Information Management: The New Game Changer in International Trade

Executive Summary
Conducting global trade has become an increasingly difficult task in recent times, with continuous market change and increasing regulations placed on exporters and importers. New regulations are primarily aimed at protecting the national security of countries that engage in global trade. However, they also increase costs and create delays for shipment of goods. Professionals involved in global trade management today are struggling to manage increased rules, regulations, mandates and reporting requirements.

Renato Ruggiero, former director general of the World Trade Organization (WTO), likened these measures to “invisible” trade barriers that add costs to traders, consumers and national economies.1 While classic trade barriers in the form of tariffs and quantitative restrictions have decreased, the documentation requirements, procedural delays and lack of transparency and predictability in the application of government rules and regulations is hampering trade and adding costs that sometimes exceed actual duties.

To regulate the flow of goods in and out of a country, as well as collect and safeguard the collection of custom duties, most countries have established a customs authority as a nodal agency for regulating trade. Although most countries today have their own nodal agency for customs regulations, the World Customs Organization (WCO) acts as an intergovernmental organization for customs-related matters and is now globally recognized as the voice of the customs community.

While international trade has been conducted throughout much of human history, its increasing economic, social and political ramifications have been felt most during recent times, as its percentage contribution toward gross domestic product (GDP) grows. The U.S. leads all countries in trading volumes and has a share of more than 13%2 of the world’s imports (see Figure 1). The European Union (EU) has a similar share of the world’s import market, without considering intra-trade among EU member countries. Because of efforts by the European Union to standardize trade procedures among its members, the continent can be considered a single entity in terms of how it handles trade regulations.

Imports: Merchandise Trade

Figure 1

2009 figures in billions of U.S. dollars
Source: World Trade Organization (WTO) statistics
Need for More Regulation

Customs authorities worldwide are increasingly focused on the twin goals of protecting national security and regulating the flow of trade for the collection of duties. With the quantum increase in trade in recent years, ensuring compliance of customs rules has become even more difficult. For example, the U.S. seaports alone received more than eight million containers last year. In addition, agencies such as U.S. Customs and Border Protection (CBP) are taking on a nodal role and enforcing trade laws enacted by the government. In fact, CBP enforces more than 400 laws for nearly 50 U.S. government agencies. In spite of the huge number of shipments and myriad rules and regulations, customs authorities have been able to ensure compliance to a fair degree by partnering with the industry to ensure self-monitoring and regulation.

Secure the supply chain

Following the 9/11 attacks, governments all over the world realized the need for securing the entry of man and material across borders to safeguard their nations from external threats. The WCO, realizing the need to develop a common framework to facilitate international trade, drafted the SAFE Framework of Standards to Secure and Facilitate Global Trade.

In the U.S., various nodal agencies such as the Department of Homeland Security, the Transportation and Security Administration (TSA) and CBP, have joined forces on a comprehensive policy to achieve this goal. While greater focus is on securing the entry points for personnel, goods passing across the various entry points are only now coming under increased scrutiny. One reason for this is that the number of incidents related to security threats from incoming goods has traditionally been low. Based on a random sampling carried out by CBP, 98.6% of the fiscal year 2010, imports were materially compliant with all U.S. trade laws and regulations. However, securing all points of entry is a huge task, and even marginal improvement in compliance rates would require a massive investment.

Regulate flow of goods

The flow of goods entering a country needs to be regulated, to safeguard national companies from predatory pricing practices and to protect intellectual property rights (IPR). Measures like anti-dumping and countervailing duty are effectively used to prevent shipment of cheap goods and inferior products. A total of $130 million was collected by CBP in antidumping/countervailing duties in 2009. Nearly 8,000 intellectual property rights seizures have been made in the first half of 2010 alone in an attempt to reduce counterfeits and protect IPR.

Regulating large volumes of shipments and containers requires a large pool of trained manpower and sophisticated equipment. Innovative methods, including collaboration with trade partners and processing of goods and cargo before they leave their country of origin, must be utilized to balance the flow of trade while enforcing the law.

