Beyond the single window

Paving the way to collaborative border management
Introduction
In the two decades since the first single windows opened in Singapore and Sweden, national single window customs implementations focused on simplifying the interactions of traders with government, ultimately achieving a single point and moment of interaction for data submission by traders and for clearance decisions by government. Not necessarily driven by single window implementations in their countries, yet building on the same skills as those required for single windows, leading customs administrations have enhanced their border clearance operating model with four best practices: streamlined inter-agency workflow, account-based processing, segmented clearance regimes and cross-functional intervention teams. These new best practices provide more effective clearance management and trade facilitation and reduce the cost and time of clearance processing for traders and government. This paper suggests that by combining these four best practices with the traditional single window, a best-practices operational model for collaborative border management can be realized.

The traditional single window
In the 20 years since they first opened in Singapore and Sweden, single windows have remained a central focus of border clearance strategy, even though the majority of customs administrations have not implemented them. Recent Asia-Pacific Economic Cooperation (APEC) and World Customs Organization (WCO) surveys have charted a slow but steadily rising pace of adoption, with approximately 71 single windows in operation today and up to a dozen others underway. Ramesh Siva’s comprehensive analysis for the World Bank describes the significant benefits of single windows to international traders and to customs that motivate these projects. They include support of rising trade volumes and supply chain management techniques, increased efficiency and reduced operational costs.

Although design plans vary considerably, most single window systems support an electronic data exchange model following the 2005 United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) and Association of Southeast Asian Nations (ASEAN) definitions, summarized by Siva as follows:

1. Single submission of data and information
2. Single and synchronous processing
3. Single decision-making for release and clearance

This approach uses process automation and interagency data sharing and collaboration to provide a single point of communication for traders, reducing the burden of interaction with multiple back-office government systems. Logistics data interchange, a business-to-business model similar to port community systems, is implemented in several systems, most notably in Singapore’s TradeNet system.

Two decades of experience has also revealed many challenges that suggest why the number of single windows and their scope has been so limited: implementation is very difficult. Technology represents only one of the challenges. High technical competence, although important, is no guarantee of rapid success. Both the World Bank and WCO surveys noted that the key development challenges were primarily non-technical: policy issues, process reengineering, stakeholder collaboration, organizational change management and governance. Siva concluded that successful single window projects have focused both on business modernization as well as information and communications technology (ICT) enabled automation.
Skills for single window and beyond

The fundamental lesson from two decades of implementation experience is that the skills required for border management modernization include both technical and business management skills. The core process of electronic data exchange is fundamental to all aspects of customs and government modernization. Both the clearance front office at the border and the back office of pre- and post-clearance processes require mature data management and systems integration expertise. They must support the proliferation of business-to-government and government-to-government interfaces that provide information on which operational decision-making and mission effectiveness depends. This complex technical program relies on business relationships of mutual understanding, benefit, and trust which must be developed by mature business management skills. The successful implementation thereof requires a coordinating agency—whether customs or a cross-government agency—to become an effective manager of stakeholder relations, evolving policy, responsive operational coordination and disciplined interagency governance.

As single windows emerged during the past two decades, technology trends, economic competition, and the growth in international trade and in threats to public welfare generated a wave of customs modernization across many nations. Two technology trends became primary drivers of change in the business processes and operating models of international trade and of customs border clearance and hence in the customs modernization program. First, data-sharing tools and techniques have enabled process integration on three levels: across traders and agencies, as in the traditional single window; across traditional silos within customs; and across governments. Second, advanced analytical tools and data warehouses have provided intelligence and insight in account and compliance management; these insights have focused on clearance decision and revenue collection.

