Customs in the 21st Century: A Foundation for the Future

March, 2001
Office of Planning

Customs in the 21st Century

In June of FY 2000, Customs Commissioner Raymond W. Kelly, initiated a project to engage Customs in in-depth discussions on the implication and impact of the future on Customs operations.

Because Customs mission is so diverse and because it interfaces with such a variety of stakeholders, it is necessary to begin to look at the future and review how industry, business, national security, global economy, and technologies will change and how Customs must change to adapt to this future environment.

After a review of industry and academic information, it was determined that a series of high-level interactive meetings would achieve this goal. Customs enlisted the support of Coates and Jarratt, Inc., a highly regarded, Washington-based, futurist consulting firm and PricewaterhouseCoopers, an internationally known professional services consulting firm to assist in the effort. The firms worked with Customs to facilitate a series of six meetings to discuss futures issues pertaining to Trade and Global Economy, Travel and Transportation, Criminal Justice and National Security, the Millennium Workforce, and Inventions and Technology. The last meeting in the series served as the mechanism for integrating all of the information.

In addition to senior level Customs managers, participants in this dynamic strategic planning initiative included individuals from private industry, the trade community, other federal agencies, and Congressional staff. The academic world provided the expert speakers. Their expertise and knowledge were used to set the stage for discussion.

The report that follows is the result of the final integration session. The information summarizes future trends, implications on Customs and professional observations that can assist Customs in meeting the challenges of the future. The distribution of this report will serve a starting point to assist Customs in planning for the future and in interpreting how future events will affect Customs overall environment.

Customs must be able to meet and prepare for the challenges presented to it in the 21st century. As an agency, Customs has an opportunity and the responsibility for having a positive influence on the future of the United States, and because of its global presence, the entire world. People and organizations are capable of using emerging science, technology and knowledge in ways that are beneficial and useful. By taking steps now to think futuristically, Customs can make it happen.

U.S. Customs Service

Senior Executive

Futures Sessions Digest

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- **We are the guardians of our Nation's borders — America's frontline.**
- **We serve and protect the American public with integrity, innovation, and pride.**
- **We enforce the laws of the United States, safeguard the revenue, and foster lawful international trade and travel.**

2001 U.S. CUSTOMS MISSION STATEMENT

Preface

The United States Customs Service is an organization that performs dual missions, one of law enforcement and one of regulating commercial trade activities. It is the only agency with an extensive air, land, and marine interdiction force, and with an investigative component supported by its own intelligence function. Customs has significant responsibilities for ensuring that all goods and persons entering and exiting the U.S. do so legally. Customs is the primary enforcement agency protecting the nation's borders. Customs also provides advice and assumes responsibility to ensure all merchandise shipped into the country complies with all U.S. laws and international trade agreements.

Customs is interested in and concerned about ways that the future could change Customs responsibilities and capabilities. Raymond W. Kelley, the Commissioner of the U.S. Customs Service, directed a series of strategic conversations, with expert presentations and facilitated discussions on the implications of the future, looking at the integration of the major areas that could affect Customs. This report reflects the results of the conversations and is based only on unclassified material. It summarizes six interactive futurist sessions involving Customs employees, expert speakers, and external stakeholders. The report also identifies implications and observations for Customs.

Bill Riley and Chris Gaugler from the Office of Planning were the Customs project owners for this work. Jim Burke, Coates and Jarratt, Inc., directed the effort, in cooperation with Dr. Craig Petrun, PriceWaterhouseCoopers. Jennifer Jarratt, Coates and Jarratt, Inc., provided technical advice and oversight for this project. Other staff members of Coates and Jarratt who contributed to this work include Stacey Aldrich, Josh Calder, Chris Carbone, John Cashman, Joe Coates, Janelle Hardy, Carol Lipton and Matthew Roth.

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Executive Summary

Customs recognizes that the world in 2020 will be different, perhaps radically different. Customs, however, expects that public expectations for speedy processing and security, and the fundamentals of border protection and trade facilitation will remain the same. Exhibits 1 and 2 show the trends and implications respectively for trade facilitation and border protection.

Exhibit 1

Trends and Implications for Customs and Trade Facilitation

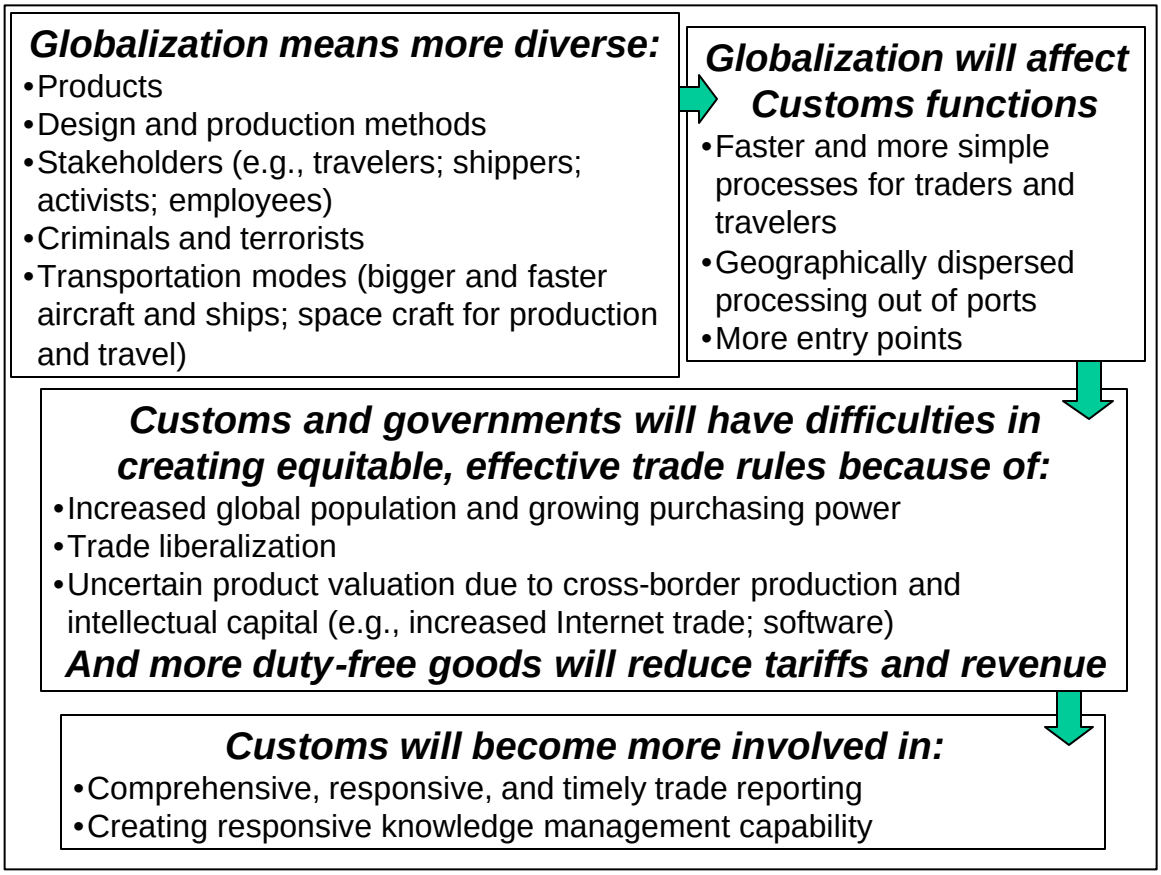


Exhibit 2

Trends and Implications for Customs and Border Protection

Criminals will have distinct advantages

- International criminal networking and cooperation
- Easier access to funding for anti-social actions and to buy legitimate businesses as cover
- Means to leverage technology to conduct and hide crimes
- Ability to leverage social concerns for privacy and justice to frustrate law enforcement

Customs will see pressure for social equities

- Labor—keeping out products produced from slavery, by children, or in unfair working conditions
- Environmental—ensuring goods are compliant with regional law and international treaties
- Pressures for enforcement could come with little warning

Globalization will speed the spread of disease and Customs will face disease control concerns

- Employee exposure to infectious disease
- Increased need for biological monitors
- More networking between Customs and health agencies

The complex combination of trends, implications, and challenges could converge to create pressures to eliminate Customs, with the Customs functions assumed by other government agencies. However, the blend more likely will create a number of needs for Customs, outlined in Exhibit 3.

Exhibit 3

Requirements for Customs 2020 Mission

- **Technically proficient employees**
- **More innovative recruiting, retention, and reinvigoration/training programs**
- **Sophisticated knowledge management processes and advanced law enforcement technologies**
- **More stakeholder partnerships—internal, national, and international**
- **Increased funding**

The availability of technology and innovative processes and procedures will allow Customs a variety of opportunities to meet future needs. Exhibit 4 shows examples of those possibilities.

Exhibit 4
Customs 2020 Opportunities

Technologies and processes will offer Customs a rich menu of opportunities, including ways to:

- Create and share a better Customs story with stakeholders
- Build better relationships with stakeholders, especially with trusted shippers
- Increase revenues (e.g., charging other government agencies for functional support)
- Cooperate and intervene early in goods design and production to deter misdeeds, facilitate enforcement and better value goods
- Build a formal Customs function and roadmap to exploit advanced technology (e.g., cybertechnology and electronic forensics, robotics, biology for detection, remote sensing from high altitudes and space, miniaturized sensors and computers for reporting)
- Operate in a distributed, open, wireless, mobile environment
- Better involve employees in work design and motivation

The Strategic Details section of this report and the appendices give more explanation of the issues and items in the Executive Summary. The section details the turbulent political and economic world that Customs will face in the next 20 years and opportunities that Customs can exploit to operate effectively in 2020.

Strategic Details

INTRODUCTION

In early 2000, the Commissioner of Customs requested that Customs begin an in-depth discussion on the implications of the future and its influence on Customs operations and strategy. The Customs mission is diverse and Customs interfaces with a variety of stakeholders. Therefore, looking at the future had to include several areas, for example, business, industry, criminal justice, national security, the global economy, transportation, and technology, to see how they might evolve and change. Adapting to and influencing these changes will be critical to Customs future success.

Customs planned a series of high-level, interactive, facilitated sessions to address these issues and to enable participants to engage in meaningful, creative, and insightful discussions pertaining to the future of Customs, its environments, and world conditions that may influence Customs in 2010-2020.

Customs asked experts to present their ideas about trends and future issues. The talks were followed by facilitated futurist discussions that were designed to give participants—from inside and outside Customs—a better sense of ways to think about the future and to identify implications for Customs.

The sessions were designed to cover several areas that will affect Customs operations in the future and included:

1. Trade and the Global Economy
2. Travel and Transportation
3. Criminal Justice and National Security
4. Technology and Inventions
5. The Millennium Workforce

6. Futures Sessions Integration

This remainder of the report summarizes six interactive futurist sessions involving Customs employees, expert speakers, and external stakeholders. The Strategic Details section examines the specific insights, trends, implications, and observations for Customs. It opens with a discussion of Customs missions in 2020, followed by supporting rationale. The appendices include three stories that describe possible Customs missions in a typical 2020 Customs day. The details of the five expert sessions, participant names from all six sessions, and a summary of a typical day in the life of Customs 2001 are also included in the appendices.

CUSTOMS MISSION 2020

The U.S. Customs Service in 2020 will most likely have two primary parts to its mission—border protection and trade facilitation.

Customs in 2020 will provide the public service role of physical and electronic border and port security, protection, and enforcement against smuggling, terrorism, and money laundering. One scenario sees Customs taking on some protection, enforcement, and trade support responsibilities of other government organizations, with a blending of missions between enforcement and facilitation. One example of the mission tasks that touch enforcement and facilitation will be a growing need for enforcement of international labor laws to ensure that goods entering and exiting the country have been produced within international labor guidelines. Similarly, environmental protection will be an

Customs 2020 Mission Highlights

- International technical cooperation and trade/tourism facilitation
- Physical and electronic border and port security, protection, and enforcement
- International labor law enforcement
- Environmental law/treaty enforcement

important Customs mission responsibility, ensuring that imports and exports comply with regional environmental laws and international treaties.

The other primary mission task will include trade and tourism facilitation and support. This includes international technical assistance and global partnerships on trade. This covers tariff collection, regardless how significant tariffs may or may not be in international relations, and ways to ensure speedy import and export processes. An important part of this mission area will include automated and readily accessible, real-time information tracking, management, and connectivity.

PRACTICES AND PROCESSES

Stakeholders of the 21st century will be more varied and global, motivating Customs in 2020 to rely on different advanced tools, processes, and procedures. International cooperation, for example, will be critical to Customs' mission success with other countries and larger international corporations, as well as with smaller industry managers and entrepreneurs. The United States will be a signatory to trade agreements that will mean Customs will make fewer trade inspections, take in fewer revenues from tariff collections, but pay more attention to unfair trade and labor practices.

Customs tools will include sophisticated ways to monitor and enforce electronic security. Customs also will use methods and capabilities to address imports and exports in biotechnology to monitor trade and environmental practices, hazardous material control, and infectious diseases.

The Customs workforce will be much more mobile and connected than the officers and employees of the early 2000s. Knowledge management (KM) will be common and effective. KM will permit the near instantaneous sharing of

information, and provide new ways to recruit, train and revitalize the Customs workforce.

The next section describes the trends that underpin this assessment of future Customs missions.

TRENDS

The following are trends affecting Customs between now and 2020. These trends fall into the following categories:

- Trade and Population
- Public Expectations
- Declining Revenues
- Stakeholders
- Travel and Transportation
- International Crime and Terrorism
- Workforce of the Future
- Advanced Technology
- Resources

Trade and Population

Over the next 20 years, Customs will face a range of unpredictable and unexpected events and situations emerging from world dynamics well beyond the control or influence of the U.S. These include new economic relationships and cooperation between allies, friends, and adversaries.

Concurrent with increased trade and reduced tariffs, Customs will see increasing tensions, even economic embargoes and conflicts, stemming from new sources of friction—e.g., environmental pressures, access to clean water. Aging political leaders, including some dictators, will die or transition out of office,

creating leadership chaos, disrupting regional trade patterns, and opening opportunities for organized crime. All of these will complicate Customs effectiveness.