Source of revenue

Imports are a primary source of revenue for most governments across the world. The U.S. Customs Service is the second largest source of revenue for the U.S. government, second only to the Internal Revenue Service. In 2009, around 31% of imported goods were dutiable, earning $29.5 billion in revenue for the government. This included collections from duties, fees and miscellaneous collections and taxes. Due to trade liberalization, the share of import tax to that of GDP is expected to rise for most nations.

Tackling New Rules and Regulations

With an aim to increase compliance and ensure security, countries across the world have introduced a slew of rules, regulations, accreditation programs and other partner programs. Filing of documents, either manually or using e-filing, is the primary touchpoint for any shipment entering a country. Shipments may be subjected to random or 100% inspection based on the procedures established in each country. For example, while the Singapore port has established a process with appropriate technology for 100% inspection of containers, some countries, including the U.S., still use random inspection measures based on risk analysis, due to the large volume of imports. Importers that are part of programs like Customers-Trade Partnership Against Terrorism (C-TPAT) and
Importer Self Assessment (ISA) have the added benefit of reduced inspections and waiting. Some of the key rules, regulations and other mandates put forth by the U.S. and the European Union are detailed in Figure 2.

While rules and regulations for controlling trade hinders the free flow of goods, it is in the interest of all trading parties to adopt new policies as soon as possible. One of the principle benefits of being a member of programs like C-TPAT or being an accredited Authorized Economic Operator (AEO) is the reduction in time for processing shipments and related paperwork. CBP estimates that there is an average 29% reduction in transit times and 49% reduction in cargo delays for shipments made by C-TPAT members.

With automation and possible integration with government systems, shipments no longer need bulky documentation to accompany them. With the advent of paperless transactions, cargo arriving at U.S. ports can be cleared electronically, allowing for more efficient flow of trade. According to a study conducted by UNCTAD (the United Nations Conference on Trade and Development),

### U.S. and EU Rules, Regulations and Mandates

<table>
<thead>
<tr>
<th>U.S.</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advance Filing</strong></td>
<td>The 10+2 security initiative requires 10 data elements from the importer and two data elements from the carrier to be electronically filed 24 hours prior to loading cargo onto a shipping vessel ultimately bound for the U.S. Also known as Importer Security Filing (ISF), it is the result of the SAFE Port Act of 2006. The 24-hour rule requires that manifest information must be provided 24 hours prior to the sea container being loaded onto the vessel in the foreign port. CBP may deny the loading of high-risk cargo while the vessel is still overseas.</td>
</tr>
<tr>
<td><strong>Partnership Programs</strong></td>
<td>The Import Control System implemented by the European Union is the electronic security declaration management system for the import of goods. It will come into effect on January 1, 2011. Developed in the SAFE Framework of Standards for global trade, it requires importers to provide advance shipment information to customs authorities. Entry Summary Declaration (ENS) is required to be submitted at port of first entry by shippers.</td>
</tr>
<tr>
<td><strong>Customs-Trade Partnership Against Terrorism (C-TPAT)</strong></td>
<td>The Authorized Economic Operator (AEO) supply chain security program is an accreditation program to improve security by attempting to certify the cross-border actions of businesses and their trading partners. The registered exporters system simplifies the process for known and trusted exporters in third countries.</td>
</tr>
<tr>
<td><strong>Security Analysis</strong></td>
<td>The Advance Trade Data Initiative helps CBP more effectively target high-risk shipments, while reducing cargo inspections for C-TPAT importers. It helps detect discrepancies and trigger alerts prior to the cargo's arrival.</td>
</tr>
<tr>
<td><strong>Screening &amp; Inspection</strong></td>
<td>A security-related risk analysis is conducted upon receipt of the ENS message by the customs office of port of first entry.</td>
</tr>
<tr>
<td><strong>The Container Security Initiative (CSI)</strong></td>
<td>The EU’s Customs Security Programme (CSP) covers activities supporting the development and implementation of measures enhancing security through improved customs controls. Amendments made in April 2005 provide the legal framework for the measures. This includes introduction of a mechanism for setting uniform community risk-selection criteria for controls, supported by computerized systems.</td>
</tr>
<tr>
<td><strong>IT Systems</strong></td>
<td>Automated Import System (AIS) and Automated Export System (AES), as part of the e-Customs initiative.</td>
</tr>
</tbody>
</table>