Evolving best practices for customs and border management

These technology trends drove a series of interdependent best practices in the modernization programs of leading border management agencies. The primary technical building blocks in the evolution were customer relationship management tools, rules and workflow engines, and advanced analytical tools and data warehouses. Business innovations underpinning the evolution were process reengineering and performance management, risk management, and compliance management—including Authorized Economic Operator (AEO) facilitation programs and customer segmentation. These factors provided the data, tools, and methodologies for four fundamental best practices that support modern risk management and collaborative customs strategies to achieve modernization program goals:

1. Interagency border clearance choreography to automate collaboration between systems of multiple agencies
2. Account-based clearance processing to maximize available intelligence for decisions
3. Segmented clearance regimes to optimize risk detection and facilitation for AEOs
4. Cross-functional intervention teams to make risk mitigation faster and more effective

Most single window projects have focused on the front office, that is, on trader interaction. The best practices—or functions—listed above include clearance and pre- and post-arrival activities which focus, to a large extent, on back office operations. Yet all these operations have a trader interaction aspect: trade interaction for the clearance decision, for inspections, for obtaining a horizontal view of a trader’s activities, and for certification as AEO or other simplification schemes. We believe that by establishing a strong correlation between the traditional front-office single window data exchange model and the new best
practices for back-office clearance and border management, a best practices operational model for collaborative border management can be realized. It is this combination of the three old functions with the four new ones that provides a comprehensive operational model for interaction with traders, resulting in an end-to-end process flow that includes all major functions of border clearance, as illustrated in the diagram below.

In the next sections we elaborate on the four best practices and describe how they are related to the traditional single window model, which results in the single window becoming a vehicle for realizing collaborative border management (CBM). For each best practice, we will provide a typical phased implementation scenario, discuss its business impact and the skills and capabilities necessary for success, and give several examples of countries that have the practice in production.

**Interagency border clearance choreography**

The most obvious and straightforward practice that single window projects have fostered is automation and coordination of clearance processing across border agency systems and personnel. Business rules and workflow engines enable process automation, with the potential to optimize resource allocations and outcomes of inspections and audits, and increase productivity and integrity in field operations. The potential value of this interagency workflow automation is demonstrated by the large
number of agencies involved in border clearance—very often around fifteen.6 US Customs and Border Protection reported 46 participating agencies in the development of its single window program in 2010.7 Customs in Japan has concluded, after its successful single window development program, that “Business Process Reengineering [is a] … critical enabler—how best to take opportunity to change business models, to be best in conformity with unified processing of IT.”8 Transaction routing requires border enterprise infrastructure and standards for interagency data sharing. Clearly, both technical and business process integration, as well as collaboration to manage impacts on operations and personnel, are required.

**Evolutionary scenario supplementing single window with this best practice**

Interagency choreography can span across various aspects of clearance, including the release of goods, inspections and risk assessment, and also intelligence. A simple scenario for an import transaction requiring multi-agency assessment illustrates how clearance processing could be enhanced by choreography of its workflow, as follows:

- In the original data exchange model, the single window might distribute lodgment information for a shipment of fruit seeds to the agriculture agency using an electronic data exchange interface, requesting confirmation of a valid import license and a decision whether to inspect the shipment. The agriculture system would respond with its answer, perhaps after a manual officer review, facilitating a single release decision for the shipment. This interaction requires technical integration of data standards, network protocols and interfaces, and information and communications technology (ICT) operations and service levels.

- When interagency collaboration allows data sharing of valid license files, the release decision could be accelerated and the workload on officers reduced. An automated process in the system of a coordinating agency, often but not necessarily customs, could verify the license and proceed without external delay. ICT operational coordination would need to be further formalized to help ensure the integrity of shared data. The traditional single window concept is extended with a component implementing a thicker layer of data sharing and clearance decision-making.

- With integration of clearance processes between the agencies, business rules in the single window coordinating agency could choreograph required data exchanges and resulting inspections using agriculture’s operational criteria. For commodities or situations governed by more complex regulations, automation of business logic could further streamline the interaction between the agencies. The single window could also coordinate the inspection schedule between agency and port personnel. This level of integration requires collaboration on inspection procedures and scheduling, with impacts on business processes and office work schedules.