Over the next 15 years, 1.5 billion people will be born, almost all in developing countries. This population growth will create several complementary pressures for migration, as well as social and material progress. People will get higher per capita wages and want higher standards of living. This, in turn, will drive dramatically expanded international trade and intense global competition.

At the same time physical borders will continue to break down, not only because of the growing use of the Internet and wireless technologies, but because of regional trade agreements that are making borders more transparent. Trade is becoming more complex, for instance: components for goods will often cross borders many times before final assembly. Customs will see more complicated imported goods—pharmaceuticals, software, and intellectual property—coming physically and over the Internet. In some cases, electronic instructions will be passed from a design computer in one country to a computer managing manufacturing operations in

Trends Affecting Customs

- Pressures for progress—new international cooperation and competition
- Continuing global population growth
- Expanding public expectations for speed and demands for safety and security
- Declining revenues, agency consolidation, threats of elimination
- Growing importance of stakeholders and partnerships in and outside Customs
- Changing global travel and transportation—faster, bigger, more entry points—to meet tailored needs
- Increasingly sophisticated international criminals
- Growing workforce complexity—diversity, mobility, continual technical training, instant electronic connectivity, independence
- Growing innovative technology solutions for monitoring, inspection, information sharing, enforcement, but with implementation challenges
- Continuing perceptions of resource shortfalls

another country. Software and software upgrades will continue to present a particular problem, because determining value is so elusive and because sometimes software is only an intermediate product. There is a distant possibility of a single global currency, but this is not expected by 2020. It is unlikely that the major regional trading blocks will have one international currency, but more likely that areas will have regional currencies, like the Euro.

Internet processing is particularly hard to capture and value. Advanced information technologies and innovative business models will create new ways of designing, producing, buying and selling. Bartering of electronic goods, for example, will offer buyers and sellers new ways to trade and may require different ways to value goods for tariffs. Industries and governments will have growing needs for more information, in many cases, continually and instantly updated data explaining orders, shipping location, deliveries, and payments.

Public Expectations

Competition and information interconnectivity will continue to cause growing public expectations for speed. People, especially international industry travelers, will want predictability and timeliness, with speedy, hassle-free processing in and out of ports of entry, for themselves and their goods. The rights of customers for privacy and respect will continue to expand.

At the same time, public interest in safety and security is rising. Customs will see continuing growth in special interest group and non-governmental organization pressures in the areas of privacy, equitable treatment, and social justice that will cause continuing tensions between privacy and security. Other sources of Customs-customer tensions will continue in the health arena. For example, one area for emphasis is pharmaceutical traffic management. As advanced technology continues to improve the capability to create new health care drugs, many potential new treatments will be developed in countries that do

not share U.S. standards for drug testing and marketing. U.S. citizens will continue to be frustrated by Customs efforts to enforce pharmaceutical trafficking laws.

Another related area is genetic engineering of products—animals or plants. Genetically modified products will continue to be a matter of debate for the near future. Many special interest groups will want to prevent imports or exports of genetically modified food, plants, or animals. Genetic engineering will continue, with increasing requirements for labeling, but uncertain rules for future valuation. A likely role for Customs inspections is to prevent import or export of certain kinds of genetically modified materials.

Declining Revenues

Regional and global trade agreements, with more reliance on electronic transactions will mean complications in valuation and tariff collection. Customs will see continuing declines in revenue collection. This might be overcome by agency consolidation with Customs assuming responsibilities from some or all of the 42 U.S. agencies that have Customs-like tasks. Another possibility is that responsibilities from Customs would be transferred to other agencies, reducing or even eliminating Customs as an independent organization.

Stakeholders

More likely, Customs will remain an independent agency and, given the growing, diverse, and complex set of organizations and people that Customs will work with in the future, stakeholders will become increasingly more important. These include people traditionally viewed as outside stakeholders—manufacturers, shippers, passengers, the general public, and legislators—as well as other external players, like Internet service providers, communications companies, genetic engineering firms, and non-governmental organizations

(NGO) concerned with trade, travelers rights, and security. Stakeholders inside Customs also will become more important. The views of human resources managers, for example, as well as diversity specialists, trainers, technologists, labor union representatives and other employees—part and full-time—will become more influential in Customs operations. Internal stakeholders will also be more important since they will exercise greater latitude and independence in their jobs in the future.

At the same time, many people inside Customs, the general public, industry, and government agencies will continue to misunderstand or be unaware of the complexity and range of big issues facing Customs. There will continue to be difficulties in communicating the seriousness, breadth, and changing nature of the Customs mission to the Congress. Nonetheless, Customs can expect increasing Congressional interest in Customs operations because of growing U.S. industry involvement in overseas operations and sales.

Travel and Transportation

Global trade needs for tailored, speedy delivery will change the nature of travel and transportation. There will be more deep-water ports, with increasing attention to model ports, designed to facilitate transport in and out. Virtual ports, where as much processing as possible is done online, will also grow. Freight will increase in all classes of transportation, including airfreight. Shippers also will see larger trucks and bigger container ships.

Air travel will change, with more big—400-500 passenger—and more small—40-60 passenger—aircraft. Growing numbers of tiny remotely piloted vehicles that can cruise at high altitudes and carry sophisticated sensors and cameras will complement these planes. Larger unpiloted aircraft will be able to transport several hundred pounds of legal cargo or contraband. Increasing

numbers of vehicles, especially trucks and autos, will use hybrid fuel technologies, including light batteries and fuel cells.

International passenger travel will become highly diverse, with travelers from a greater variety of countries, ethnic backgrounds, and religions. The passengers will be coming into the country via more routes and modes, including more cruise traffic and inter-border rail cruises. The diversity of entry points will not be limited to sea and truck freight and there will be more air entry ports, skipping big congested hubs in favor of smaller airfields. Eventually space travel will be a factor, and vacation space travel, launching from one country or the open sea and landing in another country, will become commonplace. Of more significance for Customs is the likelihood of space manufacturing, especially for pharmaceuticals and high value electronics.

The passenger and shipper need for speed will motivate more processing at non-border locations. There will be more freight entry points inland with an automated infrastructure and intelligent highway systems with sensors that allow automatic vehicle traffic. The goal for travelers and shippers, whether inland or not, will be speedy, consistent processing without a Customs presence.

International Crime and Terrorism

Governments will be challenged to maintain pace with legal commercial shipping and private travelers, but will be exceptionally hard pressed to keep pace with growing international cooperation among crime rings. While advanced technology gives a lone person the means to commit sophisticated crimes, most illegal activities that Customs will face will come from criminal syndicates, in many cases internationally based, or state/privately sponsored terrorist organizations. There will be a much greater diversity of criminal networks involved in a greater assortment of criminal activities. Criminal rings will move more into finance-based crime, cybercrime, and theft of intellectual property.

Terrorists also will move into commercial activities, but will continue to rely on states or wealthy individuals for funding.

State support of criminal and terrorist activities will further complicate Customs enforcement activities. State governments, Russia, China, and Colombia, for example, actively support many criminal activities and it is unlikely that state involvement in crime will diminish in the near future. States like these will continue to offer safe havens for criminals and terrorists, and actively work to stifle investigations and thwart extraditions. Likewise, Customs should not expect to see any significant reduction in state supported terrorism from nations that are outside the family of civilized nations. The intensity of weaponry available to terrorists will increase, however, with growing reliance on cyberterrorism and weapons of mass destruction. The World Court will not support U.S. enforcement activities to counter international crime.

Government intelligence will have trouble keeping up with criminal diversity, especially as the rings use their proceeds to invade legitimate areas. The criminals will be buying and using more legitimate industries as cover—manufacturing, shipping, and financial services—and will be moving into new criminal ventures, like more sophisticated designer drug production or environmental law evasion, e.g., hazardous waste disposal at sea. Definitions of intellectual property will be changing in uncertain ways, making it harder to enforce ownership laws. Crime syndicates also will exploit advanced technology to coordinate, design, create, and move illegal goods. This will become even more problematic as criminals begin to make use of genetics and genetic engineering. With advanced biotechnology, more illicit and designer drugs will be produced in the U.S. This may lead to a Customs focus on more enforcement against illegal goods and materials like unauthorized biological materials. There also will be growing demands for technology transfer monitoring, but the things controlled will change in unclear ways.

Technologies previously restricted to government agencies or military services are now moving into the commercial world, available for exploitation by criminals. These include sophisticated data encryption that is much harder to decipher, allowing criminals to confidently share information and planning. Another technology is remote sensing from space. Commercial satellites will give the capability to detect and identify objects as small as a couple of feet from space. Eventually this sensing will be near real-time, allowing criminals to monitor many Customs activities and other law enforcement agencies on a continual basis. Criminals will have access to more advanced smuggling platforms, for example, submarines and unmanned aerial vehicles. When these are combined with stealth technology, criminals will have a new capability to hide from radar detection.

Workforce of the Future

One consistent trend is the dependence that Customs will have on the quality of its workforce and the direct relationship between effective employees and an effective, efficient agency. Workforce needs, however, are becoming more complex. The nature of worker-employer contract will be changing over the next 20 years. Workers will want to balance personal pursuits, family, and work, creating a new equilibrium between loyalty to an employer and self-marketing for the employee. Workers also will continue to create demands for new benefits, for example, assistance in supporting elders, children, and even pets. Shorter workweeks as a condition of employment will become common, as will growing worker requirements for independence and self-direction. At the same time that worker demands are increasing, government workplace regulations that will limit employer flexibility are increasing as well.

Customs can expect to have a more diverse workforce—culture, skill, and age. This could create a potential for rising cultural or ethnic tensions, both within Customs operations and with their diverse customers.

Organizational management techniques and procedures will continue to evolve to meet employee demands and needs, including functional decentralization, allowing workers more flexibility in scheduling and task execution. This will be eased through advanced information technology for worker self-organization and assignment flexibility.

The burdens on the employees, however, will grow. Customs workers will face continuing pressures for proficiency that is more technical and specialized, combined with requirements to work with more culturally diverse customers.

Advanced Technology

Technical advances will continue, especially in computers and communications, providing solutions to impending Customs challenges. Wireless communications, computing power, and advanced information technologies will become less expensive and instantaneous. All elements of Customs will be connected and armed with the technology advantage essential for a faster connection and more remote processing. Third generation cellular will offer capabilities identical to wires, being able to pass video and data between wireless devices. Advanced sensors will be ubiquitous, small, self-monitoring and self reporting, integrated with radio frequency identification devices (RFID) in packages or with robot inspectors, using unlimited bandwidth for continual reporting. Autonomous and semi-autonomous robots, mobile, and weatherproof, will become more

Representative InfoTech Trends

- Convergence of wire, wireless, and cable
- Shrinkage and smartness in all devices
- Digitization—the universal language
- Device integration leading to multifunctional capabilities
- Competition among all technologies
- Ubiquity of information technology and applications
- User friendliness
- Broadening bandwidth
- Falling costs and prices
- Internet compatibility for all devices

important in examining containers or hard to get to port locations. The sensors of 2020 will be far less intrusive than current inspection devices, but much more effective, covering a far greater range of detection capabilities, including smuggled products, money, etc. Many of the sensors will be small and wearable, in some cases embedded in the human inspectors' bodies.

Genetics and genetic engineering will present a gold mine of opportunities to thwart criminals, but will also give malefactors ways to circumvent laws. Biotechnology will make it easier to identify contraband, for example, every oil or grain field has a distinct signature and future sensors will quickly identify the source of commodity shipments. Chip-sized devices will be available to quickly analyze 2,500 genes. Chips are becoming more autonomous for automatic scan and detection, weatherized, and rugged.

Micro Electro-Mechanical Systems (MEMS)—highly reliable, integrated micro devices or systems combining electrical and mechanical components fabricated like integrated circuits—will become more common. They will range in size from micrometers to millimeters and will be more frequently used to sense, control, and actuate on the micro scale. MEMS are commonly used in the sensors and actuators in automobile air bags. Nano-technologies, which are 10^5 times smaller than MEMS, will not be available for a decade or more, but will offer opportunities for embedded sensors that are more flexible to use, durable, and harder to circumvent.

One area that will be emerging in the next 20 years involves predictive capability for physical, biological, and social sciences. Advances in complexity theory and modeling, based on analyses of physical and biological processes, will be applied to social settings.

Effective, efficient automatic language translation machines will be available in the next 20 years that are small, easy to use, relatively inexpensive, e.g., under $100, and durable.

Groupware will become critical for global interaction, but also provide the opportunity for free discourse that could subvert the bureaucracy by allowing people to communicate more freely across organizational boundaries. This will allow people to be linked by what they know rather than where they sit. The far term impact on the organization is unclear, although it will bring about new management trends. Knowbots, electronic agents, will search through databases for information needed based on specific criteria, then assemble it in a personalized style, increasing ability to digest information at all levels.

Resources

Available resources will continue to be a matter for concern, with continuing perceptions of shrinking budgets and declining revenues from reduced tariffs and lower duty collections. Resources to do the job will continue to be perceived as becoming scarcer based on projections of shrinking Customs budgets. These concerns will be exacerbated by growing work requirements that mean fewer completed inspections—more overtime, more processing—with static staffing level authorizations, and increased job complexities—including growing non-revenue and interagency demands, all affected by politics.

The next part of the report addresses the implications for Customs that flow from the trends.

IMPLICATIONS

Trade and Population

Global trade, trade liberalization, growth in regional trade agreements, and the reduced importance of borders and distance will demand that Customs functions be consolidated, simplified and more rapid, or even eliminated. Trade will become more dependent on speed. Delay will be the ultimate cost. Out of port processing, en route or inland, and elimination of Customs home bases will be more common. Industry will develop partnerships with Customs to reduce processing times and ease Customs tasks, but will continue to have concerns about paying additional fees for faster administrative procedures.

