UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE

PAPERLESS TRADE
IN INTERNATIONAL SUPPLY CHAINS
Enhancing Efficiency and Security

UNITED NATIONS
New York and Geneva 2008
Note

The views expressed and the designations employed in this publication are those of the authors and do not necessarily reflect the views of the United Nations Secretariat nor do they express any opinion whatsoever on the part of the Secretariat concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

All material may be freely quoted or reprinted, but acknowledgement is requested. A copy of the publication containing the quotation or reprint is to be sent to the following address: Editor, Trade and Timber Division, United Nations Economic Commission for Europe, Palais des Nations, Geneva 10, CH-1211 Switzerland.
CONTENTS

Introduction ............................................................................................................................................ v

PART I: The Changing Role and Importance of Information in the International Supply Chain ................................................................. 8

1.  Supply Chains and Digital Information: Current State and Future Trends ................. 8
    Chapter 1.1  Current state and future trends of logistics in international supply chains .......... 8
    Chapter 1.2  UN/CEFACT: Current work on trade facilitation and e-business solutions ...... 12

2.  Governmental Initiatives on Information and Security in International Supply Chains:
    Policy Issues ........................................................................................................................................ 15
    Chapter 2.1  The European Union approach to balancing security and trade facilitation in a
                paperless environment .................................................................................................................. 15
    Chapter 2.2  The APEC initiative on paperless trade in the Asia-Pacific region ............... 18
    Chapter 2.3  The implementation of paperless trade in the Russian Federation ............. 21
    Chapter 2.4  Senegal’s transition to paperless trade ................................................................. 23
    Chapter 2.5  Sweden’s “Green Corridor” with Finland and the Russian Federation .......... 25

3.  Standards and Implementation ......................................................................................................... 27
    Chapter 3.1  Paperless trade in Sweden: the e-Stairway, Gateway Sweden, and StairSec ..... 27
    Chapter 3.2  E-logistics in Thailand ............................................................................................... 29
    Chapter 3.3  The World Bank’s experience in trade facilitation and paperless trade .......... 32

4.  Private Sector Experiences on New Information Requirements for Secure and Efficient
    Supply Chains ........................................................................................................................................ 35
    Chapter 4.1  International Air Transport Association ................................................................. 35
    Chapter 4.2  Freight Forward International .................................................................................. 38
    Chapter 4.3  Italy’s Interbank Corporate Banking Association ............................................... 41

5.  Paperless Trade: the Road from Vision to Reality – Key Issues in Achieving Paperless
    Trade .................................................................................................................................................... 44
CONTENTS

PART II: Less and Better Data to Build Trust and Efficiency .............. 46

1. Digital Information for Efficiency of Transport Systems .......................... 46
   Chapter 1.1: Introduction: The importance of the transport infrastructure and of private sector cooperation ................................................................. 46

2. Digital Information Exchange in the Maritime Sector ............................... 47
   Chapter 2.1: The Port of Felixstowe, United Kingdom .............................. 47
   Chapter 2.2: DAKOSY and the Port of Hamburg ................................. 49
   Chapter 2.3: A community model for paperless trade development in Hong Kong, Special Administrative Region ................................................. 51

3. Paperless Trade for Integrated Trade and Logistics Information Systems .......... 54
   Chapter 3.1: Moving towards paperless trade in Turkey ......................... 54
   Chapter 3.2: E-logistics and e-customs in the Republic of Korea ............. 57
   Chapter 3.3: Implementing Paperless Trade in Malaysia .......................... 60
   Chapter 3.4: Harnessing IT in Singapore to enhance international trade efficiency and security .............................................................. 62
   Chapter 3.5: A regional business case: Implementing e-invoicing in South Karelia, Finland 66
   Chapter 3.6: Supply chain security ....................................................... 68

4. Technology as an Enabler of Innovation ............................................... 69
   Chapter 4.1: Microsoft: Technology and the international supply chain ........ 69
   Chapter 4.2: Adobe’s intelligent document platform: A seamless transition from paper to paperless .............................................................. 72
   Chapter 4.3: Axway and electronic single window solutions ................. 74
   Chapter 4.4: The SAP approach to the challenges of global trade processes 77

5. Creating an Enabling Environment to Make Paperless Trade a Reality .......... 79
   Chapter 5.1: Transition to paperless trade: Key characteristics and steps required for implementation .............................................................. 79
INTRODUCTION

This volume brings together presentations and background papers from some of the speakers and participants of the United Nations Economic Commission for Europe (UNECE) Third Executive Forum that took place in Geneva, Switzerland. The Forum, held under the auspices of the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), offered its participants various presentations and panel discussions examining paperless trade in the international supply chains.