**Business impacts that require enhanced skills and capabilities**

While choreography and coordination of the processes of multiple agencies can bring substantial benefits in the area of CBM, it also necessarily entails impacts on the existing processes, roles and responsibilities of agencies. Strong cross-government political power is required to achieve this goal. It therefore comes as no surprise that many single window implementations do not follow this path. The United Nations Economic Commission for Europe (UNECE) Report, “Ten Years of Single Window Implementation,” concludes: “Many implementers have found that the challenge of coordinating these different agencies (and their procedural and data requirements) into coherent and simplified procedures that could be automated is often more political than technical.”9
Implementation examples
The New Zealand CBM strategy explicitly requires that “each agency’s information … processes and systems meet [both] the needs of its own, [as well as that] of other agencies with border control requirements …” Japan provides another example of tighter coordination among agencies. The Japanese single window automated cargo clearance system, NACCS, has been evolving since its introduction in 2003, starting from a loose interface between NACCS and the systems of participating agencies and evolving to an integrated NACCS covering the scope of all agencies. The integrated NACCS is enabled by a government cabinet decision to implement coordination mechanisms among agencies. As customs accounts for 60 percent of the traffic in NACCS, customs became the leading agency in the Japanese single window. The central role of customs is also recognized by the ASEAN single window initiative, which explicitly gives customs the mandate to be the single point of decision for the release of cargos “…on the basis of decisions, if required, taken by line ministries and agencies, and communicated in a timely manner to the Customs.”

Account-based clearance processing
Many customs administrations have implemented customer relationship management (CRM) and commercial accounting methods to duplicate the proven value they have generated in industries such as in the financial and insurance industries. CRM and accounting application packages provide a single repository for all relevant information about a customer’s business relationship with customs. This database establishes the data foundation for integrated account management and account-based processing, which improves both revenue collection and risk management.

Account-based processing is perhaps the most far-reaching change in clearance processing since the single window opened. When this approach supplants transaction processing in cargo clearance, both customs and importers can reap large benefits. Account-based processing covers the full scope of trader-customs interaction. Two main aspects thereof are financial obligations and clearance risk assessment. An account management view of trader performance across these two domains provides the basis for enhanced customer service and trusted trader programs.

The account model is applied to revenue collection through bond and credit regimes, and periodic payment of accounts receivables. Just as risk management business models from the banking and insurance industries have been applied to border management resource planning and decision-making, so the account management models are applied to traders to provide a comprehensive view of business relationship across all transactions, all locations, and all partners and parties to cross-border trade. Instead of paying duties and fees for each individual shipment during the clearance process, traders may settle their accounts periodically with a single net payment.
Risk management became a fundamental business strategy for customs more than 30 years ago, even before the single windows began to open. Its promise was to align programs and resources with prioritized risks in response to national priorities such as revenue gaps, narcotics smuggling and bio-security threats, and resource constraints such as increasing volumes, flat budgets and resource levels. It was designed to be a driver of compliance, intervention, and prevention programs, and resource allocation at the border. Australia was an early public advocate of the value of risk management as a tool to increase productivity in the face of rising trade volumes at the border, publishing trade and resource statistics on its web site that validated the positive impact of risk management on the productivity of its officers.

The account model is applied to risk management through risk assessment models that consider the full historical context of all that is known about the importer and other parties associated with the shipment—across government agencies. These models are much more effective at risk detection and mitigation than static, rules-based regimes that assess the import transaction in isolation. Process improvement and performance management disciplines can also enable significant improvements in risk detection and officer productivity. By monitoring key performance indicators and providing empirical measures of trader compliance and commodity risks, they provide feedback to risk detection rules and models that can improve accuracy, reduce false positives and negatives, and raise inspection hit rates.

**Evolutionary scenario supplementing single window with this best practice**

Account-based clearance and risk management have evolved through several stages of interagency collaboration, data sharing and technology integration, progressively enhancing the effectiveness of risk detection and screening:

- In the original single window model, comprehensive lodgment data was filed once by the trader and distributed to appropriate agencies who responded with individual release decisions reflecting their risk assessments to produce a single consolidated release or intervention decision. Customs validated payment or financial risk and sometimes conducted criminal checks on crew and conveyance.
- In a collaborative border management model—when risk data about traders, such as black lists, are shared between agencies—each agency's decision benefits from what all agencies know about the traders and shipments. Various ministries often establish watch lists to support authorized criminal or national security checks for commodities or crews accessible to various border control agencies.
When trader account data, including compliance history, is shared in centralized repositories, then advanced risk analytics—such as targeting, identity and relationship resolution, link analysis and predictive risk modeling—can be conducted. Advanced tools support ad hoc research by analysts and investigators. Risk detection can be enhanced by greater levels of accuracy with fewer false positive and negatives and by more rapid discovery of relationships and patterns of noncompliance that can be used to improve detection rules and models.