Representative implications

- More harmonized international cooperation on trade and enforcement
- More worker mobility with workplaces separate from traditional Customs locations
- More trade agreements with less trade inspections and lower tariff collections
- More contact with small businesses and entrepreneurs
- More attention to electronic transactions, biotechnology, and environmental matters
- More international criminal cooperation and legitimate businesses as cover

Globalization and continuing population growth with growing production and manufacturing activities will bring more attention to environmental and labor matters. Expanded responsibilities for Customs will include enforcement of laws prohibiting importation of goods that:

- Violate fair labor practices
- Are not produced in accordance with environmental treaties
- Do not protect species diversity, e.g., endangered species, ivory bans
- Violate ocean harvesting bans, e.g., fishing bans, coral reef protection

Environmental affairs and compliance will create a growing source of friction between governments and among manufacturers and environmentalists.

Concern for the environment could result in new responsibilities for Customs to ensure that imports and exports have not been produced in ways that violate U.S. laws or international treaties. These increased tasks could come without much warning and with little time to prepare and respond.

Population growth and urban pressures will complicate health and sanitation in many developing nations, allowing older diseases to resurface and new ones to manifest. This will affect Customs operations in several ways:

- Exposure of Customs personnel to infectious diseases
- Increased needs for biological monitoring
- More responsibilities for networking with national and international health organizations

Customs will continue to collect, store, analyze and report on trade import/export data. This information will continue to be important to businesses and other government agencies. Customs may be tasked to conduct more comprehensive trade analysis, providing a knowledge management function for global trade statistics. This could be especially valuable if Customs were able to exploit information about international Internet trading and to create ways to better understand the possibilities and valuation of space manufacturing.

Public Expectations

International and national politics, exaggerated rights to privacy, and liberal attitudes towards crime will continue to complicate the ways that Customs does its job. As technology allows people to do more in less time, travelers will become less tolerant of delays or procedures that seem on the margins of safety and security. Travelers will expect cogent and believable explanations and rationale for time-consuming processes, even if the procedures are related to unusual events, e.g., terrorist threats.

Declining Revenues

Continuing trade liberalization, increasing reliance on the Internet, uncertainty about ways to value future products, and a higher ratio of duty free to dutiable goods will reduce tariffs and Customs revenues. Customs assessments and collections will be difficult without rules changes, most of which are beyond Customs control, e.g., international trade in pharmaceuticals.

At the same time, the U.S. is unlikely to have any policy or process in place to discipline trading partners who violate rules without some reliance on tariffs or other actions, like embargoes, that would rely on Customs for enforcement.

As more countries and companies enter the information age and more U.S. corporations take part in global markets, they will need data about trade patterns and processes. Customs has to access this valuable information that could be used as a source of revenue. At a minimum, Customs will have new ways to tell new stories about the ways that Customs is supporting and facilitating trade and travel.

Stakeholders

The number of stakeholders that Customs deals with is growing in numbers and diversity. Increases in international passenger travel and global trade will expose new sets of people to Customs practices and processes. Customs can expect to see a greater diversity in international travelers and shippers, especially from developing countries that represent another set of stakeholders to whom Customs could reach out and engage. Economic vitality provides fertile ground for trade and travel advocacy groups, including commercial, pleasure, and manufacturing associations, as well as non-

governmental organizations concerned with specific issues, e.g., animal rights and environmental compliance.

Globalization and demands for efficiency will continue to change the way goods are designed, manufactured, shipped, sold, and disposed. Manufacturers are paying more attention to the full product life cycle, from design to disposal or recycling. This offers Customs new opportunities to create working relationships that could ease processing for traders and Customs. As manufacturing designs become more complex, Customs has an opportunity to influence the way goods are produced to make counterfeiting more difficult or valuation for tariffs easier. The rise and consolidation of express shipping companies gives Customs additional stakeholders to engage to influence packaging and shipping that could ease monitoring and inspection.

Customs will have an increasingly complex story to share with their stakeholders, especially the U.S. public, industry, and the Congress.

Travel and Transportation

The diversity of newer transportation systems will continue to expand monitoring and inspection responsibilities for Customs, forcing the agency to:

- Become more familiar with different shipping methods, e.g., automated intermodal transportation
- Better understand the impacts of larger and faster shipper modes—airplanes, ships, and eventually spacecraft
- Expand processing points as ports and hubs proliferate and move inland
- Consider the impacts of intelligent highways on import and export processing

International Crime and Terrorism

Criminals will have distinct advantages because of easier funding, a lack of concerns for rules and regulations, and a growing information base for anti-social activities. Customs will not be able to match criminal investments in terms of quantity, quality or timeliness. Criminals and terrorists will be able to use technology to develop new ways to commit anti-social acts, cover their tracks more innovatively, and create defenses. The capability of Customs to identify and focus on the most likely offenders will be quite difficult without a clear public explanation of the rationale. Other government efforts to counter criminal and terrorist activities will become more complex and expensive.

Leadership aging and information technology is forcing despots to loosen their grip on information. It is also allowing communication for legitimate and illegitimate activities and groups—including links with international criminals and terrorists—to find new opportunities for fraud and access to drug and weapons design data.

Because criminals and terrorists are sometimes better funded and more agile than governments, Customs could find itself concentrating on narrow bands of advanced technology that could be vulnerable to criminal and terrorist countermeasures without any fallback capabilities. Governments will see growing needs to be more attentive to the financial underpinning of international crime and to criminal and terrorist counterintelligence activities. Customs can, therefore, expect to be involved with more offshore fraud and cybercrime investigations.

Workforce of the Future

Customs will have a continuing need for more technically proficient workers, with skills in systems analysis, information technology, and knowledge

management. These same workers, however, are being actively recruited by the higher paying commercial sector and Customs will face challenges in staffing, training, expanding pay and compensation packages, and technology exploitation. Customs will face near-term pressure to bring younger people into the agency to allow the agency to build a foundation for the workforce complexities of 2020. Customs will continue to take advantage of outsourcing, but most likely will still rely on a permanent force because of the law enforcement needs of the job.

More technology, however, does not mean less work. The critical element will continue to be people, not technology. Technologies—artificial intelligence and non-intrusive inspection capabilities—could free up resources, but without preparation and partnership, it may create management-union tensions. Technology should allow management to create a culture where individuals are able and willing to share data and expertise. This means that workforce effectiveness is dependent on technology, employee training, and cooperation.

Customs training will become continual, more on-the-job, and faster. Customs will become a learning organization that exploits advanced knowledge management techniques for information sharing and training.

Customs also will be faced with demands for more innovative and complex ways for worker motivation and incentives. This will involve more attention to non-monetary matters, e.g., splitting one job between two employees, allowing workers more independence in scheduling, or providing tools that support worker self-organization.

Advanced Technology

Customs will exploit advanced technology to support an increasingly mobile work force, equipped with portable office and inspection capabilities, and to help industry and passengers to do as much self-compliance as possible. Industry, passengers, and Customs will rely more on advanced information gathering and processing—automated, standardized, and multilingual—that make transactions as transparent and easy as possible, yet has structure that identifies anti-social activities.

Customs will engage in partnerships that are more active with stakeholders to use advanced technologies—like miniaturized components, ubiquitous sensors, wireless communications, and mobile computing—to:

- Ensure effective and efficient trade and travel information flow
- Design products that are difficult to smuggle
- Protect intellectual property
- Provide more effective and efficient inspections, as needed
- Detect illicit materials

Advances in prediction modeling will give Customs a better understanding of criminal and noncriminal behavior, enabling more effective law enforcement, but also better tailored recruitment and training techniques. The use of modeling for human resources and management, however, could conflict with union sensitivities. Customs has an opportunity to investigate this area for possible use in informant management.

Automatic language translation will ease the nature of global communication for trade and Customs processing and simplify diversity problems facing Customs. It will be easier to assign employees, offer more efficiency in

passenger and goods processing that involve foreign nationals, and reduce tensions at in-processing points.

Resources

Globalization and trade liberalization will make it difficult to advocate for more resources for Customs to collect tariffs. Increasing global lawlessness will make it easier, however, to argue for public safety measures, increased enforcement against criminals, and antiterrorism efforts. Customs can expect increased costs to support a more technically and socially sophisticated, specialized workforce and to provide for expanded enforcement of environmental compliance and disease control measures. Advanced technology exploitation will require more structure, e.g., technology research and development infrastructure that also increases operating costs.

OBSERVATIONS FOR CUSTOMS

Public Expectations

Understanding public expectations and matching the Customs story with these expectations would be an interesting exercise could show ways to tailor the Customs story to address public concerns and needs. Public expectations have not been meshed with and reconciled with the rationale behind expanding Customs responsibilities. Part of the story includes the depth of Customs activities, but part also is setting the stage for the future of Customs. Some expectations come from current events that create public concerns and opportunities to inform stakeholders and manage public expectations. The public would be more likely to support increasing Customs reliance on non-intrusive, but sophisticated and sensitive contraband detectors, if they understand the rationale and potential for increased security and safety. A better Customs story also

would help to alleviate any suggestions to dilute responsibilities or even to abolish Customs.

There are advances in social as well as physical technologies, such as procedures, architecture, and physical conditions, that can have a positive impact on public expectations and Customs effectiveness, creating faster, but less burdensome processing.

As environmental laws and treaties become more global and stringent, activists, industry, and the public will expect Customs to assume an increased role in environmental law and treaty compliance.

Declining Revenues

Customs has relatively little control in this area because it is driven by international and regional trade agreements. One possible source of revenue is charges for enforcement and processing tasks that Customs does for other agencies. Another source involves better collection, integration, and analysis of trade data that Customs could sell to other agencies and commercial businesses, similar to the way that remote sensing data and pictures are sold by other Federal organizations, like the National Aeronautics and Space Administration.

Customs could consider the future of trading—especially cross-border electronic transfers—manufacturing, and service to consider better ways to value goods for tariffs. This might lead to lower tariffs in some cases, but increased tariffs in others.

Stakeholders

The observations for this category are similar to those for public expectations. Sharing organizational stories with stakeholders could provide

valuable insights and advantages by creating closer relationships with specific groups responsible for operations oversight and funding. It also could lead to better interaction with the Office of Personnel Management to set the stage for the process changes necessary to recruit, use, and rejuvenate the future Customs workforce. Reaching out to unions, an ongoing tradition in Customs, is a natural example of the ways that stakeholder relationships can improve operational effectiveness.

Stakeholders that also are also high integrity shippers offer unique opportunities for Customs. The Service already relies on shippers to facilitate compliant imports and exports. If certain shippers were designated as trusted entities, Customs would assume they are importing and exporting in legal ways until proven otherwise. These stakeholders would be key in the development of rigorous standards and ways to periodically verify compliance. This process could help focus Customs resources and motivate the shippers to act in legal fashion. It also could help Customs sell the Customs story in yet another venue.

Travel and Transportation

There will be a growing need to educate Customs employees about emerging global customs practices and transportation-related issues. Customs has monitored the developments in the travel and transportation world. Continuing those endeavors could allow early involvement and influence in futurist ventures, like intelligent highways and foreign transportation, as well as research and development. This would offer opportunities to determine the best ways to change design and production methods to ease Customs compliance and enforcement activities.

Customs-industry partnerships will be key to developing ways to deter smuggling and to create effective intervention and processing strategies—including involvement with product designers, manufacturers, and shippers, as

well as express shippers, like UPS and FedEx, to address ways to frustrate smugglers, perhaps through standard packaging.

International Crime and Terrorism

This area is particularly challenging and there is a growing awareness of the need for international cooperation, for example:

- Multi-national anti-crime and anti-terrorism strategies
- International agreements, bilateral agreements, memoranda of understanding, treaties, and multi-lateral agreements and treaties and partnerships to share information, access—e.g., agents and liaison personnel on foreign soil
- Joint casework and international cross designation
- U.S.-foreign law parity

International crime also offers opportunities for global law enforcement cooperation in training and cooperative intelligence gathering and sharing. Cooperation could include, for example, more refined ways to exploit U.S. intelligence community collection and increased attention to commercial remote sensing capabilities for tracking and monitoring.

Since criminals are becoming more innovative in exploiting advanced technologies, law enforcement agencies around the globe will be called to become more familiar with the misuse of sophisticated tools, including crimes involving the Internet, criminal use of commercial remote sensing, and high speed/high capacity communications to facilitate offshore criminal enterprises.

Workforce of the Future

Customs and most other government agencies will always face competition from the civilian community for high quality workers. Customs will face the need for new recruiting, training, and retention approaches. Customs, however, has a corporate image, a sense of public service and excitement, and opportunities that cannot be matched by private sector firms. To exploit this will take a comprehensive effort to emphasize the unique nature of the organization's mission and the prospects for exciting and meaningful contributions to society.

Science appears on the verge of expected discoveries to predict hero types which some believe could used as part of selection and retention processes for certain career fields, like law enforcement.

Because of increased global mobility and immigration, some government agencies may want to reconsider the citizenship requirement for employment, not only relaxing it, with proper precautions, but also offering U.S. citizenship as an incentive for a period of employment. This, of course, was a technique used by the U.S. Armed Forces in the past. Customs will continue to use outsourcing, but also may have opportunities to take advantage of part time workers who could be treated much like reservists in the U.S. military services, even for law enforcement functions. These and similar efforts will take active Customs management-union investigations and cooperation.

Formal knowledge management (KM) could help the workforce understand and execute mission responsibilities. KM would be of value in capturing the expertise and awareness of the generation of employees who will be retiring before 2020 and allow ways to share that operational wisdom with new and remaining employees.

Advanced Technology

Customs will have a wide array of available technologies and the most difficult task for Customs will be deciding which particular technologies to exploit. The most successful organizations often solve this by having a structured approach to technology awareness, assessment, funding, fielding, and operations. This often includes infrastructure and a specific function to investigate promising technologies and to then develop and match requirements to emerging technologies. Tapping into other federal agencies or commercial firms for their technologies, e.g., remote sensing from space, that have useful capabilities could be a profitable opportunity for Customs.