**Figure 2**

**cognizant 20-20 insights**

3
in a paper-based system, over 30 data elements out of 200 need to be retyped more than 30 times, and 60% to 70% of these data elements have to be re-keyed more than once. Figure 3 shows the steady increase in the rate of paperless filing and entry summaries.

Difficulties in Global Trade

The impact on supply chain players due to these new rules and regulations cannot be underestimated. The difficulties in global trade stem from not only the increase in costs but also delays and hardships in getting goods across the border, which can lead to customer dissatisfaction and loss of business for trade partners.

Increasing cost to ensure compliance

Increasing self-compliance mandated for importers requires upfront investment in equipment, as well as manpower. According to a cost/benefit survey conducted by CBP, the activity of improving or implementing physical security (doors, windows, electronic access, cameras, fences, gates, lighting, etc.) received the highest mention among possible implementation costs. In addition, maintenance costs related to physical security, in-house education, training and awareness, administrative costs, etc., were also major expenditure items. The average start-up costs for C-TPAT were approximately $187,000, while the maintenance costs were around $118,000.

Delays in global trade

Increased inspections have led to considerable delays for shipments and increased customer dissatisfaction. These delays are often due to multiple reasons, including a time lapse in furnishing information, filing incorrect information and random inspection of shipments. There are economic tradeoffs between the frequency and rigor of inspection and the rate of turnaround for containers. While more inspection leads to less chances of a security hazard going undetected, it also increases the delays in the supply chain. In one study (conducted by Martonosi, et al, 2006), it was estimated that the cost of delay per day can approach 0.5% of the value of a container. Even when the delays due to inspection are anticipated in the long run, the extra pipeline inventory required to accommodate delays can be costly.

Managing data for conducting seamless trade

Although programs like C-TPAT reduce the number of inspections and, consequently, associated delays for members, it has led to increased requirements for data collection, as well as modifications to processes and systems able to fulfill the requirements of these programs. In addition, with varying regulatory frameworks associated with each country, filing has become a complex procedure for trade partners.

The volume of data also keeps growing, with the increase in the number of players and lists of information furnished for each transaction. A research paper published by the Australian Ministry of Foreign Trade and Economic Cooperation indicates there are more than 27 different parties involved in the international trade supply chain, with over 40 documents and 200 data elements. In Singapore, traders may be required to submit as many as 21 different forms to 23 different agen-
cies, a process that may take up to 15 to 20 days to complete. Even in the case of countries using extensive automation, the volume of data entered could be significant. By the end of the year, CBP expects data volumes to reach 27 million, an increase of 5% over the previous year.9

Limitations of current systems
Most companies have a plethora of applications to manage their global trade activities. Many operators, however, still use applications such as spreadsheets to perform daily tasks. Traditional document management systems are also manually intensive, requiring laborious processes for gathering data and disseminating information. These cumbersome processes lead to inaccuracies and delays. Currently, most large companies use ERP systems to handle trade management. However, due to the rigidity of their framework, as well as a lack of integrity with outside systems, ERP systems have issues with supporting data content requirements and are unable to handle the complexities of documentation and filing.