Mr. Patrice Robineau, then Acting Deputy Executive Secretary of the United Nations Economic Commission for Europe (UNECE), opened the 2005 Executive Forum on behalf of Ms. Brigita Schmögnerová, UNECE Executive Secretary. The first UNECE Executive Forum on Trade Facilitation focused on political dialogue for building an open global trading system, the role of trade facilitation in regulating such a system and the need to promote the global implementation of UNECE trade facilitation standards and tools. The second UNECE Forum, held in 2003, considered the new security threats to international trade.

The third Forum took place in the context of the trade facilitation negotiations under the Doha Agenda, as the UNECE contribution to support and assist member States of the World Trade Organization (WTO) in better understanding trade facilitation standards. Trade facilitation is not limited to crossing borders; it also includes the acceleration and globalization of trade flows and increasing competitiveness. There is a proliferation of regional trade agreements, and 84 per cent of these agreements contain trade facilitation measures. Conventional tools (e.g. tariff reductions) are obsolete, and non-tariff measures, such as inter-area trade facilitation measures, are becoming more and more important.

The Forum focused on means of reducing the time required for trade transactions, which are both essential for facilitating trade and a key factor in security. Although trade facilitation and security are often pitted against each other, information and communication technology (ICT) can help reconcile them. The World Summit on the Information Society (WSIS) noted that the role of ICT in trade flows should be taken into account in developing national policies.

The Forum sought to combine organizational changes and complex working methods to meet the needs of all international trade operators. In general, the UNECE Executive Forum is a neutral platform for exchanging public and private as well as national and international experiences, some of which have shown remarkable results.

The work of the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), organizer of this Forum, is increasingly global in scope. UN/CEFACT fills a special niche by producing and developing facilitation standards for trade and providing a venue for developing tomorrow’s standards with actors from the private and public sectors. UN/CEFACT integrates the work of the World Customs Organization (WCO), the World Trade Organization (WTO), the International Maritime Organization (IMO) and the Organization for the Advancement of Structured Information Standards (OASIS), serving as a platform for strengthening coordination and interaction.

One of the main goals of the Forum was to develop a “Roadmap towards Paperless Trade”. This Roadmap is intended as a tool to facilitate passage from the current situation to a commonly agreed future objective: the implementation of paperless trade. It was not to be a negotiated text, but rather a living document that would establish a framework based on the input of previous workshops and the comments and recommendations from this Forum. Ultimately, it provided thematic input into the second phase of the WSIS in Tunis in November 2005. Participants in the Forum were invited to review the draft Roadmap, and, after assessing the current state of implementation and taking stock of experiences and lessons learned, to identify steps that Governments and business needed to take to move towards paperless trade.
Focussing on a better understanding of trade facilitation processes, Christian Frühwald, UN/CEFACT Chair and a Partner for Supply Chain Consulting at Siemens AG, Germany, presented his perspective on the importance of supply chain management in international trade.

Siemens has over 290 production sites worldwide and a global market. Therefore, the company needs electronic information exchange and communication tools. Information technology standards help reduce transaction times and process costs. Although it has 19 message types, Siemens uses one message standard: EDIFACT. Transactions between the different locations and units in the company are processed via a business transaction service process. Approximately 45 million messages are sent per year. Siemens converts customers’ and suppliers’ standards to integrate them into the supply chain.

Despite having a corporate database that includes all the necessary kinds of export licenses, Siemens would be able to carry out transactions faster and more safely if customs and trade regulations and procedures were standardized.

In general, four layers of standardization are needed: (i) generic business processes; (ii) tools, applications and services; (iii) transactions and messages, and (iv) codes for identification and classification.
UNECE develops, maintains and leads the implementation of trade-related recommendations, standards and tools. These activities are carried out through UN/CEFACT, in which any business or Government can participate. The standards developed by UNECE are open and technology-neutral, catering to the needs of large or small companies in both developed and developing countries. UN/CEFACT seeks to deliver e-business solutions that can improve the ability of business, trade and administrative organizations in developed, developing and transitional economies trading products and relevant services to be more effective and thus contribute to the growth of global commerce.