Another opportunity is a technology development and deployment roadmap that would integrate operational requirements, systems development activities, and funding availability. This could be the foundation for a responsive acquisition strategy to better meet Customs' strategic goals.

Advanced technology needs for Customs, for example, include ways to:

- Outfit future Customs employees with the means to operate in a wireless, mobile environment, with portable communications, detection, and reporting capabilities
- Develop and exploit knowledge management and analysis capabilities, including information push and prediction, and ways to use knowbots, electronic agents that automatically follow preprogrammed commands
- Cooperate with industry and manufacturers to provide means to embed sensors in products so they are self reporting
- Develop less intrusive inspection capabilities for passengers, packages, and vehicles
- Exploit advanced automation and robotics for inspection and detection, especially for large cargo carriers

- Counter cybercrime
- Field more effective and efficient computer network security, to prevent unauthorized access to information and to protect valuable trade data
- Develop electronic forensics for better electronic evidence
- Use advances in biology for detection of illicit materials that have biological components. Customs will be faced with new monitoring responsibilities, especially in environmentalism, and may want to consider ways to better prepare for technology needs for enforcement activities in that area, e.g., genetic monitoring. Biology offers some interesting possibilities, like giving money an odor that would be easily detectable by dogs or electronic sniffers, even down to specific denominations, or creating ways to force suspects to expel body gases to detect latex used in swallowed drug smuggling.
- Investigate new technologies that make materials opaque until they are subjected certain light wavelengths, when they become to transparent
- Apply simulation and electronic gaming for training, through mobile capability or in larger, virtual reality simulations.

Resources

Customs will probably always perceive gaps between funding and mission needs. More effective advocacy is a technique used by many successful government agencies to address budget concerns and to improve funding. Revenues also might be available from other agencies that might want to pay fees for Customs activities. Special fees for clients who want faster processing also could provide new sources of income, as could selling trade data collected and analyzed through Customs processing.

Appendix 1
Three Stories From
A Day-in-the-Life of Customs 2020

As part of the final futures session, the participants divided into three groups to discuss ways to integrate trends, implications, and observations from the first five sessions. The results of those discussions are included in the Strategic Details section of the report. The groups at the integration session also created three stories representative of a day in the life of Customs in 2020. This appendix presents those three stories, developed independently by the three groups.

Story 1:

Goal: Destroy U.S. meat industry
Countertactics: Instant communication, remotely reprogrammable belt carried sensors, trusting relationship with media and public, raised threat detection levels, miniature automatic report sensors

On January 9, 2020, Customs was conducting normal passenger processing at the Dulles Spaceport, a complex outside Washington, DC, U.S. Customs Inspectors stopped one passenger and, during a routine search of his bags, discovered approximately 100 small white pills in a sealed container. The passenger possessed no prescription for the pills, though the man claimed them to be heart medication. An instant check of the pills using the Customs portable bio-analyzer showed them to contain bovine spongiform encephalopathy (BSE), better known as “Mad Cow” disease. Documents found in his possession indicated that he could be linked to the notorious terrorist group—the WTO. The WTO, or World Tofu Organization, has used civil disobedience and terrorist tactics in its efforts to create a meatless society. The documents carried by the passenger and a follow-up investigation revealed that the WTO was planning to destabilize the U.S. beef market by infecting beef cattle with Mad Cow disease.

Customs headquarters was immediately notified of the findings. The Commissioner established a command center in the Customs situation room in

Customs Headquarters to process all information relating to the Mad Cow threat. Headquarters created an anti-Mad Cow special response team. At the same time, the Service directed by instant wireless to all employees worldwide that the level of terrorist threat detection activities be raised at all U.S. borders. The Commissioner immediately put all U.S. Customs employees on alert. Customs also shared the information with their Interpol contacts.

Based on the nature of the BSE biological profile, the Service sent a software update to every Customs inspector's portable contraband detectors. These detectors, about the size of electronic pagers that were popular in the late 1990s and early 2000s, could detect a variety of biological and nuclear substances and had sensors that could be remotely configured to electronically detect signatures of new threats or substances. Each employee's detector was programmed to detect the signature of even trace amounts of Mad Cow disease. A Customs intelligence analyst was detailed to the CIA to obtain real time information about the whereabouts and movements of other members of the WTO.

Customs also was able to configure small sensors, called MEMS sensors, to detect BSE. These very inexpensive sensors were placed throughout incoming ships, trucks, aircraft, spacecraft, etc. to monitor for any traces of BSE. These sensors used very little power and would automatically report any BSE presence, giving, because of global positioning satellite inputs, precise location data.

The Service immediately linked with intelligence agencies world wide to share and collect information. Customs, CIA, and UK Customs worked with a special artificial intelligence program that was able to identify other forms of pills or materials into which BSE might be injected. The results again were immediately passed to employees worldwide.

Customs had built up a good and trusting working relationship with various media outlets and used them to inform the public of the threat and to show how Customs was on the job. This prevented any panic and helped once again to reinforce the Customs mission to the public and other stakeholders. The Office of Public Affairs issued a statement to the media, notifying the public of the following:

- U.S. Customs inspectors at the Dulles Spaceport successfully interdicted a shipment of 103 pills that contained Mad Cow disease.
- All U.S. border stations were on high alert to any other potential terrorist threat.
- Inspectors at land borders and at international airports would be conducting more intense searches. Arriving passengers should expect some delays in Customs processing.
- The Department of Agriculture subsequently found no evidence of any contamination of the U.S. meat supply. The Dulles Spaceport seizure was the only known attempt to date.
- Customs is coordinating with intelligence agencies and Interpol to share critical information with our global partners in law enforcement.
- The Customs Service appreciates the public support and understanding as we perform our vital service to protect our nation's borders. Any person with information may call the toll-free hotline at 1-800-BE-ALERT.

The key messages to be delivered to the public by issuing the statement are:

- Customs officers did their job and succeeded in stopping a terrorist act.
- The Customs Service is on its toes and the case.
- Law enforcement and the intelligence community from around the globe are on the case together.
- The meat supply is safe.

- The government protections are working to ensure the public can have continuing confidence in law enforcement's ability to prevent terrorist acts and preserve the safety of the U.S. meat supply.

The Customs quick action was sufficient to defuse the crisis and neutralize the Worldwide TOFU Organization.

Story 2:

Goal: Unknowingly import contaminated chicken into the U.S. chicken supply.
Countertactics: Detailed trade records, industry cooperation, mobile biosensors, special response teams, communications connectivity

Grain in a Venezuelan grain elevator becomes contaminated by a toxic pesticide spill. Local authorities discover the contamination, but do not know if the contamination is by accident or is the work of terrorists. The government orders all the contaminated grain be destroyed. There are press reports about the find and the ordered destruction.

A corrupt local government official, instead of destroying the grain, arranges with his organized crime contacts to sell the grain to an animal feed supplier in Argentina.

The grain is sold to unspecified poultry producers in Chile. There are three major and two smaller poultry producers in Chile, all selling into the U.S. market.

Chickens in Chile are fed the contaminated grain and several Chileans become sick after eating the contaminated chickens. Because of press reports about the ill Chileans, USDA alerts U.S. Customs to inspect all poultry imports from Chile.

Since there are five containers of frozen chicken arriving from Chile at three different ports every day, this is an impossible task without imposing an embargo on all Chilean chicken imports.

U.S. Customs officers entered information about the contamination in Venezuela into the Customs worldwide-automated information system. When the Chilean event causing people to become sick occurred, that was also entered into the system.

The ‘smart’ system analyzed these similar events and kicked out an alert for further investigation. Using Customs informants, it was determined that some or all of the contaminated grain was sent to Chile. It then became necessary to determine the risk of chickens entering the U.S. that had been fed contaminated grain.

Rather than inspect and test 100% of all Chilean imports, Customs queried its ACE ‘smart’ system to determine the compliance level of those companies shipping poultry to the U.S. from Chile. The system reported that three of the companies were U.S. Customs compliant registrants. The compliance certification for agriculture producers meant that those companies had in place testing systems for all grain and other feeds for their chickens. On checking with those companies, Customs determined that they had tested all grains and feeds for their current chicken production. One company found the contaminated grain and rejected the sale. It provided information on the grain supplier for further investigation.

Having eliminated three companies from its list of targeted imports, Customs was now faced with far fewer containers to inspect. It turned out that of the remaining two companies’ shipments to be inspected there were three containers weekly at two ports. Using the advanced container ‘smart chip’

technology, Customs determined when and at which two ports each of the containers would be arriving.

Using Customs advanced laboratory field jump teams, technicians were sent to the two ports with their portable equipment to test the grain. Those teams with the inspectors stopped six containers of contaminated chicken before they could enter the commerce of the U.S. The producing companies were notified to stop all further shipments until the chicken was safe.

Investigations pertaining to the corrupt official were then opened. Information about the organized crime ring and alerts were placed on the terrorist potential information lists.

Story 3:

Goal: Smuggle narcotics into U.S.
Countertactics: Instant wireless communication, Knowledge Management, instant mobile lab analysis, predictive capabilities

Dragon Lady Enterprises (DLE) is a far-flung international company that is sending a large shipment of shoes that will arrive at Atlanta and be placed on trains and trucks for delivery. DLE is considered by Customs to be a low risk company, but Customs learned through intelligence that the company's new Chief Executive Officer has links to international terrorists and narcotics traffickers.

The key to Customs effectiveness is knowledge management (KM), a construct started back in 2001. The Customs KM includes a huge data warehouse that includes information about all transactions, processing, etc. and provides a systems oriented analytical capability, with very broad based knowledge. Users need not be technically proficient to use KM, and some of the

more successful users are liberal arts majors and similarly literate people. Experts in KM have a different career orientation from traditional officers. There is skill rotation in Customs and some have career experiences outside of traditional Customs duties. Some employees have primarily been KM analysts for most of their careers.

Inspectors will use automated inspection systems to spot anomalies in representative goods. The inspection process depends on “exception processing” and sometimes leads are sent to inspectors from intelligence sources. The results are electronically integrated to permit pattern recognition and training for other Customs workers. KM therefore includes strategic and tactical roles. This greatly eases the 24/7 workload that Customs faces, even though KM takes place globally, except China, which has resisted KM presence for reasons of sovereignty. KM continually monitors traffic and activities and predicts suspicious events far ahead to enable special response teams to interdict as needed. Intelligence task forces that form for special circumstances also feed KM.

In some cases, the cargo carries radio frequency identification devices, RFID, to self-identify contents. This exception processing and self-reporting came out of regulatory reform early in the century. It also depends on a fully integrated command and control structure that links air and marine transports and Customs workers. This facilitates quick response team actions. The response teams also carry real-time lab services to instantly analyze goods. Information is shared among Customs employees through wireless communications devices.

Exception processing works in most cases because of strong partnerships between Customs and industry. Customs enjoys the ability to focus on suspicious activities and events, while the industry benefits from the 100% non-

intrusive inspection from RFIDs as a primary means of monitoring. It also enables industry to process goods much faster.

In the case of DLE, the Customs special response team stopped the shipment, conducted an instant check, and found the shoes infested with narcotics. The seizure was successful, DLE was removed as a trusted shipper, and action was taken to arrest the CEO.

Appendix 2
Expert Presentations Digest

The Customs Service Senior Executive Futures Sessions included presentations by several experts, followed by participant discussions. Each set of participants briefed their observations and insights. The following are summaries of the presentations, discussions, and observations. Insights that the groups thought were particularly important or deserved emphasis are in bold.

Senior Executive Futures Session
Trade and The Global Economy

September 12, 2000

Harvard University Professor Richard N. Cooper set the foundation with a presentation on Prospects for a New World Economy. His main points:

Four trends will affect global trade over the next 10-20 years:

- **Transition of aging political leadership around the globe** could create chaos, disrupt trade patterns, and create opportunities for organized crime. Cuba is high on the transition list.
- **Global population will grow by 1.5 billion over the next 15 years, almost all in developing countries,** creating great pressures for migration. Population will drop in advanced economy nations.
- **Worldwide pressures for progress will create higher per capita incomes, higher standards of living, and growing demands for food, energy, and fresh water.**
  - Businesses will push governments to create conditions for economic vitality—internal stability, reasonable industry risk, assurances of equitable treatment, and trade ties to western economies.
  - Should be no serious shortages of goods, except those caused by government failures and temporary political disruptions
  - Trade will grow more rapidly than income.
- **Technological advances, especially in communications and computers, are creating declining costs and reducing importance of borders and distance**.
  - Industries increasingly will be international, with growing cross border mergers to improve competitive postures.
  - It will be even easier to remotely manage corporations across borders.