To continue the example of an agricultural import begun above, with the integration of import account data in a single repository, the combination of customs and agriculture performance data for the importer and carrier could reveal a level of risk not detected in either agency’s system, producing an inspection that detects a noncompliant shipment posing a bio-security risk to the market.

Centralized repositories, cross-government risk analytics and other artifacts of account-based clearance processing need not reside inside the single window IT component itself; they may be available as services for collaborative, cross-agency execution of the clearance-related back office processes. Account-based clearance processing extends the traditional single window philosophy because it gives a single view of the customer to the government, rather than give a single view of the government to the customer.

Business impacts that require enhanced skills and capabilities

Account-based processing drives significant change across legacy ICT systems and fundamental clearance and business processes. When this practice is implemented, ICT becomes much more mission-critical to customs field operations. New CRM and revenue collection systems often replace legacy application systems, but more often must interface with them and with systems where transaction history and intervention outcomes, such as inspection and audit results, are maintained.

Risk management requires increasing sophistication in technical and business management tools and processes because of the nature of the risk data and the urgency of its timely use. Data on intervention outcomes—inspection and audit results, fines, penalties, seizure and enforcement actions—is extremely valuable to compliance management, but often not available for clearance system processing. The established relationships with other agencies must be deepened and formalized to manage access to risk and intelligence systems or sharing of their data. Legal restrictions governing access and use of criminal and intelligence data have significant architectural implications for customs systems; and ICT security disciplines become primary operational mandates.
In addition to system integration skills, ICT enterprise architecture and operational disciplines are critical success factors. Business process reengineering, compliance management and AEO programs, trader relationship management and organizational change management in customs are required to manage the introduction of account-based processing to internal and external stakeholders.

Our reasoning demonstrates that we consider two levels of account-based clearance processing. First, clearance processing should rely on the full set of data available for customs about a specific trader. While this may seem obvious, our experience is that many customs agencies are not able to realize this ambition because of silo-based legacy systems and processes. The most serious example of this problem is when inspection history records are not accessible as inputs to shipment risk assessments. A shipment whose documents appear low risk might deserve an inspection if the importer’s derogatory history of seizures and fines were included, producing a higher risk score. Second, clearance processing should rely on the full set of data available for government—across agencies—about a specific trader. Important sources of risk data in external agencies include law enforcement watch lists, stolen vehicle records, commodity import licenses and certificates, and bond and credit ratings.

**Implementation examples**

In the US, customs and border protection (CBP) systems and programs have fully implemented account-based processes. In 1999, a variety of account and risk management programs were consolidated into the Trade Compliance and Risk Management Process that formally established account management disciplines across operations. US Customs programs—Trade Partnership Against Terrorism (C-TPAT) and other CBP AEO programs—support account-based processes for compliance and trade facilitation. A primary focus of the CBP automated commercial environment (ACE) modernization program was to implement an account-based portal and periodic payment of import duties monthly using trader financial accounts.

Many other countries across the world have also implemented periodic payment schemes. In the Netherlands, the introduction of the “horizontal monitoring” approach by the Dutch Tax and Customs administration in 2005 brought upon a strategic change to the Dutch supervisory philosophy. While the traditional inspection method is based on vertical supervision and distrust—customs selects and inspects—the Netherlands’ customs’ horizontal monitoring is based on trust. Not blind trust, but trust based on positive past experience, such as the good enterprise’s reputation with customs and the enterprise’s personal responsibility. Horizontal monitoring is based on the view that the majority of companies and institutions can, and wish to, act in a socially responsible manner. This approach has been embedded by Dutch Customs in the AEO program, which was launched in 2008.
These account-based trends in the use of data and analytical tools also supplied compliance management programs with increasingly rich information about performance integrated from many sources. Financial accounting and audit results; inspection and enforcement outcomes; various AEO programs, such as self-assessment and certifications; non-intrusive inspection data; and intelligence gleaned from advanced analytics systems and from investigators could all be analyzed when evaluating trader compliance and commodity risk levels. These developments allowed classic commercial marketing strategies to be applied to customs interaction with traders.