The importer must be able to reference lists such as denied-party lists and other blacklisted-party lists for each shipment. In addition, legislation seeking to curtail global money laundering and terrorist financing requires businesses to verify customer identities. These lists, which are updated by government agencies from time to time, must be accessed in real time to ensure the accuracy of declarations. Most companies do not have the technological capability to handle these situations, causing errors and omissions and, in severe cases, leading to penalties and lawsuits. Most companies also do not understand how to use the online information systems deployed by government agencies for automating the submission of forms and shipment data. For example, in spite of the introduction and upgrades of the AES, companies are having problems using the Export Classification Control Number (ECCN) with the country chart. Users often see incorrect ECCN and license exception combinations and are referring cases to export enforcement agents when AES data does not appear to be correct. CBP is also on the alert, contacting exporters with warning and penalty letters for AES violations.

In a survey conducted by Kewill,10 only 16% of exporters have fully automated systems for preparing export documentation (see Figure 4). A higher level of automation is seen in large shippers, while smaller ones still struggle with manual, semi-automated or third-party systems. Currently, less than half of all shippers surveyed are able to produce and distribute export-related documentation efficiently in less than 10 minutes. For half the respondents, more than 1% of shipments have errors that lead to delays and rework. However, of those using completely automated systems, only 37% had an error rate of more than 1%.

Framework for Effective Global Trade Management
Due to the emphasis on regulatory compliance, enforced with penalties and removal of benefits, the industry is left with little choice but to build a robust import and export control program, as well as demonstrate to the government the efficiency and consistency of these controls. One of the biggest challenges associated with following the new regulations is the fact that most of the data is dispersed in the supply chain and held by various partners. Trade partners will need to collaborate with each other and create a strong process-oriented framework, backed by appropriate technology and standards. In a survey conducted by World Trade Magazine,11 almost 70% of automotive and industrial manufacturers felt the need to improve their global trade processes to combat cost-savings erosion.

One of the biggest challenges associated with following the new regulations is the fact that most of the data is dispersed in the supply chain and held by various partners.
The leaders in global trade are managing the challenges of inefficient manual processes and unpredictability by using automation and controlling the complex environment to drive out costs and risks from global trade (see Figure 5). They are accomplishing this objective by setting up global trade competency centers and instituting corporate-wide performance measures. Traditionally treated as a back-office function, the trade compliance department is now viewed as a strategic advisor to keep supply chains moving and reduce total landed costs.

Combating delays and fines caused by compliance and documentation errors is one of the focus areas for best-in-class companies. Quick wins for reducing lead-time variability and reducing trade risks can be obtained by fixing these issues. High-technology companies, in particular, are focusing on improving the financial supply chain, with 52% reporting in the *World Trade Magazine* survey that they want to improve their trade process to control working capital requirements and improve cash flow. Decentralization and manual trade processes are resulting in redundancy and proving a roadblock for leveraging lessons learned across the organization. Figure 6 depicts the typical data that needs to be captured for efficient management of trade.

Leading companies are bringing together the various supply chain partners on a common platform. This is because all gaps in the chain will need to be closed to ensure effective security and compliance. In addition, any one player will not have all the data needed for filing. Supply chain movement data is usually spread among importers, exporters, carriers, customs, freight forwarders, etc. For instance, while the importer will know its AEO status and the goods’ commodity code, the exporter will have information on the consignor, contents, type of packaging, transport charges, method of payment, dangerous goods code, etc. The forwarder will have additional elements related to the transaction booking, while the carrier will provide details of transport and referencing. Setting up a common platform and facilitating “straight-through” information from the party that owns the information will ensure both timely and accurate filing.