Global trade and customs

- **International trade will continue to grow aggressively.**
- **Goods will cross borders many times** before they are turned into final products; these **value-added processes will complicate duty assessment**.
- Traded goods are becoming cheaper and continued **trade liberalization will draw down tariff rates**.
- Ratio of free to dutiable goods will continue to rise due to free trade zones and regional agreements like NAFTA.
- **Customs revenues will continue to decline.**
- Focus may move to more enforcement against illegal goods and materials like biological materials that could be misused.
- There will be demands for technology transfer monitoring, but the things controlled will change in unclear ways.
- Travel and transportation will continue to grow.
  - Non-immigrant travel is growing 9% a year. Air passenger growth is motivating much larger aircraft, with hundreds more seats.
  - Customs can expect huge increases in air-moved trade, with more medium-sized aircraft and more points of entry.
- Customs' administrative cost to industry will continue to draw criticism, but there will also be growing pressure for more precise record keeping.
  - Need for information on exports and destination
  - **Record keeping may not take place at the borders**
  - **Nations and industries will have to measure trade differently, e.g.:**
    - How to record and enforce digital trade
    - Working harder to standardize customs processes

Follow-on Participant Discussions

With this foundation, the participants split into two groups to discuss and report on the question: What are the global trade trends and implications for Customs in 2010-2020? The following is an integrated summary of their observations:

Globalization of industry

- **More complex world, driving need for more information and consolidation of Customs efforts**
- More trade from fewer countries
- More volume, including more electronic commerce
- More consumer and industry demand for goods and services
- **Increased competition and more markets, causing pressures for lower tariffs, fewer border restrictions, and reduced processing costs**
- Coalescence of multinational corporations whose needs supersede national concerns
- **Stakeholders don't understand the range of issues on industry and Customs sides—need for more education and cooperation**

Transportation is growing

- More travel, more intermodal shipments
- More trans-shipments
- **More deep water ports**
- **More air freight**
- **Larger trucks**

Need for speed

- Industry processes and competition demanding speed, which clashes with Customs needs—industry does not want to face slower processing and longer time to move trade
- Growing velocity of trade and data to support industry decisions and production
- Working 24/7 becoming routine in many industry areas
- **Speed calls for more simplified processes**

International crime

- More multinational and organized criminal activity, including transborder crime and smuggling
  - More drug use in Europe, especially cocaine
  - **More designer drugs**
  - **Intellectual property rights drawing more attention**—trademark infringement, counterfeiting, theft
- **Need for greater international cooperation** and:
  - More information sharing
  - Better understanding of other countries' enforcement agency needs
  - Better laws are needed for more effective enforcement
  - Better technology to deter crime

Public safety drawing more interest

- Increased **attention to health and safety**
- **Influence of special interest groups, industry and otherwise**, e.g., non-governmental organizations (NGO) that are more active in monitoring activities like child labor
- Growth of **genetically modified products will call for attention.**

Customs will face surprises

- **Face world dynamics beyond U.S. control**

- Will see economic embargoes, new economic relationships, and leadership transition turmoil.

Resources to do the job becoming more scarce

- **Shrinking budgets** for Customs
- **Declining duty collections and reduced tariffs**
- But **growing work** requirements—more overtime, more processing—with static manpower authorizations
- **Increased job complexities** mean fewer inspections can be completed.
- **Need for more technically proficient workers, who are being attracted by higher paying commercial sector**
  - Need for right-sized work force
  - Need to improve levels of expertise
  - Need to improve pay and compensation
- Increasing non-revenue and interagency demands, all affected by politics
- Some **items in the solution space**:
  - Advanced technologies
  - Better knowledge management
  - More effective advocacy
  - **Privatization and outsourcing of Customs functions**
  - Move all the Customs requirements that are levied by forty-two other U.S. government agencies and matching resources into one agency; or **charge those agencies for work that Customs does**
  - **More attention to model ports**
  - Eliminate or significantly reduce Customs

Technology

- Need for more **real-time information**
- Need for more **automation of information** transfer
- Need for **more infrastructure** to reduce delays
- Need to investigate **virtual ports**
- Advanced technology should be able to:
  - **Target the bad guys more effectively**; ease load for the good guys
  - **Standardize data entry**, even with multiple languages
  - Create better export control systems
  - Provide **more effective examination capability** with more sensitive sensors, e.g., x-rays, mechanical sniffers, etc., and better communications
  - Explain and advocate for more resources

Senior Executive Futures Session
Travel and Transportation

September 26, 2000

Aaron J. Gellman, Director, Northwestern University Transportation Center and Full Professor of Management at Northwestern, built on the global trade session with a wide-ranging talk on travel, including these insights, technical and non-technical issues, and implications:

Non-technical issues affecting future Customs operations

- Rapid growth in international trade
- **Increased complexity of imported goods, making Customs classification more difficult**
- Rapid growth of international air freight
  - Will grow 40% in value in early 2000s for non-bulk, dry freight
  - European airfreight will grow because of European rail problems.
  - But **rails will still be primary shipping mode**
- Increase in number of freight entry points
  - **Movement of port processing inland**—because of port congestion and cost of port land
    - **Increasing automation at inland locations—only computer will know package location**
    - Example is CombiRoad in Holland—processing 40-50 km inland, with faster connections to roads highways—calls for different way of Customs thinking
  - Participants cited the German and Dutch model: **shippers are good people until they do bad—a different enforcement model—and shippers tend not to risk trust**.
    - Being driven by customer need for faster clearance and movement—and a **willingness to pay for speed**
    - Customs will have to put people at more and more locations or **figure ways to clear without Customs presence**.
- Introduction of Internet-based "buying unions" by industry
  - Companies are merging functions to aggregate purchasing power.
  - Concentrating now on high-value, high-technology items
  - **Customs will have fewer people and entities to interact with, which may be easier.**
- Prospects of growing tariff sanctions to discipline trading partners
  - Potential for more tariffs—**no process yet in place to discipline without tariffs**
  - Challenge is to balance desire to avoid tariffs to ease international trade and to respond to industry pressures on Congress for protection

- Rapid growth of international passenger travel
  - Participants suggested that **passengers are increasingly diverse**, with Asian passenger travel the major growth area, but also increases elsewhere, e.g., increased direct traffic by African airlines into Baltimore Washington International Airport.
  - **Will see more air entry points—passengers and shippers want to skip big airports and hubs**
    - Will see more small aircraft to meet this need, e.g., 737X, even for international Tokyo-New York traffic
    - Biggest growth area for smaller aircraft is in Latin America.
    - Large aircraft also will be used more for hub busting flights, e.g., Huntsville, AL, gets daily 747 flights from Europe, weakening the Atlanta hub.
    - Smaller airports, especially inland, will see travel that is more international, e.g., Ohio is receiving transatlantic flights.
  - But possibility of overcapacity of airplanes due to overbuilding; normal cyclic result from deregulation
  - **International cruise traffic growing**
    - Serving many different ports
    - Miami may suffer, but Tampa, because of less congestion, may grow.
    - May see **rise in transborder cruises by rail**
    - Within 30 years expect cruises in space
- **Trucking infrastructure is becoming more critical and Customs needs to look beyond borders for inland processing of truck cargo.**
  - Future of North American trade is based on truck shipping in and out of U.S.
- **Growing movement of more sophisticated products—by freight and by passengers, e.g. software, driving need for more sophisticated customs inspectors**
- Environmental concerns will not affect transportation much because environmentalists are losing credibility, however, growing impacts of fossil fuel burning on environment cannot be ignored. [Note: Some participants disagreed with the assessment that environmental concerns will have little impact.]

Technical issues affecting future Customs operations

- **Larger containerships**
  - Will see more value in smaller packages
  - 7000 twenty-foot equivalent units (TEU) will be largest size, because vessel-sharing agreements will become history.
  - Will travel to more ports and places
- **Faster traveling ships**
  - 1200-1400 TEU
  - Faster load and unload capability

  - Lot of niche players providing this capability
  - May be used in conjunction with proprietary ports
- **Advanced sensors may help resolve challenges**
  - Very small sensors—MEMS (microelectromechanical) systems—in the micrometer range) sensors will have dramatic rise in use in 3-5 years.
  - Nano-sized sensors—at the molecular level—will be commercially viable in 10-12 years [Note: Some participants believed this to be too optimistic.]
  - Means that **sensors can be embedded in tamper-resistant packages and products, under very high pressures and temperatures, for better monitoring and reporting**
    - Could **report weight, contents, destination, point of origin, and location**
  - Could offer solutions to product identification, as well as intellectual property theft
- **Space travel and manufacturing should increase in 20-40 years.**
  - Should see a resurgence in interest in zero-gravity manufacturing
  - Space will be used more for transport of goods

Other issues affecting future Customs operations

- **Expansion of regional agreements**
  - European Union is now in disarray over fuel; uncertain if this is temporary
  - NAFTA could be expanded to include UK and Scandinavia
- Leveling of competitive playing field is not a Customs job
- Profiling is a procedure that public will accept if the consequences of not doing it become sharp enough. Some participants predicted that **tolerance for profiling will continue to decline** as travelers, especially international travelers, and the general population grows more diverse.
  - Can't be racially based
  - **Can be regionally based**
  - Participants emphasized that now-**deficient intelligence gathering needs to improve**, so that real suspects can be identified.
- **Software presents a particular problem.**
  - Determining value is elusive.
  - Sometimes software is only an intermediate product.
  - Internet processing and software upgrades are particularly hard to capture and value.
- **Pharmaceuticals a special case**. Participants said that Customs is caught in the middle of something that **Congress has to resolve**.
  - The time gap between an idea for a drug and approval for sale is driving good people to become smugglers of drugs that are legal in other countries.
- Education—**need to start teaching Customs employees on transportation-related issues**

Follow-on Participant Discussions

Implications for Customs

With this foundation, the group split to discuss and report on the question: What are the global travel and transportation trends and their implications for Customs in 2010-2020? The following is an integrated summary of their observations:

- **Growth**
  - **Growth in regional trade agreements mean that borders are breaking down with easier trade compliance, but not necessarily less work for Customs.**
  - Customs can **expect a greater interface with global customs practices** for goods shipment, assessments and enforcement standards.
  - Increase in cargo and freight in all categories—land, sea, and air—will drive more service locations and sophisticated infrastructure demands, in an increasingly congested environment.
  - Larger capacity ships, trucks and aircraft will be processed at many more entry locations.
    - May have more but smaller and less congested ports
  - More passengers are going to more and different countries by air and sea, with a greater diversity of passengers who may be less familiar with customs requirements.
  - Culture clash potential
  - Language gaps between travelers and Customs employees
- **Public expectations**
  - Will see a **growing tension between desires for border security, public scrutiny requirements, and public expectations of hassle-free movement**
  - Growing emphasis on and need for **speed in personal and industry travel**, and cargo movement—vehicles and people
  - Public and industry **want predictability and timeliness**, 24/7.
- **Processing**
  - **Need to change Customs procedures and process to enable more flexible and faster processing**
    - Some areas are beyond Customs' ability to affect—like higher exemption rates, relaxation of pharmaceutical rules—and will be changed if other groups lobby Congress.
    - Others, like internal enforcement culture change, can be affected by Customs.
    - **Things like e-commerce, Napster, and flexible software development and marketing call for more aggressive partnerships to develop effective intervention and processing strategies.**
    - Need smarter, less intensive processing
    - For new ports, look at changing port layouts to enable more efficiency.

- **Risk management will be more sophisticated to allow Customs to use work force more efficiently.**
  - More automated, paperless processing
  - Electronic border crossing, without Customs presence
  - More and faster information sharing—Internet-based, linked geographical information systems matching goods, locations, and processing needs
  - **Better customer discrimination by Customs, to be able to target suspicious goods more effectively**
  - **Identify lower risk travelers and cargo**—possibly treat them the way Customs handles domestic movement
- **Need to rely on and partner with trade and industry groups**
- More reliance on self filing
- Cargo shippers will assume some Customs processing roles—Customs will trust unless a particular shipper is proven untrustworthy.
- Look at clearance away from ports, perhaps in-transit processing.
- Technology may offer solutions.
  - **More efficient terminals that rely on automated processing** and link to modernized infrastructures
  - More **use of mobile, wireless information** access and processing capability
  - **Remote sensing—space or airborne sensors**
  - **Sensors built into the product or package** that report on contents and alarms when tampered with
    - Access flexibility, where the technology moves with the passenger, allowing faster processing at entry point, in-transit processing, or processing outside U.S.
  - Tamper-proof packaging—shrink-wrap, transparent, etc.
  - Establish better partnerships with private sector groups driving this technology

- **Resources**
  - **Limited or static resources mean a need for a more effective, and in some cases a more specialized, workforce, with management flexibility to place human and technical resources as needed**.
  - Drives need for **continual training**
  - While there is possibility of a non-union work force, more likely Customs will still be unionized, with traditional management tensions between work needs and union desires.
    - Could see a work-to-rule, with resulting slowdowns
    - Customs should, however, work to see **unions as allies, not adversaries**.
  - Growing **diversity of Customs workforce offers potential solutions to meet growing diversity of passenger and cargo traffic**, and resulting language and cultural issues.

Senior Executive Futures Session
Criminal Justice and National Security

October 12, 2000

Neil C. Livingstone, author and anti-terrorist and crisis management expert, is Chairman and CEO of GlobalOptions. His talk covered recent developments and trends in international crime and terrorism. His main points:

Internationalization of Crime

- The New World Order of the 90s is degenerating into the **New World Disorder.**
  - New criminal opportunities, resentments and political tensions
  - **New technical capabilities and cooperation among criminals and terrorists**
  - Criminal cartels are carving up the world, undermining democracy and causing instabilities
  - **Governments are increasingly unable to maintain pace**—in terms of technology, diversity, and innovation—with the bad people, who are becoming more diverse and who have more covers that are legitimate.
  - Once governments fall behind criminal network establishment and operation, they may be unable to catch up with criminals.
  - Customs Service, with the intelligence community, is the first line of defense for the U.S.
- Economic globalization and technical advances in computers and communications are creating breathtaking changes.
  - Information processing capability is doubling every 18 months—the person who controls communication will be a kingmaker.
  - **More information is available to budding criminals**—books and the Internet give access to books on smuggling, chemical and conventional weapons, etc.
  - Global trade is creating a **world without borders**, with increased mobility from growing travel by more affluent and population pressures from those less fortunate.
    - Also making it easier for criminals and terrorists to move around
    - For example, porous Greek borders allow easy entry into Europe
  - **Despots are being forced to loosen grip on information to allow their countries to compete for economic prosperity which opens up information flow for legitimate and illegitimate activities**.
  - The net has undermined dictatorial censorship.
  - Many are looking to the U.S. as their lifeboat—e.g., half of entrepreneurs in Silicon Valley are from India—causing a very diverse workforce

  - Europe is hemorrhaging intellectual talent because the entrepreneurial atmosphere is not as good as the U.S., e.g., many French are moving to U.S.
- International crime is a big, growing industry.
  - More diversity and expanding links among criminals
  - For example, in Germany alone 79 nationalities are involved in organized criminal activities.
  - Traditional groups, like Sicilian Mafia, are still active
  - Growing connections to legitimate industries and, in some cases:
    - **Criminals are buying legitimate industries, e.g., trucking firms and airlines to move their goods**
  - **Terrorists are buying duty free shops in international airports—buying into the system for access**.
  - Unwitting legal companies often support crime—**growing use of express package delivery to move drugs**