Growing recognition that risk detection and facilitation of trusted traders were two sides of the same coin, inherently inter-dependent and reinforcing, spurred the development of AEO programs and clearance regimes aligned with customer segmentation based on measured compliance rates and process maturity. The enabling technical capability is “intelligence-driven risk management” coupled with empirical measurement of performance and feedback from interventions, such as audits, inspections and resulting fines, penalties and seizures.

When high-risk transactions are detected, validated and quantified, then low-risk transactions are also known and can be rewarded by being facilitated with a low risk of noncompliance. A similar methodology is applied to commodity risk to establish baseline rates of compliance and violations for commodities of high priority in national markets and trade policy. Thus, the original focus on risk management evolved into an integrated approach that explicitly balances it with facilitation and customer service in compliance management programs.

Evolutionary scenario supplementing single window with this best practice

Segmented customs regimes span over the customs back office for the actual clearance processing and the customs front office for trader interaction, as implemented in a single window. Single window front-office regimes required AEOs to establish new modes of normalized and coordinated data submission in exchange for the reduced complexity and cost of clearance provided by the simplified communication interface. Trader segmentation based on measured performance history recognizes this mutual business value model and extends it to back-office functions. Expedited clearance regimes are benefits earned by
AEO investments in supply chain security and by compliance with trade regulations at consistently high levels. To implement these regimes across front- and back-office operations, processes and systems must be developed to measure compliance levels of traders and of commodities. The empirical compliance statistics they capture can motivate and justify the investments necessary on both sides to enhance supply chain management and clearance processes. When the compliance results are factored into shipment risk assessments and clearance controls, the benefits to customs are large, as the statistics from Australian Customs, noted above, demonstrate. Segmented clearance regimes can improve resource utilization through AEO and enforcement programs and resource allocation plans that focus on specific commodity and compliance risks instead of assigning officers and applying general commodity regimes less discriminately.

**Business impacts that require enhanced skills and capabilities**

These segmentation and compliance management best practices introduce new risks to the mission of customs when new clearance regimes reduce the level of controls in customer segments for highly compliant traders, as many AEO programs do. Customs is critically dependent on the technical and business management tools and processes described above. The integrity of border protection programs depends on accurate and reliable shipment risk assessments and AEO compliance assessments. Reliable empirical processes to monitor and measure trader compliance and commodity risk levels must be implemented. Relationships with traders and commercial stakeholders must be actively managed to foster effective communication, collaboration and problem-solving.

**Implementation examples**

Sweden has been a forerunner in adopting a program of segmented clearance regimes aligned with compliance management through its two accreditation schemes: Stairway, which assesses supply chain quality, and StairSec, which assessed supply chain security. Both schemes set a clear relation between the degree of risk that a trader poses and the degree of trade facilitation that this trader can enjoy. The Compliance Partnership Customs and Trade (COMPACT) model developed by Swedish and Dutch Customs jointly presents a framework for certification of traders as being reliable and has been the basis for the EU AEO scheme, launched in 2008. In New Zealand, intelligence gathering, risk management and profiling are positioned as a priority area that enables the Trade Single Window, where trans-Tasman goods clearance processes are streamlined. In the US, the CBP C-TPAT program implements a direct correlation between trader performance assessments and the agency’s automated targeting system (ATS) risk scores and resulting clearance inspection rates.
Cross-functional intervention teams

As certain high-priority risks, such as narcotics or counterfeit goods threatening national markets, were increasingly sponsored by sophisticated criminal cartels, customs in many nations recognized that their traditional mitigation plans were no longer effective. Customs needed interventions that resulted in successful prosecutions and could be leveraged to reduce violation rates. The best practice that emerged in response was officer specialization by commodity or risk domain and cross-functional enforcement teams that executed research, investigation and enforcement strategies to detect and shut down sophisticated smuggling or commodity fraud schemes of international cartels.