The focus of UN/CEFACT is on worldwide facilitation of national and international transactions through the simplification and harmonization of processes, procedures and information flows. For example:

- The many documents required for a trade transaction
- Administrative procedures at border crossings related to customs, health, safety and security
- Information flows controlling goods throughout the transaction process
- Payment systems
- Improving trust assessment through a better exchange of information

The objective of UN/CEFACT is to create simple, transparent and effective processes for global business through the standardization of e-business processes and data in the context of global trade facilitation and international supply chain security.
1. Supply Chains and Digital Information: Current State and Future Trends

Chapter 1.1 Current state and future trends of logistics in international supply chains

Dr. Frank Straube, Professor of Logistics and Supply Chain Management at the University of Berlin

Logistics and Information Technology

Logistics is the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of fulfilling customer demands. This means having the right thing, at the right place, at the right time.

In recent years, the international supply chain has been transformed by the concentration on core competencies, new information and communication technologies (ICTs), the fragmentation of supply chains and increasing customer orientation. Features of this redesign include the spatial concentration of stocks and value-added services, time-critical supplier/manufacturer relationships, an increasing amount of direct investments and foreign exchange relations, and new challenges created by the new European Union (EU) member countries. These all require the use of innovative logistics technologies.

ICTs have impacted all stages of the logistics process: order placing, supply processing, order processing, order fulfilment, and disposal (returns and recycling). IT-supported logistics processes are efficient, flexible, secure, respondent and rational.

Figure 3: The impact of new technologies
In Europe, the degree of integration of supply chains can vary greatly. The integration of logistics service providers is often related to regional conditions, and can fluctuate even within the same industry. The automotive industry is on the leading edge in the integration of processes with direct suppliers and customers. There are four levels of integration in Europe:

1. Functional integration of the internal supply chain
2. Information exchange between customer, supplier and third-party logistics (3PL)
3. Collaboration management in the supply chain
4. Synchronization and reduction of the internal and external supply chain

Trading partners use a variety of communication methods for exchanging data along the supply chain: dedicated networks, open networks (the Internet), paper documents or the telephone.

For manufacturing companies, the factors that can most influence logistics success are product design, process design, and process control. These impact logistics process ability, reliability and costs, which in turn affect delivery capacity, reliability and price, and, ultimately, business success.

The importance of information in the international supply chain

International supply chain networks are driven by competition and market growth, cost reduction, process and product innovation, and the minimization of risks.

Unclear or insufficient information can cause a variety of problems within supply chain networks, for example:

- Unclear process ownership and heterogeneous IT tools can create massive planning complexity (i.e. many have to care, but nobody feels responsible).
- Lack of information flow and uncertainty can lead to stocks, yet there is a clear trend towards stockless outlet replenishment in the logistics structures of international retail organizations.
- Many manufacturers rely heavily on outside suppliers. For example, over 90 per cent of the value of a computer is from outside suppliers, it takes over 20,000 parts to build to a car, and the Airbus A380 used 1.5 million parts from over 50,000 suppliers. Often, no one knows how many supplies are even involved. In these industries in particular, logistics and information exchanges are very important.
- Broken information flows cause delays in supply chains, particularly in handling sensitive paper-based documents (e.g. bills of lading and commercial invoices).

The standardization of information flows

Standards are needed for exchanging data because they simplify the system and enable collaborative integration. Fewer supply chains mean all new suppliers must fit into a standardized supply chain with standardized interfaces and information protocols.

New sales channels powered by the Internet, built-to-order scenarios, increased competition and more demanding customers are changing companies’ requirements. In the future, companies will need to integrate organizational units along the supply chain and coordinate materials, information and financial flows in order to fulfil customer demands. Collaboration and information integration in particular are essential in relieving competitive pressure and adding value.

Standardization activities relate to defining the performance of products, processes and services, and affect all stages along the supply chain. The overall task is to share non-differentiating processes and
to execute those processes with other collaborative partners to increase workflow efficiency. Multiple versions of systems, software and hardware make it difficult to communicate and move data and information across corporate boundaries, so standardization cannot be restricted to processes; IT infrastructure must also be standardized.

The process of standardization is dynamic and standards must continually evolve in order to meet changing business requirements. A standard is a set of specifications to which all the elements of products, processes, formats or procedures under its jurisdiction must conform. The process of standardization is the pursuit of this conformity, with the objective of increasing the efficiency of economic activity. Standardization efforts in e-logistics need to focus on:

- Design (logistics strategy, corporate network structuring, logistics development, corporate structure planning, sourcing)
- Monitoring (controlling, visibility, tracking and tracing)
- Planning (sales and operation planning, product planning, inventory planning)
- Fulfilment (order processing, delivery control, transportation, container control)

**Developing a system for the standardized exchange of information**

Any e-solution serving all parties involved in supply chains should have the following profile: buyer, logistics service providers and suppliers all provide information to a web-based platform for supply chain event management (respectively, order data, delivery and tracking data, and confirmation of order and delivery note data). The platform then redistributes the information to the relevant parties as necessary, notifies the parties of any changes, and prompts them for information if it is not received in a timely manner (e.g. new orders not read within a certain number of days, quantity of orders modified by supplier).