State sanctioned criminal activities

- **Continuing Russian influence in international crime—about 5000 Russian criminal gangs**
  - Because Russian economy is so bad—now smaller than the economy of Netherlands—it makes underpaid public servants ready targets for crime and terrorism bribes.
  - Russians make up half the criminal activities in Germany.
  - One-half of commercial industries in Russia have a criminal link.
  - Russians are trading arms for drugs in Colombia, and then selling drugs in international markets.
  - High potential for Russian sales of fissile material and, because of shoddy inventory keeping, of tactical nuclear device
  - Chechnya essentially was a criminal state before the rebellion against Russian authority, and probably still is.
- Criminals are sometimes filling political leadership roles—three presidents of Eastern European countries have criminal backgrounds
- **Colombians have made incredible amounts of money that increasingly are going into legitimate industries to launder and cover**
  - In Argentina, U.S. currency is for sale at 60-70 cents per dollar
- **Japanese expanding** into international activities—40 to 100,000 Yakuza organized crime figures have networks for corporate blackmail, extortion, slavery, etc.
- **Chinese Triads operate globally, smuggling people and drugs—two-thirds of the world's heroin supply and half of opium is from Triads**
  - Major presence in Hong Kong, Australia, U.S., and Western Europe
  - **Chinese purchase of ports causing uneasy feelings about possible criminal activities**
- Chinese People's Liberation Army involved in counterfeiting

- **France supports aggressive industry intelligence**—French agents regularly bug first class flights and hotel suites; known to search baggage holds and copy laptop hard drives; have been caught dumpster diving in Texas
- Taiwanese have state-run criminal enterprises
- 60% of Montenegro economy comes from smuggling
- Cuba is a popular drug transfer point
- Haitian government complies with criminals
- Some states create safe havens for criminal and terrorist activities, e.g., Aruba

Growing Sophistication of Criminals and Terrorists

- Criminals and terrorists becoming more capable
  - They have access to **latest technologies for communication, drug design, counterfeiting, and credit card fraud.**
  - Advanced information technology and encryption is giving criminals the means to communicate freely over the net and provides fertile ground for new crime—remote crimes with criminals often out of reach.
  - Also has potential for U.S. infrastructure disruption, e.g., transportation, telecommunications, finance, etc.
  - **Advanced chemical capability means continuous supply of new designer drugs.**
  - Miniaturization facilitates bomb building.
- **Nature of terrorism changing**
  - **Less state sponsored, but more agile because of ability to underwrite activities**, e.g., bin Laden bankrolls his terrorist activities from the 1-300 million dollars he made from legitimate construction
  - Some **small groups are acting as states**, with independent capability to carry out international attacks, e.g., again, prime example is bin Laden, whom U.S. is treating like a state
  - **Terrorists are moving into merchandising**, e.g., Hezbollah gift shop in Egypt
  - **Terrorists are creating links to criminals**, e.g., IRA connections to organized crime
- Technology, especially information technology, is allowing single persons to carry out sophisticated criminal acts
- New environmental crime
  - Smuggling endangered species
  - Shipping hazardous waste to sea

U.S. Government Responses and Challenges

- Government response is technically and fiscally inadequate.

  - **Underfunding in infrastructure, computer forensics and other forms of advanced technology that could be used to counter criminals, e.g., remote sensing, better recognition systems, three dimensional imaging with biometrics, etc.**
  - Technology must be 24/7 or it will create more vulnerabilities.
  - Government technical skills are often less sophisticated than the criminal capabilities, complicating prosecution, especially in cybercrime.
  - Government cannot compete with industry on salaries.
  - **Governments also have to be careful not to rely too heavily on a single technology; otherwise, they could create catastrophic vulnerabilities.**
- Government needs to invest more money, recruit more young, technically proficient people, focusing on diversity and language skills
- Need better licensing and background checks by government and shippers
- **Challenges of combating crime besides money and technology**
  - **Political issues** that facilitate crime—e.g., handling some nations, like Russia, with kid gloves
  - Exaggerated right to **privacy**
  - **Liberal attitudes**, especially in foreign countries and cities, e.g., Brussels, that are more accepting of drug use
  - **Profiling** without showing benefits and ways to protect the innocent is becoming onerous
  - Need for more effective enforcements and punishments
  - **International cooperation on crime should be a discrete factor in U.S. foreign policy.**

Follow-on Participant Discussions

Trends and Implications for Customs

With this foundation, the group split to discuss and report on the question: What are the trends and implications for Customs in 2010-2020 regarding criminal justice and national security? The following is an integrated summary of their observations:

- **Growth**
  - Growth in international trade and travel, cross-border commuting, economic vitality and trade agreements means more services, ports, and traffic, and more anti-smuggling work for Customs against globalized criminal rings.
  - **Transparent and blurred borders make it harder to detect smuggling and crime.**
  - The global pressures to reduce borders do not reduce the need to guard against illicit or dangerous goods.

- Because of North-South/rich-poor divide, **U.S. will continue to be a prime terrorist target**.
- It will be **more difficult to detect violations and criminal activities**, especially when conducted by increasingly sophisticated multinational criminal associations and in conspiracy with legitimate industries.
- Increased attention to sophisticated technologies and cybercrime may mean less violent crime.
- **Law enforcement will have to concentrate more and more on the financial underpinning of crime.**

- **Growing Sophistication of Criminals**
  - Criminal diversification into new crime areas, e.g., cybercrime
  - More attention to legitimate areas
  - Includes recruitment of computer programmers, engineers, scientists, and chemists for illegal activities
  - **The ability of criminal networks to use money to leverage technology is better than law enforcement.**
  - **Sophistication also allows criminals to design effective counterintelligence efforts against the government.**
  - New drugs and threats
  - Development of **non-traditional drugs using advanced technologies**
    - Genetically modified plants to enable growth in more varied climates
  - Movement of drug production to new countries when displaced from current production fields
  - Weapons of mass destruction are becoming smaller and more difficult to detect

- **Increasing Need for Speed**
  - Trade interests will continue to press for more pre-clearance activities.
  - To facilitate fast movement of goods, industries want fewer law enforcement functions.
    - **May call for innovative industry-Customs partnerships**
  - **Information processing and trade flow control require new management technologies.**
  - Need to translate data into information and knowledge
  - Speed of goods transport is increasing

- **Difficulties with Investigations and Prosecution**
  - **Governments involved in criminal activities and creating safe havens frustrate investigations**
  - Terrorists are becoming more innovative at hiding their tracks
  - U.S. courts will not always have jurisdiction over criminal activity or the criminals.
  - U.S. privacy laws make it very difficult to obtain information and evidence from computers and e-mail.

- U.S. faces frequent delays in obtaining foreign evidence and witnesses.
  - Because of sovereignty concerns, it is **unlikely that the World Court will provide any relief**.
- Transnational and cybercrimes becoming more difficult and expensive to investigate
- Criminals using technology to create innovative defense arguments
- U.S. courts and jails are overburdened and Department of Justice resources are thin.
- **Need for new policies and procedures, e.g., having employees on the ground in foreign countries with jurisdiction**
- **Need to look at new ways of punishing wrongdoers**

Public Expectations

- **Clash between personal rights and privacy and police authority**
- Congress is concerned with invasions of privacy.
- Public expects government to provide security against crime.
- Low U.S. tolerance for disruptive criminal or terrorist activity
- But public is aware of growing challenges to security at every level—personal, national, and global
- **Need for better marketing of challenges to the public**
- **Expectations are driven by current events—need to address this as part of expectation management.**

- **Growing Awareness of Need for International Cooperation**
  - **Anti-crime and anti-terrorism strategies must be multi-national,** with more bilateral agreements, memoranda of understanding, treaties, and multi-lateral agreements and treaties.
    - Need for U.S.-foreign law parity
    - Growing use of liaison personnel in foreign countries
    - Joint casework and international cross designation essential
  - **Globalized crime mandates global law enforcement cooperation.**
    - Bi-lateral and multilateral enforcement training
    - Cooperative intelligence gathering and sharing
  - Growing movement toward open border with Canada

- **Declining or Static Resources**
  - Continued tight federal funding
  - **Growing difficulty in communicating the seriousness of law enforcement problems to the U.S. Congress**
  - Need for more precise intelligence
  - **Expect growing pressures to combine federal agencies for more efficiency and effectiveness, even to look at the possibility of using the military in Customs functions.**
  - **Growing problem in recruiting diverse, multilingual, technically capable staff**

  - Need to focus on Custom's corporate image, addressing morale and self actualization, luxuries and benefits as part of salary
  - Need to compete with the dot-coms

- **Technology As a Source for Possible Solutions**
  - Technology will enable shift to more effective enforcement—**need for a Manhattan Project for effective electronic security technology**.
  - **Greater connection of field employees to information**
  - **Growing need to rely on intrusive and remote sensing technologies for enforcement**
  - Need to investigate ways to **improve forensic research** and development
  - Need to replace antiquated ways of tracking movement

Senior Executive Futures Session
Technology and Inventions

October 24, 2000

Joseph C. Coates, futurist, author, and inventor is President of Coates and Jarratt, Inc. He addressed four main technology areas—social, information, physical, and biological. His main points:

Introduction

- Why study the future?
  - Provides a wider horizon link to organizational planning
  - **Every failed organization has unsound assumptions**—rejecting or accepting views of the future reveals personal and organizational assumptions.

Current factors to consider

- Customs has growing job responsibilities—increasing scope/diversity/ volume/demands—but it is bumping up against **expanding rights of customers and criminals**.
  - Increased concerns about privacy in terms of government and big industry
  - Criminal rights complicate prosecution in U.S. courts
- Customs is part of a bureaucracy so has to propagandize outside the organization in order to get relief from restraints.
  - **Customs has a great story, but is not telling it very well—has to do a better job of telling it.**
- Each technological advancement is two-edged—can be used for or against Customs

Social Technologies

- **Think of social technologies like physical technologies.**
- Profile smugglers in acceptable ways
  - Do smugglers think differently?
  - If they do, and you know you the differences, it gives you new access to them
  - Americans tend to focus on the big picture and the obvious—some other cultures (e.g., Japanese) will notice the details. **Lesson for Customs is learning how to see the details**
- Heroes have very high tolerance for and low reaction to stress.
  - Stress also promotes bad health and if you are in control stress is down
  - Can use simulation to minimize stress

  - **Customs may want to look at the way heroes and non-heroes react and use the results in training and recruitment.**
  - Science seems to be on the brink of being able to predict heroes
- **Simulation can be a very powerful tool** to give insights into:
  - Emerging criminal behavior, for example, how criminals might use the Internet for e-commerce crime
  - Personnel selection—create expert systems based on the techniques of the best, most skillful employees
  - Training based on best of the best
- **Look into ways to leverage legislation to give more feeling of control to customers or to complicate criminal activities**, for example:
  - Give people a choice at airports or create a reward system for non-Customs people; think about separate processing fees, one fast line that has a $10 charge or a slower line that is free
  - **Seek legislation outside of your direct area of concern**, e.g., support a law that requires that at least 12 parts of the automobile have the same identification number and can only be removed by authorized dealer
  - **Consider other partnerships**, for example, working with insurance companies to complicate auto and auto parts theft and smuggling
  - Make money laundering more difficult by calling in all the U.S. $20/50/100s for exchange or by eliminating the larger bills—the $100 and $500 denominations.

Biological Technologies

- **Genetics and genetic engineering will present a gold mine of opportunities to thwart criminals, but also offer them ways to circumvent laws.**
- On the positive side, endangered species will become less problematic. Trading in genetic codes means that 90% of the participants will see passenger pigeons fly and mastodons walk in their lifetimes
- **Biotech also will make it easier to identify contraband, for example, every oil or grain field has a distinct signature and future sensors will quickly identify the source of commodity shipments.**
- Chip-sized devices will be available to quickly analyze 2500 genes. Chips are becoming more autonomous for automatic scan and detection, weatherized, rugged
- Suppose, however, that someone clones a prize bull or horse and brings it into the country as a less capable version—how will you tell?
- **Look at ways to leverage biology**, for example, to **make money smell** such that it would be easily detectable by dogs or electronic sniffers, even down to specific denominations, or to **create ways to force suspects to expel body gases to detect latex used in swallowed drug smuggling.**

Physical Technologies

- Transportation
  - **Intelligent transportation systems will be common.**
  - Cars will be able to have conversations with and detect feedback from off-road sensors.
  - **Airlines increasingly are acting in consort and airplanes are getting bigger—in the 500+ passenger load—and smaller—in the 40-60-passenger load—demanding new logistics to accommodate.**
    - Customs will need to design ways to speed the processing.
    - Perhaps mandating standard packages and luggage
  - **Tiny, remotely controlled planes will have longer range and better evasive potential and be large enough to smuggle goods**.
- Packaging
  - **Work with Federal Express and UPS to create mandatory packaging standards** for shipping containers, making it easier to use than US Postal Service
  - Make boxes with a **material that is opaque until it goes through Customs** where it temporarily becomes transparent
- Autonomous and semi-autonomous **robots**, increasingly mobile, autonomous, and weatherproof, can become **more important in examining containers or hard to get to port locations**.
- Energy
  - Greenhouse warming—public awareness rather than scientific pressure will lead to massive energy conservation and then fossil fuel replacement by alternative energy, e.g., fuel cells are developing at a rapid rate.
  - Another example, solar energy using photovoltaics which, when connected with batteries, will provide electricity anytime anywhere; the challenge is to reduce the cost.
  - Passive solar energy heats water, which is used for building temperature control.
  - Smaller houses, using less heat and air conditioning, and better sealed and insulated buildings
  - **Expect more hybrid vehicles** with smaller and lighter batteries and fuel cells**.**
- Processing and physical conditions
  - Architecture can have an impact on human behavior, so **investigate ways to take advantage of future architecture to speed up processing in a positive fashion** for the customer.
  - Manufacturing becoming more complex and may have implications for Customs
    - For example, automobile manufacturers don't buy parts anymore, but prefabricated components from a supplier
    - Eventually, the manufacturing line is staffed by the suppliers

  - Complementing this is dematerialization, knocking out 20 - 40% of necessary material to produce goods and decarbonization, replacing fossil fuel.
  - This is part of the trend towards more integrated sustainability—the 3 Rs—recycling, reclamation, and remanufacturing.
  - Industries are working hard to reduce product weight, e.g., dual function steel, where steel fills functional and structural roles in vehicles.
  - Because auto **manufacturing** is becoming more complex and modular before it gets to assembly line, it **offers opportunities to make products more resistant to smuggling—another chance to discuss with the auto industry**.
- Micro Electro-Mechanical Systems (MEMS) are highly reliable, integrated micro devices or systems combining electrical and mechanical components fabricated like integrated circuits. They range in size from micrometers to millimeters and are used to sense, control, and actuate on the micro scale. One common use is the sensors and actuators in automobile air bags.
  - Customs might want to investigate **MEMS as monitoring tools.**
  - Nano-technologies, which are 10^5 times smaller than MEMS, will not be available for a decade or more.