**Data Requirements for Effective Trade Management**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Compliance</th>
<th>Customs Declaration</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Import/ export # management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Import/ export # assigning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Mass reclassification</td>
<td>• Sanctioned party list screening</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Import control</td>
<td>• Import document preparation and printing</td>
</tr>
<tr>
<td></td>
<td>• Embassy check</td>
<td>• Electronic communication</td>
</tr>
<tr>
<td></td>
<td>• Audit trail</td>
<td>• Duty calculation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transit procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Warehouse processing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Process monitoring</td>
</tr>
</tbody>
</table>

Figure 5

**Action Points for Better Trade Management**

- Reengineering & standardization of manual processes
- Extensive automation across the organization
- Design for flexibility without increasing supply chain complexity
- Collaborate with partners to extend the benefits across the value chain
- Implement common performance measures within and outside the organization

Figure 6
A huge gap exists between best-in-class operators and the rest of the industry in the consistency of processes and the consolidation of activities across the organization. Best-in-class companies improve their manual process by using pilot programs and then standardizing best practices across the organization. This is followed by extensive automation to leverage technology for realizing the benefits and aiding continuous improvements. Various tools — such as trade agreement planning solutions, classification engines, solutions for managing shipment information like country of origin and certificates of origin — are deployed, along with methodologies like Six Sigma for streamlining process flows and increasing automation.

A large number of players in the industry run their processes in a disconnected and divisional manner, supported by multiple systems that require a good deal of manual effort to synchronize the complete supply chain. In contrast, the leading players have standard processes across the organization, measured with common metrics, as well as the ability to obtain a single view of all operations, aided by automation with integrated systems and a common set of data. This also enables cross-functional workflows and alerts. The end goal for companies should be to automate the physical and financial supply chain processes not only within the organization but also beyond the four walls of the enterprise to vendors, brokers, forwarders, carriers and the like. Figure 7 captures the guidelines to be followed for implementing a strong process-oriented framework for improving global trade.

Leveraging IT to Stay Ahead of the Curve

Technology is one of the strategic levers for organizations involved in global trade for realizing improved and effective operations and gaining a competitive edge. Leading companies are getting ahead of the curve by implementing and upgrading their IT systems to address the dynamic regulatory environment (see Figure 8). To be able to handle complex and rapidly changing business scenarios, IT systems for global trade should have the following features incorporated into them:

- Flexible and open layered architecture.
- Tight integration with multiple stakeholders across the supply chain.
- Closed-loop feedback mechanism for resolution of issues.

The principle characteristic of the global trade supply chain is its dynamic nature. With ever-changing business scenarios and detection of new threats for supply chain security, it can be expected that rules and regulations will continue to evolve. Although the WTO offers standards for formulating new regulations, standardization of global trade processes across nations is still quite a way off. In this scenario, it is essential that organizations build more points of flexibility into their systems to be able to accommodate future scenarios.

Guidelines for a Process-Oriented Framework for Improving Global Trade

<table>
<thead>
<tr>
<th>Analyze</th>
<th>Act</th>
<th>Consolidate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify currently available data and additional data points needed</td>
<td>Reengineer process to capture and transfer data along chain of command of shipment</td>
<td>Changes to ERP and trade management systems for capturing additional data points</td>
</tr>
<tr>
<td>Identify persons/groups responsible for collecting data from each supplier</td>
<td>Identify and implement procedure for advance determination of correct commodity classifications</td>
<td>Record decisions and outcomes for continual analysis</td>
</tr>
<tr>
<td>Identify process gaps in achieving compliance, potential for quick wins</td>
<td>Analyze current procedures to ensure ability to handle additional filing requirements.</td>
<td>Document plans, policies and procedures</td>
</tr>
<tr>
<td>Analyze technology used by service provider and customs broker</td>
<td>Bring partners on a common platform</td>
<td>Set up global trade competency center for sharing learning’s and consolidating processes</td>
</tr>
</tbody>
</table>

Figure 7
A well-integrated system also provides greater visibility into the network and standardization of data, enabling better and faster decision making for stakeholders.

Integration with the parties involved in the trade cycle is no longer just a desirable feature in modern automated systems. Filing of customs data needs to be accurate and timely to avoid delays and penalties. As mandates to furnish even more data from all the participants in the supply chain emerge, creating integration points has become essential both inside and outside the organization. Third-party service providers (such as GT Nexus for shipment-level data and trade-related information) may also need to be integrated to plug the information gap. In addition, integration is also needed with customs agencies to enable e-filing, as well as to refer to various sanctioned party lists that are published from time to time. A well-integrated system also provides greater visibility into the network and standardization of data, enabling better and faster decision making for stakeholders.