![Visible E-solution for all involved parties in supply chains](http://www.esli.de/en)

**Figure 4: Visible e-solution for all involved parties in supply chains**
The expected effects of e-business-based logistics applications are impressive (see figure 5):

- **Automotive industry**: 6.2 per cent less per annum in operation costs; 35-95 per cent service level per week; 5-18 days delivery time for individual vehicles; -2 to +2 days for the cash cycle.

- **Computer industry**: 15 per cent less per annum in operation costs; 92-98 per cent service level per day; less than 5 days delivery time for individual PCs; -12 days for the cash cycle.

- **Retail**: 25 per cent less per annum in operation costs; over 99.5 per cent in service level (6-hour base); less than 48 hours for a complete shipment.

<table>
<thead>
<tr>
<th>Expected effects through e-business based logistics applications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automotive Industry</strong>&lt;sup&gt;1)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cost reduction: 6.2% p.a.&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Service level: 35% to 95% (weekly based)</td>
</tr>
<tr>
<td>Delivery time: 5 – 18 Days (individual vehicles)</td>
</tr>
<tr>
<td>Cash-Cycle: -2 bis +2 Days</td>
</tr>
<tr>
<td><strong>DELL</strong>&lt;sup&gt;2)&lt;/sup&gt; (Computer)</td>
</tr>
<tr>
<td>Operation costs: 15% p.a. **</td>
</tr>
<tr>
<td>Service level: 92% to 98% (daily based)</td>
</tr>
<tr>
<td>Delivery time: &lt; 5 Days (individual PC’s)</td>
</tr>
<tr>
<td>Cash-Cycle: -12 Days</td>
</tr>
<tr>
<td><strong>Otto-Group</strong>&lt;sup&gt;3)&lt;/sup&gt; (Retail)</td>
</tr>
<tr>
<td>Operation costs: 25% p.a. ***</td>
</tr>
<tr>
<td>Service level: &gt; 99.5% (six hour based)</td>
</tr>
<tr>
<td>Delivery time: &lt; 48 hours (complete shipment)</td>
</tr>
<tr>
<td>Cash-Cycle: not specified</td>
</tr>
</tbody>
</table>

<sup>*</sup>: Increasing efficiency through back-end optimisation, price reducing, stock reducing, assortment redesign

<sup>**</sup>: CRM, SCM and Logistics network with main supplier

<sup>***</sup>: in comparison to catalogue ordering

Source: <sup>1)</sup> Own Analysis Automotive Industry in Europe 2002
<sup>2)</sup> Forrester Research, 2003
<sup>3)</sup> Corporate Declarations, 2003

Figure 5: Expect effects through e-business based logistics applications

However, barriers to the adoption of such a system exist. Based on a 2002 survey of e-logistics in the automotive industry, although 88 per cent of respondents said their company was moving forwards towards becoming a “network company” and 90 per cent said that e-business improved their supply chain processes, many cited obstacles to implementation. These included the poor quality of internal planning systems (80 per cent), an inability to cooperate in networks (78 per cent), fear of transparency and visibility (66 per cent) and the organizational changes required (56 per cent).

The respondents identified the main causes of their problems in supply chain processes as follows:

1. The volatility of demands/inaccuracy of forecasting (88 per cent)
2. Capacity bottlenecks (84 per cent)
3. Coordination processes (80 per cent)
4. The availability of stocks and resources (58 per cent)

Respondents’ aims for a collaborative environment today and in the future include:

1. Inventory management (98 per cent)
2. The development of new products (96 per cent)
3. Requirements planning and forecasting (88 per cent)
4. Network planning and execution (56 per cent)
Chapter 1.2 UN/CEFACT: Current work on trade facilitation and e-business solutions

Mr. Mike Doran, Chair of UN/CEFACT and Senior Administrator at the European Organization for Nuclear Research (CERN)

UN/CEFACT trade facilitation and e-business activities

The UN/CEFACT International Supply Chain Reference Model consists of:

- Text descriptions of the major trade processes and information
- Pictorial representations of the information using the Unified Modelling Language (UML) standard
- A model linking these two together
- A catalogue of common business processes

This International Supply Chain Reference Model can help develop trade facilitation and e-business solutions that meet the needs of the numerous parties, activities and relationships, which are involved in a national or international trade transaction. Trade facilitation and e-business solutions can help save from 3 to 10 per cent of the costs of international trade. However, trading partners often have varying technical and business capabilities, and therefore standards are needed to help them work together.