Information Technologies

- Fiber optics is lacing the nation together and is driving down the cost of telecomm.
- Due to increased capacity, technology broadband capacity cost will be a zero consideration in the future. Photonics combining electronics and light will use less energy and transmit information quicker.
- Wireless
  - Third generation cellular will offer identical services to wires, being able to pass data, video and data between wireless devices
  - **Radio frequency identification (RFID), small transmitting devices inserted into packages to monitor contents, location, movement and tampering will become cheaper and easier to use, either passive—transmitting continually—or active—transmitting when queried**, say at the border. Army is doing this now
  - **Wireless sensors for all senses will become common, ubiquitous**
- New Internet protocol (IP, V6) will give much larger capacity in Internet2, designed for the federal government and scientific community. Customs should think about ways this could be used
- Electronic books by transmitted message or by disks, capable of holding 25 books, are becoming much more popular, used for fiction or descriptive manuals
- **Intellectual property definitions will change and it will be increasingly difficult to enforce laws**; anything that someone would pay for could become a growing type of contraband.

- Gaming and entertainment
  - Pornographic web sites are leaders in providing entertainment and use of technology.
  - **Anti-social material raises question of how Customs will deal with it when it moves on e-books and hard drives.**
- Wearable electronic devices
  - Wearable monitoring systems, today for cosmetics and for hanging on clothes
  - In the future, **sensors will be embedded in the body.**
- Technology and lying
  - **Can use microphone and devices to analyze infrasound, part of human voice, but beyond human control, to detect lying**
  - Research also ongoing regarding **analysis of gestures to recognize lying**
- **Groupware** will become critical for global interaction, but also provide the opportunity for free discourse that **could subvert the bureaucracy** by allowing people to communicate more freely across organizational boundaries
  - **People will increasingly be linked by what they know rather than where they sit.**
  - The impact on the organization is unclear, although it **will bring about new management trends.**
  - **Need to move to a knowledge management system**—If HP knew what they know they would be much smarter
  - Knowbots, electronic agents, will search through databases for information needed based on specific criteria, then assemble it in a personalized style; this will increase ability to digest information at all levels.
  - Uses technology that allows the management of the organization to create a culture where individual are able and willing to share data
  - Not only dependent on technology, but must also get people to buy in so they will say what they know—**critical element is people, not technology**

Joe's Take on Basic Trends in Information Technology

Trend 1: Convergence of wire, wireless, and cable

Trend 2: Integration

- Industry
- Technology

Trend 3: Shrinkage and smartness in all devices

Trend 4: Digitization — the universal language

Trend 5: Device integration leading to multifunctional capabilities

Trend 6: Internet expands commercially

Trend 7: Competition among all technologies

Trend 8: Computers becoming ubiquitous

Trend 9: Ubiquity of all information technology and applications

Trend 10: Open standards and transparency

Trend 11: User friendliness

Trend 12: Broadening bandwidth

Trend 13: Privatization of information technology functions

Trend 14: Cost and price are falling

Trend 15: Moore's Law—which says that computer power doubles every 18 months, while the price halves—fading

Trend 16: Fiber optics expanding and capacity growing

Trend 17: Multimedia capabilities at user end

Trend 18: Knowbots

Trend 19: Spectrum issues continue

Trend 20: Internet compatibility for all devices

Trend 21: Entertainment continues as a driver of innovation

Trend 22: Free services and software more available

Trend 23: Hardware and software are interchangeable

Trend 24: Personal web sites

Follow-on Participant Discussions

Participants identified technological trends and what they might mean for the issues Customs faces for the future and responded to the question: What are the trends and implications for Customs in 2010-2020 regarding technology and inventions?

Technology offers solutions to many Customs problems

- Capabilities
  - Universal, easy access to information
  - Instant communication
  - **Standardization to make interfaces—legal and illegal—easier**
  - **Wearable access to information and analysis**
  - Easily transportable technology
  - Intelligent targeting systems

  - **Active and passive tracking devices, embedded and micro-sized so they can fit into any package**
  - Much greater reliance on technology for physical inspections
  - Improved detection devices for contraband or migrants, including greatly improved X-ray analysis
- Technologies
  - **Unlimited bandwidth**
  - Internet, Internet 2, and wireless
  - **Ubiquitous sensors**
  - Miniaturization
  - More rugged equipment
  - **Robotics**
  - **Encryption**
- These technologies will change the flow of information globally and in the organization, eliminate paperwork, and provide more detection capability, thereby leveraging Customs forces for better law enforcement

Crime

- Smarter criminals will use disguising technology to hide law breaking and to outpace Customs detection abilities—they have more access to more money; do not have to go through Congress.
- Intellectual property rights issues are so unclear that criminals will be able to exploit the laws' uncertainties.
- **Growing problems of product identification and authentication**
- **Internet crime, including identity theft, will become more common.**
- Synthetic drugs like ecstasy that can be produced anywhere and stay outside the regulatory channels
- **Growing use of secure communications by smugglers**
- **More advanced smuggling vehicles, including subs, unmanned aerial vehicles, and stealth**
- Criminals will have access to terrorism and smaller, more lethal weapons of mass destruction, including biological and chemical
- Participants discussed whether these crime trends would drive Customs away from revenue collection and toward law enforcement. Many noted that equity and uniformity were essential in trade-related enforcement, so Customs could not selectively enforce the laws.

Growth

- More international trade
- Larger containers
- Smaller packages

- More international and e-commerce, along with more types of contraband and intellectual property crimes

Globalized e-commerce

- **Increasing e-commerce and Internet use are making borders fuzzy.**
- Growing numbers of international Internet users
- The ways things are bought and sold is changing
  - **Bartering and other new exchange and payment methods will complicate Customs job if they do not get ahead of them.**
  - Valuation, origin, and purchasing can all be unclear.
  - **Customs needs to get ahead of these issues.**
  - These challenge existing laws.

Increasing need for speed

- This is a driver and an expectation.
- **Delay is seen as ultimate cost.**
- **Tech responses** could include:

– Sophisticated knowledge management service-wide
– **Data mining to ferret out information and patterns**
– **Smart packaging to allow goods to help Customs do the customs job through automatic reporting**
– Advanced data management to improve customer service
– **Artificial intelligence to increase Customs use of exception processing**

Human resources

- Virtual, ultra-decentralized workforce, but a recognition that **social change lags behind technical capabilities**
- **Ability to conduct industry without being at a physical location**; this will apply to customers as well as Customs
- **New skill sets will be needed, with more education**; Customs will have to continue to compete with the private sector for qualified personnel.
  - **May have to develop new recruiting approach, emphasizing elites against the bad guys, using advanced technology tools as weapons**
  - **Create a super agent, but this may bump up against labor unions**
- **Artificial intelligence and non-intrusive inspection could free up resources, but may create issues with the union.**
- Job duties will change with advanced technologies, requiring fewer humans to detect and intrude—will change the nature of the Customs force.
- Knowledge management is essential.

Growing public and political expectations

- Protection of privacy
- Security
- More questions like genetically altered food, biological issues, and medical issues like RU-486
  - Publics for Customs include the public, Congress, and other agencies
  - Expanding missions can put additional pressure on resources, if budget is not increased or the money is given to another agency

Declining or static resources

- **This might lead to consolidation of law enforcement at the federal level, which has ties to HR issues.**
- Advanced technology means new and continuous training needs
- However, more fundamentally, **Customs does not have a good organizational structure to exploit technology.**
- Or a possible move away from a revenue mission
  - Participants discussed whether enforcement was worth the up-front and economic costs, some noting that returns were high for the dollars spent.
  - **Customs now lacks the R&D resources to pursue tech on its own, and needs to cooperate with other agencies and outside entities.**
  - **Customs will be driven to a competitive industry model to survive—may need to look at Customs keeping a larger share of their revenue intake**
- May have to look at outsourcing the R&D function

General implications—overarching implications included:

- **Changing technology demands more cooperation between Customs and other entities.**
  - This includes private companies, other agencies, and foreign countries
  - **Customs could join with other organizations for solutions, and form broader constituencies to push the Customs agenda.**
  - Otherwise there will be a continuing inability to keep up with the bad guys and to exploit the technology that is in hand
- Policy response—policies have to adjust to these changing circumstances, and response needs to be timely and relevant (just-in-time legislation)
- Will present continuing cost and pacing problems, but advanced technologies will facilitate legal trade—**may have to bring in legitimate industries more aggressively**
- Training challenges abound, only some of which may be amenable to long distance learning solution

- **Need for customized Customs R&D function, but there still remains the question of who will build and maintain advanced technology capabilities**

Senior Executive Futures Session
Millennium Workforce

November 8, 2000

Jennifer Jarratt, futurist and author, is a Senior Vice President of Coates and Jarratt, Inc. She addressed workforce issues in three periods—the near term—1-5 years, mid-term—1-10 years, and long term—1-20 years. Ms Jarratt emphasized the changes in the work force by looking at trends and forces in the next decades of the 21st century. Her main points:

Trends

- The workforce is coming to depend on new skills, for example, advanced technology, automation, computer and Internet-based.
- **The nature of the contract between worker and employer is changing. The employer would like to outsource the payroll and pay for projects, not people.**
- People want a **life and family as well as work.**
- **Retirement ages continue to fall, but many older workers will remain in the workforce.**
- **Worker rights, laws, and regulations becoming more prevalent** in workplace
- Workforce is becoming **increasingly diverse**—gender, race, ethnic groups, with a much larger percentage of Hispanics in the 2030+ workforce

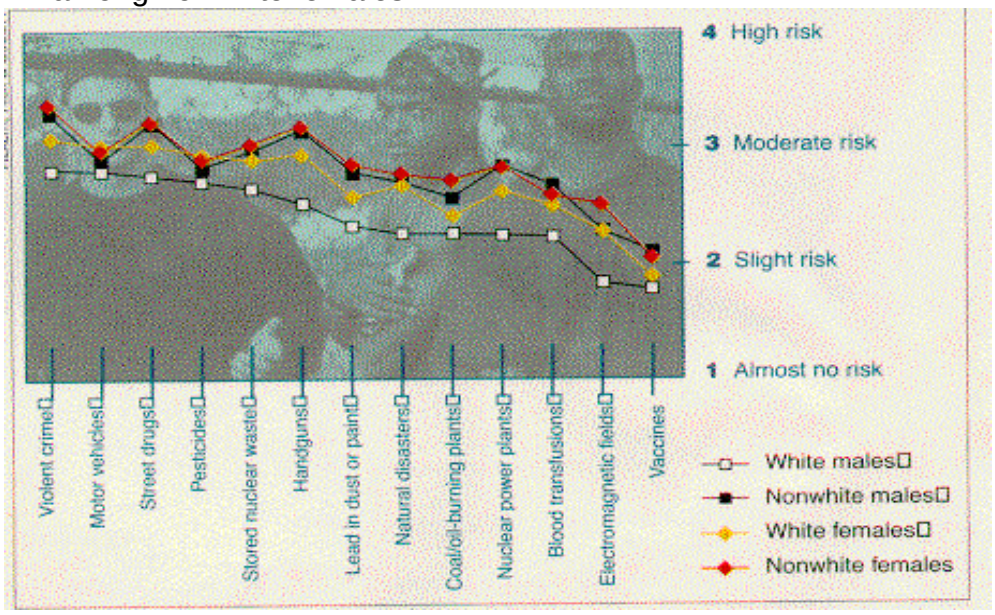
Forces shaping the future of work

- **Supply of people**—employers, including government agencies, will continue to fight over the same few, especially technical workers, but **struggle will lessen after 2005**
- Home/work balance expectations—**people are not dedicated to getting meaning for their lives only through their work**
- Changing organizational structures—virtual organizations growing; **decentralization is more common, with more employee freedom and flexibility**
  - Should not be centralized vs. decentralized, but rather a need to articulate needs for each style and structure, and to see where and when each best works
- **Regulation of work force by government is increasing** in safety, health, compensation, discrimination, etc.
- Skill shifts—increasingly technical and computer based
- **Information technology will allow new ways to work and manage.**

  - May be factor in answering the question: How does government involve and empower employees?
  - **May also help in worker self organization**, the ability to come together to do jobs with less oversight—How does management let go to enable workers to do that?
  - **However, technology does not mean that employees will work less hard.**
  - Distributed work, time—growing angst about telecommuting by workers and management
- **Globalization—outsourcing 24 hours a day, 7 days a week**
- **Demography will drive potential managerial shortage in U.S. in 2010**—employers will be faced with older workers who cost more, but who are more efficient

Near-term issues in workforce management

- **The three-Rs—recruitment, retention, reinvigoration—will drive human resource efforts.**
- **Getting the most from diversity**, not only for workplace harmony, but in taking advantage of different views to become more creative and effective
- **Management-worker balance**–the role of unions—tied to loyalty to/from work force; community service; sabbaticals
- **Loyalty** to employer vs. self-marketing
- Perception of risk is generally lower among white males, generally highest among nonwhite females.