A closed-loop feedback mechanism helps detect errors and flag discrepancies while there is still time to take action. Standard metrics and KPIs across the organization, coupled with real-time alerts and notifications, help close the gap between information and action. Closed-loop decision processes between the physical and financial supply chains also help management control cash flow, while mitigating business risk. Duty drawbacks are one such area where most organizations would be able to extract immediate gains from analysis of trade transactions. In addition, audit trails have become mandatory for meeting compliance with customs agencies and other regulations such as the Sarbanes-Oxley Act.

Shipments Control and Visibility: Capturing Missing Data for Customs Compliance

A leading global player in international express, overland transport and air freight was suffering from noncompliance with global security standards. The problem stemmed from its current system, which was unable to capture required shipping details and lacked security features to prevent unauthorized use of shipment data. Among other limitations, the system was unable to provide piece-level tracking of shipments, capture of new customer information, and multi-user support, which created inefficiencies and shipment delays.

This company turned to us to develop a shipment control and visibility system, which led to improved productivity and better visibility. Shipment details were captured and tracked at a piece level. The system also reduced data entry effort due to use of validations and business rules and enabled operators to add new customer information.
We leverage a unique value creation framework to help our clients achieve greater efficiency, effectiveness, virtualization and innovation. Figure 9 depicts some of the key areas for business transformation and for creating higher levels of value for our clients.

Trading Up
The global trade situation is bound to get more complex before it moves toward a more uniform and simplified regime. With the European Union following in the footsteps of the U.S. with increased regulatory activity, it has become imperative for organizations to proactively adopt these changes and take an early lead in implementing new processes and technologies. The burden placed on exporters and shippers today can be turned into an opportunity. Extensive automation of the processes, while preserving the flexibility of the environment, along with a mechanism to sense and respond to changes, can become a competitive differentiator for all supply chain players that have a significant stake in global trade. The ability to respond in the right manner to rapid changes, as well as being able to manage risks, can translate into new opportunities for higher profits and reduced costs.

A Framework for Global Trade Management

References
MIT Supply Chain Strategy, IOMA, June/July 2007, Volume 3, Number 5.


About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services. Cognizant’s single-minded passion is to dedicate our global technology and innovation know-how, our industry expertise and worldwide resources to working together with clients to make their businesses stronger. With over 50 global delivery centers and more than 100,000 employees as of December 1, 2010, we combine a unique global delivery model infused with a distinct culture of customer satisfaction. A member of the NASDAQ-100 Index and S&P 500 Index, Cognizant is a Forbes Global 2000 company and a member of the Fortune 1000 and is ranked among the top information technology companies in BusinessWeek’s Hot Growth and Top 50 Performers listings.

Visit us online at www.cognizant.com for more information.

© Copyright 2011, Cognizant. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the express written permission from Cognizant. The information contained herein is subject to change without notice. All other trademarks mentioned herein are the property of their respective owners.

Footnotes

1 Opening address by Renato Ruggiero, World Trade Organization Symposium on Trade Facilitation, March 9, 1998.


About the Author

Anand Kalathil is a Senior Business Analyst at Cognizant and a member of the Cognizant Business Consulting team in the Manufacturing and Logistics Practice. He has worked across diverse consulting engagements with leading transportation and logistics providers. His key areas of expertise include supply chain consultancy, business process modeling, analytics and BI. Anand holds a bachelor’s degree in mechanical engineering from the National Institute of Technology, Kurukshetra, India, and a post-graduate diploma in industrial management from NITIE, Mumbai. He can be contacted at anand.kalathil@cognizant.com.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process outsourcing services. Cognizant’s single-minded passion is to dedicate our global technology and innovation know-how, our industry expertise and worldwide resources to working together with clients to make their businesses stronger.