UN/CEFACT has also mapped the International Trade Transaction Process (ITTP) in a “buy-ship-sell” model that consists of integrated and coordinated flows of information, goods and payments, and covers commercial, transport, regulatory and financial procedures (see figure 6). The ITTP provides a more holistic view of international business practices, one that can help build business process and information models for the analysis of both international and national supply chains.

![Figure 6: The International Trade Transaction Process](image-url)
In trade, information is exchanged at every step of the transaction process. Trade documents are the core means of exchanging information. While demand continues to grow for just-in-time delivery and approved supply chains, goods cannot move faster than the information that controls them. Increased security measures such as the Advanced Cargo Information (ACI) of the WCO and the 24-Hour Advance Cargo Manifest Rule of United States Customs can slow down the movement of goods.

To facilitate the exchange of information, the United Nations began developing paper document standards over half a century ago. UNECE and the United Nations Conference on Trade and Development (UNCTAD) began promoting the widespread implementation of the United Nations Layout Key (UNLK) in the 1960s. By 1978, this standard had gained worldwide acceptance and was renamed the United Nations Layout Key for Trade Documents (Recommendation 1 – ISO 6422).¹

![UNLK Set of standards](image)

Figure 7: The United Nations Layout Key for Trade Documents

International trade is now moving towards a more digitalized environment. But due to actors’ varying capacities, international traders must be able to move from a paper form to an electronic message and back again at any point in the trade transaction.

To facilitate this process, UN/CEFACT is elaborating digital document standards through its United Nations electronic Trade Documents (UNeDocs) project, continuing the work of SITPRO UK, which created Electronic Data Interchange (EDI) equivalents of paper trade documents under its ElecTra programme. UNeDocs is creating digital documents standards based on the following documents:

- United Nations Layout Key for Trade Documents (UNECE Recommendation 1/ISO 6422)
- United Nations Trade Data Elements Directory (UNTDED/ISO 7372)
- UN/CEFACT ebXML Core Components (ISO 15000 Part 5)

¹ This document is available at the following site: http://www.unece.org/cefact/recommendations/rec_index.htm
UN/EDIFACT - for EDI applications  
UN/CEFACT XML Naming & Design Rules  
UNECE Trade Facilitation Recommendations  

UNeDocs deliverables include:  

- A digital document standard for international trade documents  
- A business process model derived from the UN/CEFACT International Supply Chain Reference Model  
- An ebXML UN/CEFACT core component-based data model. The set of UNeDocs documents is derived from this data model, it complies with the UNLK standard and is delivered with box completion guidelines  
- UN/CEFACT XML schemes  
- UN/EDIFACT message implementation guides  

The UN/CEFACT Forum TBG ² – Digital Paper Working Group is carrying out the UNeDocs project, and possibilities are currently being explored for alignment with OASIS – UBL TC³.  

UN/CEFACT has also issued Recommendation 33: “Recommendation and Guidelines on Establishing a Single Window”, which seeks to enhance the efficient exchange of information between trade actors and Governments.⁴ The single window approach is a simple, one-stop solution offering official control with trade facilitation. The next steps for establishing a single window environment include developing standards and commonly agreed data structures for single windows, as well as a model in which benefits would outweigh implementation costs.  

---  

² International Trade and Business Processes Group 2.  
³ Universal Business Language Technical Committee.  
⁴ See: http://www.unece.org/cefact/recommendations/rec_index.htm
2. Governmental Initiatives on Information and Security in International Supply Chains: Policy Issues

Chapter 2.1: The European Union approach to balancing security and trade facilitation in a paperless environment

Dr. Panayota Anaboli, head of the e-Customs Sector, Customs Legislation and Application of Customs Legislation, European Commission

The political, legal and IT-related environment in trade is continuously evolving. The Lisbon Strategy for business competitiveness, e-Europe and e-government initiatives and the enlargement of the European Union are all elements of this changing environment. Legal tools are being developed to respond to these changes; they include Commission Communications and Council Resolutions on paperless customs and external border security.

- The eCustoms Communication COM (2003) 452 seeks to simplify Customs legislation; to integrate safety and security requirements and to facilitate the electronic declaration and electronic exchange of data between customs administrations, traders and other administrations or agencies involved in the movement of goods. It aims to significantly reduce existing customs treatments with a single guarantee (Community-wide decisions), to promote the Single European Authorization, to review customs debt provisions and to provide centralized clearance.