Source: *Science News* , 9/16/2000

- Workforce training in 2000
  - US organizations plan to spend $54 billion on training.

  - Almost all organizations teach computer skills (99%), mainly for computer use, e.g., Microsoft Office.
  - A third pay for remedial math (35%)
  - Distance learning still small: (6% of all training).
- **In 2008, most training will be on-the-job training** (short term—39%; moderate-term—14%; long-term—9%).
- Perceptions of government vs. private sector employment
  - Government seen as more stable employment
  - Idea of public service and a higher calling
  - But usually lower compensation

Mid and Long-term Changes

- A **new generation workforce, with different values and perspectives about work—work will not hold the same place as earlier generations, but this does not mean they won't work hard or effectively.**
- Long-term shifts in our lifetime activities, with **less time spent in labor force—there may be long periods where a person does not work**--because automation and information technology makes workers so productive, only 70% of the workforce need be in full-time work.
- At the same time U.S. employees work harder than other global workers based on percentage of time spent at work
  - For some manual functions, e.g., domestic and office cleaning, it will be more difficult to pay living wages
- Within 15 years one quarter of information workers likely to be replaced by machines

Will the office become obsolete? It might be a far less significant institution, given the following issues:

- **Highly mobile workers**
- Mobility by choice
- Totally **portable office technology**
- Impermanent organizations
- Extensive **collaboration**
- **Market motivated individuals**

Role of work in future

- In the long run, we all may need agents—"It used to be that people needed work to survive. Now work needs people to survive." - adapted from Nicholas Johnson, quoted in Michael Jackman, *Crown's Book of Political Quotations*, 1982, New York: Crown Publishing Inc., p. 2.

Follow-on Participant Discussions

Participants identified workforce trends and what they might mean for the issues Customs faces for the future by responding to the question: What are the Millennium Workforce trends affecting U.S. Customs in 2010-2020?

The Customs mission and operations will be different in 2020

- The global economy and free trade will grow and change the nature of Customs processing, e.g., **processing will not take place as much in ports and it will have a growing remote work component and growing challenges to communicate with workers.**
- Processes and systems will be more standardized, but Customs' **work itself will change, relying more on technology** to do Customs' functions.
- **Many Customs home base offices will be eliminated, but it is unclear if, where, and how Customs will do basing function.**
- Need to balance physical presence with technology contributions—allocate effectively

The Customs workforce will be different in 2020

- Between now and then, will have aging workforce, with many Customs managers growing older—will bump up against mandatory retirement age
- Will be more diverse and **Customs will face language barriers between workers**

Customs needs to think more like the private sector—but many changes that could enhance workforce management call for aggressive support from Office of Personnel Management, Office of Management and Budget and new legislation

The three workforce Rs—recruitment, retention, and reinvigoration—will become more important

- Recruitment efforts increasingly must recognize diversity
  - **May want to reconsider citizenship requirement for Customs employment**
- Will want to make Customs employees career resilient—stay current and marketable
  - Will call for full career personnel development—from first Customs day through last day on job
  - Address retirement up front and allow workers to have portable retirement plan that can be carried wherever they go.
  - Need to **differentiate between blue and white collar** workforce needs

- **Need new methods for recognizing good performance, including non-monetary incentives to retain best workers**
  - Employee surveillance will be more common—may clash with other efforts.
  - Can expect workers to become more productive, with fewer work hours
- Should create performance measures to see how to retain best employees
  - Management should recognize that this might butt up against union desires.
  - **Unions need to be motivated—inside and out—to think about the future.**
- The **learning environment will become more demanding creating needs** like these:
  - Adapt to changing mission and operations
  - Better job matching future skill sets with job requirements
  - **Faster training** processes
  - **More frequent training**
  - Better communications and language skills
- Increasing numbers of Customs employees will have college degrees, probably will want to continue education, but rising costs may interfere.
- Need to concentrate on training to keep pace with bad guys
- Integrity should be part of training.

Workforce expectations are growing and becoming more restive

- Increasing customer demands for service and speed will put pressures on workforce and one response is to ensure that Customs employees understand the evolving Customs mission.
  - Work to create commitment to Customs
- But trend to outsource functions creates tensions
- **Management must balance job security with job satisfaction.**
- **Quality of life demands**
  - **Balancing job with family** and leisure time is becoming more important.
  - **Demands for new benefits**, e.g., elder care, day care, pet care, relocation expenses
  - Call for **shorter work week and more flexible work schedules**, perhaps working at home, and more **options for self direction** and fewer managers
- Look into job sharing—two workers splitting a workweek to do one job.
- Customs workers may be less geographically mobile, but **will want the work moved to them**, rather than the worker to the work.
- Can expect **rise in real and perceived cultural/ethnic tensions** as workplace becomes more diverse
  - Minority opinion was that diversity tensions would be resolved by 2020
  - Regardless, need foreign language skills and more creative solutions to address diversity tensions

Different structure and design might be able to help Customs

- Could redefine core Customs occupations, let functional boundaries be more vague and workers could do more than one thing
- **Work to design systems to reduce the time expended on management-labor conflict.**
- **Allow flexibility in workplace and assignments; allow mobility between occupations and less specialization.**
- Develop creative managers.
- Measure return on management—how well Customs and managers implement the Customs strategy.
- **Lighten emphasis on organizational structure and function, allow more employee direction.**
- May be able to outsource or even privatize some Customs functions
- Means more flexibility from human resources
- Ensure communications of work processes innovations across the organization
- Create **partnerships between Customs management, customers and employees.**

Technology advances might help with workforce issues

- **More data will be available** for workforce decisions and actions.
- Technology—automation, Internet, better detection sensors—could support needs for **faster, more timely worker contributions** to mission
- **Workforce will have more technology skills, but advancing technology will continue to challenge them.**
- Use technology to create and **share lessons learned** across Customs functions.

Appendix 3
Futures Session Participants

Customs in the 21st Century Meeting Participants

A total of 150 participants attended six different sessions to discuss Customs' future environment. Of that number, 35 individuals represented stakeholders external to Customs. The list of participants summarized by each session follows.

Trade and Global Economy Session Attendees (September 12, 2000)

External Participants

Sam Banks, Air Transport Association
Jim Clawson, JBC International
Al DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Mike Laden, Target

U.S. Customs Service Participants

Commissioner Raymond Kelly
Chuck Winwood, Deputy Commissioner
Paul Browne
Doug Browning
Donna DeLaTorre
Wayne Hamilton
Joe Rees
Bonni Tischler

Facilitators

Dr. Richard Cooper (Expert Speaker), Harvard University
Bill Riley, U.S. Customs Service
Chris Gaugler, U.S. Customs Service
Stacey Aldrich, Coates and Jarratt, Inc.
Jim Burke, Coates and Jarratt, Inc.
John Cashman, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers

Travel and Transportation Session Attendees (September 26, 2000)

External Participants

Adi Abel, Maersk-Sealand
Grant Aldonas, Senate Committee on Finance
Al DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Don Fields, Metropolitan Washington Airports Authority
Phil Hughes, UPS-Customhouse Brokerage
John Meenan, Air Transport Association
Sandra Scott, Roadway
Richard Steinke, Port Authority, Long Beach, California

U.S. Customs Service Participants

Commissioner Kelly
Chuck Winwood, Deputy Commissioner
Paul Browne
Jeff Casey
Bob Jacksta
Anita Terry McDonald
Bob McNamara
Bonni Tischler
John Varrone
Tom Winkowski

Facilitators

Dr. Aaron Gellman (Expert Speaker), Northwestern University
Bill Riley, U.S. Customs Service
Chris Gaugler, U.S. Customs Service
Jim Burke, Coates and Jarratt, Inc.
Josh Calder, Coates and Jarratt, Inc.
John Cashman, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers

Criminal Justice and National Security Session Attendees (October 12, 2000)

External Participants

Al DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Denise O'Donnell, U.S. Attorney, Western District New York

U.S. Customs Service Participants

Commissioner Kelly
Elissa Brown
Paul Browne
Frank Figueroa
John Heinrich
Bill Keefer
Charles Stallworth
Seth Statler
Bonni Tischler
John Varrone

Facilitators

Dr. Neil Livingstone (Expert Speaker), Global Options, LLC
Bill Riley, U.S. Customs Service
Chris Gaugler, U.S. Customs Service
Jim Burke, Coates and Jarratt, Inc.
Chris Carbone, Coates and Jarratt, Inc.
John Cashman, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers, Inc.

Inventions and Technology Session Attendees (October 24, 2000)

External Participants

Tom Anastasi, Tower Group
Steve Broadbent, Compensation Resource Group, Inc.
Al DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Captain James Evans, Department of Transportation, U.S. Coast Guard
Doug Ingram, PSINet
Esther Kepplinger, Department of Commerce, Patent Trademark Office

U.S. Customs Service Participants

Commissioner Kelly
Jeff Baldwin
Paul Browne
Pat Duffy
Betsy Durant
John Durant
Woody Hall
Rob Lewis
Dennis Murphy
John Pennella
Stu Seidel
Debbie Spero
John Varrone
Gila Zawadzki

Facilitators

Joe Coates (Expert Speaker), Coates and Jarratt, Inc.
Bill Riley, U. S. Customs Service
Chris Gaugler, U.S. Customs Service
Jim Burke, Coates and Jarratt, Inc.
Josh Calder, Coates and Jarratt, Inc.
John Cashman, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers, Inc.

Millennium Workforce Session Attendees (November 8, 2000)

External Participants

Al DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Elisabeth Bresee, Assistant Secretary for Enforcement
Tina Lawson, HRM director, Proctor and Gamble
Jonathan Levine, National Treasury Employees' Union

U.S. Customs Service Participants

Commissioner Kelly
Chuck Winwood, Deputy Commissioner
Linda Batts
Paul Browne
Doug Browning
Margie Budd
Jo Cohen
Bill Heffelfinger
John Heinrich
Cathi Kasch
Leticia Moran
Larry Ryan
Bob Smith
Renee Smoot

Facilitators

Jennifer Jarratt (Expert Speaker), Coates and Jarratt, Inc.
Bill Riley, U.S. Customs Service
Chris Gaugler, U.S. Customs Service
Jim Burke, Coates and Jarratt, Inc.
Josh Calder, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers, Inc.

Day in the Life of Customs—2020, Insights, Implications, and Integration Session Attendees (January 9, 2001)

External Participants

Dennis Baker, Food and Drug Administration
James Clawson, JBC, International
Alfred DeAngelus, Sandler & Travis Trade Advisory Services, Inc.
Michael Filler, National Treasury Employees' Union
Mike Laden, Target, and American Association of Exporters and Importers
Tina Lawson, Proctor and Gamble
Marty Littlefield, Senior Counsel, U.S. Attorney, Western District New York
Peter Powell, C.H. Powell Company
Odis Rousseau, Drug Enforcement Administration
David Serko, Serko and Simon LLP
Peter Tirschwell, Journal of Commerce

U.S. Customs Service Participants

Commissioner Kelly
Chuck Winwood, Deputy Commissioner
Linda Batts
Paul Browne
Margie Budd
Woody Hall
Wayne Hamilton
William Keefer
Dennis Murphy
Joe Rees
Stu Seidel
Deborah Spero
Bob Smith
Bonni Tischler
John Varrone

Facilitators

Bill Riley, U.S. Customs Service
Chris Gaugler, U.S. Customs Service
Stacey Aldrich, Coates and Jarratt, Inc.
Jim Burke, Coates and Jarratt, Inc.
John Cashman, Coates and Jarratt, Inc.
Craig Petrun, PricewaterhouseCoopers

Appendix 4
A Day-in-the-Life of Customs 2001

Day-in-the-Life of Customs 2001

Workload…

- Customs handled nearly 489 million passengers in 2000.
- Customs cleared 829,000 commercial and 142,000 private aircraft transporting nearly 81 million air passengers.
- Customs moved over 127 million vehicles and over 11 million trucks across our border crossings in 2000—an average of over 378,000 cars and trucks every day.
- Customs worked with the Trade to process 23.6 million individual import transactions in 2000, which has more than doubled since 1993.
- Customs officers handled 2.2 million railcars in 2000 carrying everything from cars to corn.
- Nearly 6 million cargo containers were processed by Customs in 2000 from ships unloading at U.S. ports.
- On a daily basis, Customs processes
  - Over 1.3 million passengers,
  - Around 348,000 vehicles
  - Over 47,000 trucks and containers
  - Approximately 600 ships, and
  - Over 2,600 aircraft.

Results…

- Air travelers clear Customs in an average of 5 minutes or less.
- Customs officers handled $1.2 trillion in imports in 2000 and the value of the trade handled has doubled since 1992.
- Customs collected $20.5 billion in import duties, approximately $11 for every dollar spent on Customs operations, making Customs the second largest revenue-collecting agency in the federal government.
- Customs makes an average of 5 drug seizures, 6 other types of seizures, and 3 arrests each hour.
- In 2000, 9,008 personal searches were performed on passengers, a 61% reduction from 1999 with a 25% improvement in the number of drug seizures.
- In 2000, Customs stopped over 150,000 pounds of cocaine and close to 1.3 million pounds of marijuana from hitting our streets.
- Customs stopped nearly 40,000 weapons from crossing U.S. borders in 2000.
- On a typical day, Customs makes
  - 65 arrests,
  - 118 drug seizures,
  - 128 other types of seizures, and
  - 11 currency seizures.
- On a typical day, Customs seizes,
  - Nearly 4,200 pounds of drugs,
  - Over $32,000 in arms and ammunition, and
  - Approximately $367,000 in conveyances, $559,000 in currency and $439,000 in merchandise.

Personnel…

- There are approximately 12,200 frontline Customs officers serving and protecting the American public.
- Customs officers are experienced—the average length of service is nearly 12 years on the job.
- Customs is diverse - 35% of the workforce is women, 11% percent black, 18% percent Hispanic, 4% Asian American, and almost 1% percent Native American.
- Customs workforce is highly educated with 46% having at least a Bachelors degree.

Prepared: January 2001 by U.S. Customs