before closure. With cargo, closing the case on a shipment may involve liquidation or settlement of all duty suspense claims or

**Figure 4. International organizations are developing major standards within each domain.**

Organization	Standard
<b>World Customs Organization (WCO)</b>	<ul style="list-style-type: none"> <li>• Framework of Standards to Secure and Facilitate Global Trade 2.0</li> <li>• Revised Kyoto Convention</li> <li>• Johannesburg Convention on Mutual Assistance Agreements in Customs Matters</li> </ul>
<b>International Maritime Organization (IMO)</b>	<ul style="list-style-type: none"> <li>• International Convention for the Safety of Life at Sea (SOLAS) – International Ship and Port Facility Security</li> </ul>
<b>International Civil Aviation Organization (ICAO)</b>	<ul style="list-style-type: none"> <li>• Standard on the use of Advanced Passenger Information (API)</li> <li>• Guidelines on Passenger Name Record (PNR)</li> <li>• Specifications for Machine Readable Travel Documents (MRTD)</li> </ul>
<b>WCO/ICAO/International Air Transport Association (IATA)</b>	<ul style="list-style-type: none"> <li>• Joint guidelines on Advanced Passenger Information</li> </ul>

Source: IBM Business Consulting Services analysis.

drawback refunds across years of eligibility. In the travel arena, governments must manage benefit entitlements throughout a visitor's stay, which may span several years. And enforcement actions related to frontier border violations can involve years of legal proceedings before a final judgment is rendered. Whether shipment, visit or enforcement action, each case must be tracked and managed until final settlement.

The convergence of cargo and traveler practices across these eight areas provides clear opportunities for synergy within border management programs. Obviously, shared resources can generate efficiency savings in terms of personnel and ICT investments. But, perhaps more important, convergence helps increase effectiveness. Overlapping resources can be reallocated to focus on higher-priority risks. Officer skills and agency capabilities grow through cross-pollination. Process and ICT integration help improve the quality of screening and intervention activities. And at a national level, integrated, electronic government services, combined with advanced intelligence technologies, can accelerate economic growth by identifying, simplifying and expediting the business of authorized traders and travelers.

#### Where are we headed?

As governments start to move toward integrated border management, they need to regularly assess their progress and reevaluate their target destination. To maintain focused, relevant strategies – and to expose areas of weakness or misalignment among agencies – executives need to ask tough questions like these:

- Does our government have clearly articulated national priorities for our border management programs?
- Do we have an effective and efficient risk management strategy in operation as demonstrated by performance metrics?
- To what extent have we developed responses and programs that cover the breadth of modern border management practices?
- Do we have the optimal level of integration of our customs, immigration, police and border frontier organizations, operations and information?
- Do we routinely assess current programs against international standards and ever-improving best practices?
- How should we fund the programs that support our national priorities – and demonstrate value for these investments?
- To what extent do we collaborate with other governments and the private sector to help ensure safe, efficient frontiers?

## A national roadmap

The inherent complexity of the trade, travel and frontier border environment – and the broad base of interconnected, heterogeneous responses to it – illustrate the need for a structured method for rationalizing and synchronizing strategies.

To assist governments in formulating their strategic border management plans, IBM has constructed a three-dimensional framework (see Figure 5). Governments can use this tool to benchmark their current policies and practices and develop a customized roadmap for the implementation of an integrated border management strategy.

The framework’s first dimension reflects the three most common drivers affecting border management strategies: global economic competition, the threat of terrorism and other illegal activity, and budget and workload pressures. The second dimension categorizes government responses to these drivers.

In the cells created by these two dimensions, the framework documents a spectrum of policies and practices that governments have implemented as they modernize their border management programs. The range of programs in each cell is classified into a third dimension, according to maturity level: basic, typical and advanced.

- *Basic programs* are mandated by international standards, and are often prerequisites for implementation of more advanced activities.
- *Typical programs* are in common use by many nations, reflecting techniques with proven effectiveness.
- *Advanced programs* are leading practices employed by more advanced nations, often developed as optimal responses to high-priority national objectives. They would likely be fully implemented only when justified by national policy priorities.

Figure 5. A structured framework can help governments formulate an integrated border management strategy.

Maturity	Drivers		
	Global economic competition	Security threats	Budget pressure
Advanced			
Typical			
Basic			
Responses			
Organization and performance metrics			
Integration... ...within agencies			
...across government			
...among national governments			
...with commercial sector			
Risk management			
Methods and tools			

Source: IBM Institute for Business Value.

Using the framework, governments can identify practices appropriate to their environment and policy priorities, and structure them in a phased plan to implement an integrated national integrated border management strategy (see

Figure 6). The structure and content of the framework can help governments clarify choices, identify interrelationships and make decisions aligned with their priorities.