- The Customs Code security-related amendment (Reg. (EC) 648/2005) provides for pre-notification of the arrival of goods at their EU entry point and of the departure of goods from the EU, in order to facilitate risk analysis.

- The Authorized Economic Operator status will be recognized throughout the European Union will facilitate customs controls relating to security and safety and will simplify customs rules.

- European Union customs legislation is also being simplified with a modernized Customs Code that provides for electronic declarations; a single simplified procedure; the new concepts of centralized clearance, a single window, and a “one-stop shop”; harmonization in case of non-compliance; the inclusion of the Authorized Economic Operator concept and the merger and alignment of special procedures.

Under its Multi-Annual Strategic Plan (MASP), the European Union is also undertaking a series of operational actions to improve the interoperability and accessibility of e-Customs. Interoperability between customs administrations through data exchange facilitates risk analysis and decisions on the physical control of goods at EU borders. The first implementations in this area include the ECS\(^5\) pilot project based on the NCTS\(^6\) structure and messages, the 2006 AES\(^7\) user requirements; setting up a convergent automated system of risk analysis (proposed in the draft regulation currently under discussion at the Council); an automated importation system; and links with existing common systems and reference data (e.g. NCTS, quotas, TARIC\(^8\)).

Interoperability between Customs and other administrations (e.g. taxation, agriculture, and environment) is also important. This could take the form of a single window for all EU Customs transactions, with an information portal providing all the information necessary for import and export transactions in member States. It would be, in essence, a network of national and EU Customs' websites and allow seamless surfing from one site to another.

---

\(^5\) Export Control System

\(^6\) New Computerised Transit System

\(^7\) Automated Export System

\(^8\) Tarif Intégré de la Communauté
Traders could lodge all their electronic Customs declarations at this single access point, even if the goods are cleared in another member State. Data submitted would automatically be made available to the customs office where the goods are presented after technical validation of the data format or transcription of the data to the format and semantics required by the data receiver.

Feedback to the trader would be provided in the format agreed upon with the trader. Real-time exchange of data between Customs and other authorities would enable Customs to validate the data submitted by traders. Under the “one-stop shop” concept, the physical controls required by different authorities and agencies involved in customs transactions would be performed at the same time and at the same place.
Next steps in implementation include the endorsement by all member States of MASP with the elaboration of priorities and timelines, and a Council decision binding on all stakeholders for the implementation of e-Customs. Governance mechanisms would then need to be established for the synchronized implementation of e-customs by member States and traders.

Balancing security and trade facilitation is a difficult task that requires the commitment of all stakeholders at all levels (national, EU and international), as well as a strong governance scheme. The partnership between traders and customs is a key factor to success. All in all, the benefits for competitiveness, security and safety are worth the investment.
Chapter 2.2: The APEC initiative on paperless trade in the Asia-Pacific region

Ms. Younkyong Kang, Deputy Director of the e-Business Policy Division of the Korean Ministry of Commerce, Industry and Energy

Established in 1989, APEC is a forum for facilitating economic growth, trade and investment in the region through trade and investment liberalization, business facilitation, and economic and technical cooperation. It has 21 member countries, representing over 2.5 billion people and a combined GDP accounting for almost half of world trade.

![What is APEC?](image)

Figure 10: What is APEC?

APEC policy directions are laid out by its member countries’ Heads of State. APEC decisions are not binding, yet they are often followed by member States through mechanisms such as voluntary action plans, individual action plans, collective action plans and pathfinder projects.

Paperless trading was first addressed by APEC in its “Blueprint for Action on Electronic Commerce” and endorsed at the 10th APEC Ministerial Meeting in Kuala Lumpur in 1998. This Blueprint stipulates that member economies should move towards paperless trade.

The Electronic Commerce Steering Group (ECSG) is the main APEC body working on the implementation of paperless trade. It comprehensively addresses such electronic commerce issues as paperless trade, data privacy, consumer protection in e-commerce, online procurement and e-Government. ECSG has also established a specialized Paperless Trade Sub-Group, and works closely with other related working groups within APEC.

APEC set a standard template for Paperless Trading Individual Action Plans (IAPs) in 2001, and 16 member States had submitted their IAPs and three upgraded theirs in 2004. These IAPs are not legally
binding, yet countries comply with them. They help countries to follow the current requirements for paper documents and to set an appropriate timetable for the voluntary move to paperless trade while enhancing transparency relating to trade.