This teaming model that exploited specialized skills was replicated across ports and agencies and then into national targeting or “data fusion” centers. Advanced analytical tools in these centers combined with interagency teams, including customs, police, immigration, agriculture, intelligence and targeting analysts, can significantly increase the efficiency and effectiveness of border management operations and allow a more rapid response to incidents in a coordinated risk mitigation plan, functioning as a national interagency command center. Often the targeting analysts in these centers conduct advanced analysis of account, transaction, trade and compliance information to discover emerging trading patterns, both those of strategic economic interest to be fostered and those presenting new threat vectors to be intercepted. These new patterns inform new rules and models to combat dynamic changes in criminal schemes.

Evolutionary scenario supplementing single window with this best practice

This best practice establishes collaboration and coordination between all back-office officers and agencies involved in risk mitigation activities in a manner similar to that required in port community operations and single window front-office processes. Traditional single windows strive to implement a single face for the whole government towards a trader, focusing on data submission and on clearance decisions. This best practice extends the same goal and principle into the time-critical back-office operations of the government. A typical roadmap leading to a cross-functional command center might include implementing these capabilities:

- Officer specialization beyond the traditional roles of inspector and document auditor, such as commodity specialists, targeting analysts or criminal conspiracy investigators. Roles aligned with national priority risks are often formalized into professions with specialized training and career paths for officers, such as targeting analysts required to support advanced analytical systems for risk detection.
- Cross-functional teams to conduct coordinated inspections in the port. This can improve the logistics of cargo movement and reduce the delays and costs associated with multiple inspections of a single shipment on different schedules.
• Centers of expertise specializing in priority commodities or risks. National trade policy or risk management strategy or dominant trade patterns through certain ports may require concentrated expertise in organizations or locations to centralize skills resources and enhance operating efficiency.

• Operational control centers to manage responses to the highest risk shipments or persons, such as a command center staffed by senior officers from all departments and agencies with border control responsibilities that can coordinate rapid responses to major threats. These organizations are necessarily cross-functional to address the full range of customs risks, from narcotics to counterfeit commodities to bio-security to cyber crime.

**Business impacts that require enhanced skills and capabilities**

The implementation of cross-functional, interagency intervention teams and supporting national centers require the same capabilities discussed above for development of compliance, risk management and segmented clearance regime programs, but with a great level of urgency and security. The teams in these centers are composed of experienced senior officers who are responsible for the most urgent threats approaching or at the border, sometimes threatening national security. So these practices have major impact at all levels of agency policy, personnel and operations. Governance of their activities is managed at the highest levels.

**Implementation examples**

The New Zealand CBM strategy explicitly aims to achieve a move “…towards a programme-based structure with multi-agency teams—incorporating all the necessary policy, strategic, operational and information systems expertise required to deliver on agreed initiatives.” The New Zealand Customs Integrated Targeting and Operations Centre (ITOC), opened in September 2011, is staffed by customs as well as border agencies responsible for immigration, agriculture, forestry and maritime. The ITOC brings together “…everything needed to determine risks presented by people, goods, or craft.” Similarly, in the US, the National Targeting Center (NTC) was established in 2001 in direct response to the September 11, 2001 terror attacks in New York City, aiming to make US CBP passenger and cargo targeting more effective. The US Food and Drug Administration (FDA) Prior Notice Center is co-located at the NTC. Additional agencies are represented in the NTC, such as the Federal Bureau of Investigation (FBI) and the Counterterrorism Watch (CT Watch). Other examples include the National Border Targeting Centre (NBTC) in the United Kingdom, and the recently announced National Border Targeting Centre (NBTC) that will be established in Australia to target high-risk international passengers and cargo. On a smaller scale, in Mauritius, a single window cargo inspection office brought together customs cargo inspectors along with inspectors from health and agriculture in a single examination shed.15
Future growth of the single window and border management

The major trends in customs modernization summarized above depend on technical skills and business management capabilities introduced by single window implementation programs. From that starting point in the front office and extending to several integrated back-office processes, best practices of trader interaction now provide a strong operational example of collaborative border management.