**Figure 6. A risk management example can demonstrate how to use the framework.**

		Maturity level	Global economic competition	Security threats	Budget pressure
	Advanced	Advanced	<ul style="list-style-type: none"> <li>Authorized traders experience expedited clearance through end-to-end international secure trade lane</li> <li>"Single window" for intervention and clearance decisions across government</li> <li>Mutual recognition of authorized trader certification</li> </ul>	<ul style="list-style-type: none"> <li>Risk assessment at point of origin and of certification as boundary to global secure trade lane</li> <li>Realtime targeting in support of clearance risk assessment</li> </ul>	<ul style="list-style-type: none"> <li>Full paperless, automated clearance for low-risk shipments, with resources focused on high risk trader shipment</li> <li>Integrated port operations for clearance and enforcement programs</li> <li>Account management to leverage compliance of high volume traders, and proactively resolve problems</li> </ul>
	Typical	Typical	<ul style="list-style-type: none"> <li>Authorized trader programs, such as AEO and C-TPAT</li> <li>Multi-level compliance classes, industry facilitation programs, such as STAIRWAY</li> <li>Post-clearance audits to expedite low risk trader shipments</li> <li>Non-intrusive inspection technology, such as gamma-ray scanners</li> </ul>	<ul style="list-style-type: none"> <li>Export inspection based on risk assessment of ACI, per WCO Framework, such as CSI</li> <li>Integrated risk assessment based on shared data and intelligence</li> <li>Risk screening based on historical data bases of inspection results and violations</li> <li>Compliance audits</li> </ul>	<ul style="list-style-type: none"> <li>Targeting units to develop screening rules that increase inspection hit rates</li> <li>Control officer specialization: risk profile managers, commodity/industry, targeting</li> <li>Non-intrusive inspection technology, such as gamma-ray scanners</li> </ul>
	Basic	Basic	<ul style="list-style-type: none"> <li>Interventions aligned with risk, with reduced inspections for low risk shipments</li> <li>Rule-based inspection screening, such as ASYCUDA clearance channels</li> </ul>	<ul style="list-style-type: none"> <li>Mutual Assistance Agreements</li> <li>Empirical compliance baselines based on random statistical inspections</li> <li>Dis-integrated agency violation enforcement programs</li> </ul>	<ul style="list-style-type: none"> <li>Reallocation of resources to align with risk</li> <li>Clearance and inspection KPIs measured and reported</li> </ul>
Risk management		M	H	H	
Methods and tools		M	H	H	

**Step 1 – Identify national priorities.** Although countries tend to emphasize programs in a particular column aligned with national policy priorities, the importance of each cell should be ranked individually. This allows the strategy to be customized to the specific combination of economic, legal, organizational and risk factors affecting border operations.

**Step 2 – Conduct a self-assessment.** Evaluate your current border management programs against the maturity matrix within each cell of the framework, highlighting the specific policies and practices you have in place (see examples in blue text).

**Step 3 – Define target programs.** For high priority cells, identify those policies and practices that define the target of your integrated border management strategy (see examples in green text).

**Step 4 – Develop your transition roadmap.** Analyze the gap between your current programs and your target. Select intermediate policies and practices that provide feasible steps toward the strategic target (see examples in orange text). It is important to manage change through phased implementation plans to avoid overwhelming personnel, operations and systems – as well as budgets. Smaller initiatives reduce overall risk and accelerate the point at which stakeholders begin to realize value from their investments.

Source: IBM Institute for Business Value.

## Conclusion

The insights offered by the border management leaders involved in this study, coupled with our research and experience with clients worldwide, suggest significant implications for governments:

- *Integration is no longer optional.* Terrorist networks and criminal cartels now employ sophisticated strategies and techniques that require coordinated, interagency and international responses. In addition, traders and travelers expect integrated electronic government services similar to those widely available in the private sector.
- *Control and efficiency are not mutually exclusive.* Though security and facilitation seem to be diametrically opposed, they are actually opposite sides of the same coin. As the experience of leading nations has demonstrated, their mutually reinforcing nature improves overall risk management.
- *Travel, cargo and frontier border management disciplines can learn from each other.* Leading practices and international standards vetted in one domain can be used as models for the others, accelerating progress and facilitating greater integration. For example, standards bodies in the travel and immigration arena could develop a set of guidelines that parallels the WCO Framework of Standards to Secure and Facilitate Global Trade 2.0.

- *A structured approach to strategy development is necessary.* The inherent complexity of the trade, travel and frontier border environment – and the broad base of interconnected, heterogeneous responses to it – demand a structured method for rationalizing and synchronizing border management strategies at a national level.

Today, the sheer volume of people and goods moving across borders is mind-boggling. The risks inherent in these movements are mounting as well. Simply to keep up, border control operations must become more efficient.

But citizens and corporations expect their national leaders to do more. They expect governments to keep their nations safe without impeding international trade and travel. In fact, they expect commerce to thrive through carefully crafted initiatives that accelerate legitimate trade and travel. It is a daunting mission – one that demands an integrated border management strategy.

To learn more about the IBM Institute for Business Value border management study or the integrated border management strategy framework, please contact us at [iibv@us.ibm.com](mailto:iibv@us.ibm.com). You can also browse other resources for government executives at our Web site:

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- <sup>2</sup> The interviews were conducted with individuals involved in various roles within different types of agencies in eight different countries: Australia, Canada, France, Japan, Italy, Sweden, the United Kingdom and the United States. Since IBM's interviews in Italy were limited to port executives, they did not provide a national view of the country's border management strategy. As a result, Italy was omitted from Figure 1.
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