Pathfinder projects, which are conducted by a number of member countries, also help promote paperless trade. Two pathfinder projects are currently underway, one relating to e-certificates of origin (e-C/Os) and the other to e-sanitary and phytosanitary certificates (e-SPSs):

- **e-Certificates of origin.** The certificate of origin is one of the most important and frequently submitted documents in trade. The origin of a product often determines whether it is eligible for a preferential tariff rate or import quota. The e-C/O can replace the current time-consuming, cumbersome and costly paper process with a secure, verifiable electronic system that cannot be repudiated. The potential savings are substantial: If all certificates of origin issued in Singapore were paperless, for example, the trading community could save over $3.5 million per year.

- **e-Sanitary and phytosanitary certificates.** To obtain sanitary and phytosanitary certification, an exporter makes an application to the mandated organizations (e.g. quarantine services or the health department). The ultimate recipient of the certificate is the regulatory authority of the importing country. In most economies the current procedure involves the transmission of a paper certificate from the exporter to the importer and then to the regulatory authority of the importing economy. This process is time-consuming, cumbersome and vulnerable to fraud. The Australian Quarantine and Inspection Service and the New Zealand Food Safety Authority are currently developing a system for the two-way delivery of e-sanitary and phytosanitary certificates. This project is in the trial stage.

The potential savings from the widespread adoption of paperless trading could be about 3 per cent of the landed cost of goods, or about $60 billion each year for total intra-APEC merchandise trade. Savings would come from:

- Lower communication costs
- Fewer data entry errors
- The use of common data elements
- Faster payment and therefore lower interest costs for trade finance
- More efficient supply chains

However, many barriers to paperless trade remain in APEC member States. These include:

- The lack of legal and institutional infrastructure, including electronic transaction laws, electronic signature laws and the mutual recognition of electronic signatures.

- The propensity to remain with the status quo – there are many stakeholders in trade, and cooperation among key players (even between Ministries of Commerce and Customs services in the same country) is not always easy to achieve.

- The fact that banks may also be an impediment to paperless trading; they have been reluctant to replace the traditional paper-based letter of credit with a secure, Web-based alternative.

In the case of the pathfinder project, the adoption and use of e-C/Os has been disappointing for the following reasons:

- Banks and customs agencies are often unwilling to accept electronic documents without the original signature.

- International message standards for e-C/Os have yet to be ratified.
• In many customs administrations, checking for compliance of all kinds is a post-transaction activity, so the origin of the goods is not a critical aspect of border clearance.

In the case of the e-SPS project, only a few, mostly industrialized, economies have committed to its implementation.

Despite these challenges, and in view of the tremendous potential gains that paperless trade can bring, APEC is moving forward and has initiated new pathfinder projects for other priority areas while ensuring the implementation of existing projects. These new projects relate to:

• The harmonization of Customs declaration items among interested member economies.

• The cross-border electronic transmission of customs clearance data for express consignment based on the WCO Customs data model, followed by further initiatives for air and ocean cargo.

• The cross-recognition of PKI\(^9\) domains, which will establish a registry of APEC-recognized certificate authorities to provide a secured cross-border paperless trading environment.

APEC will also intensify its capacity-building activities, particularly those related to the establishment of a Web-based single window for paperless trading and to the assessment and benchmarking of current practices in paperless trading.

APEC will continue to build its collaboration with international organizations. ECSG has established a coordination mechanism with UN/CEFACT on international e-business standards for the purpose of creating and ratifying the message standards of e-SPSs and e-C/Os. It will also reinforce information sharing with international organizations to maximize the harmonization and interoperability of required data elements, formats and frameworks.

Finally, APEC will work to strengthen public-private partnerships. ECSG will seek to involve the APEC Business Advisory Council (ABAC), the Global Business Dialogue on e-Commerce (GBDe), the Pan-Asian e-Commerce Alliance, the Asia PKI Forum and other appropriate business partners in working towards paperless trading.

---

\(^9\) Public Key Infrastructure.
Chapter 2.3: The implementation of paperless trade in the Russian Federation

Mr. Andrey Korotkov, Senior Vice-President of the Vneshtorgbank (Bank for Foreign Trade), the Russian Federation

Promoting ICT development is above all a political task that must be worked out at the international, national and local levels. ICT development is a prerequisite for social and economic reforms and necessarily requires programmes for transitioning to an information-based society.

Essential factors for ICT development in Russia include: (i) stable economic growth; (ii) development of new informational products; (iii) taking maximum advantage of the country’s good geographical position; (iv) a high demand for ICT specialists; high labour productivity; and (v) the highly creative and technical skills of Russian specialists.

Many necessary national policy principles are already in place, including:

- A national guarantee of the right to public access to information.
- The informational security of the person, society and the State.
- The development of attractive conditions for business; and the further development of laws and regulations on Internet issues.