In many countries, the level of collaboration between agencies and stakeholders required for success has proven difficult to achieve. Beyond the internal challenges lie the politics of international collaboration between governments. However, as budget pressures and global economic competition intensify, the need for simple, security-rich trade lanes and clearance processes enabled by increased collaboration grows stronger. Fundamentally, these best practices for modernization involve listening, talking and collaborating with stakeholders and international peers to improve customs’ delivery services and competitiveness in the globalized economy. This role is quite appropriate to the traditional leadership role and expertise of customs in border operations.

In the near future, emerging technology and data integration trends can further enhance national single window and clearance operations—and improve their business value to both government and industry. Ultimately, this collaborative path may lead in several directions. Linkages between national or regional single window systems have been discussed in Europe and Asia. Several governments are exploring the value of open source data and social media as data sources to provide new insight into the concerns and behaviors of their customers. International trade “data pipelines” or global clearing houses of logistics data shared across supply chains have been proposed, such as the US Department of Homeland Security’s Global Trade Exchange component in its Secure Freight Initiative of 2007.

Text and content-based analytics, predictive analytics, and capabilities like the IBM® Watson™ natural language query system, when applied to these new sources of big data in global clearing houses, could improve both customer service, and risk detection and analysis. These tools can be applied to cycle time, clearance success, risk and inspections, automated alerting, identity- and relationship-based analytics to identify non-obvious suspicious actors, fraud and abuse patterns, and mobile enablement of agents and officers. A single window can also be seen as a façade for each governmental agency’s back-office systems. By introducing a single point of communication it may be possible to reuse a lot of existing systems while improving trader interaction and achieving CBM. All of these activities support the strategic direction of the WCO Globally Networked Customs and twenty-first century programs.

Conclusion

International experience with successful single windows and best practices provides many lessons that can enhance existing customs modernization strategies. Where a single window plan is underway, the core capabilities supporting it can be exploited to address collaborative border management back-office functions. For the many countries without a single window strategy, customs can examine the lessons and benefits of these practices and decide what their ambition level is: start with single window for trade facilitation or aim at collaborative best practices that support other government priorities in the area of border management. Success on both paths requires investment in the same ICT capability. Enterprise information management is the key technological enabler supporting all the seven best practices described in this paper. Information management competency provides methodologies, techniques and technologies that address data architecture, extraction, transformation, movement, storage, integration and governance of enterprise information and master data management. A robust data foundation makes it
possible to capture, combine and use information from many sources, and disseminate it so that individuals throughout the organization, at virtually every level, have access to it.

Successful implementation will require an extensive and ongoing dialog between many diverse stakeholders within government and with government’s customers. Collaborative discussions must address a candid set of rules of engagement, communication protocols, data sharing, and key technology building blocks, all leading to joint agreements on new procedures for core customs business processes. Special challenges arise in regional unions, such as the EU, APEC and ASEAN, to define common standards, processes and implementation roadmaps to optimize their internal collaboration and external competitiveness.

Additional benefits could be achieved if best practice solutions could be shared and implemented between single windows of various countries.

The four modernization best practices described in this article emerged building on the same skills as those that made possible the traditional single window implementations. They are back-office best practices extending into the front office. They focus on integration of data, systems and business processes to support and enhance increased collaboration between specialized officers, agencies and customs administrations. Successful implementations suggest that an operational model that unites the rigor and speed of ICT automation and the creative skills and professional judgment of officers can raise productivity and reduce costs. It allows customs to increase the integrity and security of its operations while enhancing services to traders.

We make a case in this paper that by combining these four best practices with the traditional single window, a best practices operational model for CBM can be realized. We believe we are at the beginning of a new era in single window implementations, an era in which single window has a new, additional strategic goal: realizing collaborative border management. Twenty years ago, single window projects planted the seeds of CBM in the new skills and disciplines that are now growing in thirty customs administrations. Other countries were less quick to implement a single window, but faster in setting and adopting the four new best practices discussed here. Now these capabilities need to be sewn and tended in a hundred more gardens.

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