In 2002, the Government of the Russian Federation launched an eight-year national programme called “Electronic Russia”. This programme seeks to shift the Russian economy and export systems towards sectors with high added value, rather than focus on the supply of raw materials, to make the national economy more competitive and increase economic growth. The programme includes IT implementation through cooperation between the public and private sectors, especially in the areas of tax accounting and declarations, customs documentation and the national statistics informational system. The success of the programme will be measured by the growth of the market for informational services and programme products; a several-fold growth in the volume of the ICT sector market share so that it reaches at least 2 per cent in 2010; and an increase of up to 65 per cent in the paperless workflow of each government organ’s system and up to 40 per cent in the paperless workflow between the different government organs’ systems. To date, e-commerce is growing intensively in Russia: e-commerce volumes are increasing by 30 to 40 per cent per year. Business-to-Government (B2G) transactions comprise about two thirds of the total volume, while business-to-consumer (B2C) is about one fifth and business-to-business (B2B), 13.7 per cent (see Figure 11).

Of course, Russia still faces challenges in the development of e-commerce and paperless trade. The key components of a digital economy are electricity, a network (the Internet), knowledge, and data moving over the network. If one of these links is missing, e-commerce is impossible. In Russia, the energy supply can be unreliable, even in Moscow. The country also needs to expand its telecommunications network to allow broader e-commerce usage. (Weather conditions make the installation of fibre optic cables and transmission lines difficult, so satellite communications would be a better solution.) Home computer usage and Internet penetration levels remain low. In addition, it is impossible to conduct mass electronic payments for the moment, as Russians have not yet recovered their trust in the banking system (as it is, few Russians use electronic payment means such as credit cards or smart cards). Legal reforms are necessary to allow Russia to integrate the global informational and economic system: The country needs laws to regulate specific Internet issues, such as e-commerce standardization and unification, and legislation to facilitate the use of electronic signature mechanisms.
Several key measures could alleviate these problems: (a) developing legislation in the areas of copyright protection, e-commerce and information protection; (b) increasing ICT effectiveness in business and stimulating the demand for ICTs; (c) supporting the growth of the ICT sector by protecting fair competition; (d) developing the export-oriented segment; and (e) stimulating the growth of e-commerce.
Chapter 2.4: Senegal’s transition to paperless trade

Mr. Augustin Ndione, Principal Customs Inspector and Director of Customs IT Systems for the Customs Department of the Republic of Senegal

Situated in the westernmost part of Africa, Senegal has easy access to other continents through the Atlantic Ocean and to Africa through its rivers and therefore is in a good position for both international and African trade. The country’s national trade facilitation initiatives have sought to take maximum advantage of its geographical location.

Senegal has always perceived trade facilitation and paperless trade to include local actors, the community, and international efforts. Its organizational structure heavily involves the private sector, especially professional trade unions.

Importers use the Orbus system created by Senegal to inform all actors (banks, inspection services, government agencies, and insurers) of their requests. The documents are then sent through Orbus to the national system and a link between the request and the e-documents is created. The importer is then charged fees and pays using the Paybox system.

In the experience of Senegal, paperless trade has numerous advantages in terms of reliability and security for business and the economy as a whole. Major government involvement, support from the customs service and private-public partnerships have all contributed to the system’s success. The system’s structure coordinates all the actors’ responsibilities so that there are no overlaps in the chain of responsibilities and the input of all the actors is synergized.
By the end of 2006, an electronic payment system, GAINDE 2000, was available in all customs service offices. Centres are expected to cover 100 per cent of international trade transactions and the system will constantly be improved to process documents within a few minutes. All actors have performance targets for which they are accountable. The system integrates international standards such as ebXML, EDI and other UNECE standards, and should be completely interoperable with the international paperless trade scheme. The system seeks to incorporate international constraints such as GATT Articles V (freedom of transit), VIII (fees and formalities) and X (publication and administration of trade regulations).

Figure 13: GIE GAINDE 2000

African Governments, nonetheless, could use assistance in promoting awareness and technical capacity-building. Flexible guidelines for the use of systems are also important to push forward the development of new technologies. This will help prevent developing countries from being left behind and avoid any weak links in the international supply chain.
Chapter 2.5: Sweden’s “Green Corridor” with Finland and the Russian Federation

Mr. Karl-Erik A. Svedjeholm, Director at the Swedish Customs Northern Region

The Green Corridor project seeks to avoid the traditionally long lines and the complicated clearing procedure at the border between Finland and Russia. The former computer solutions of the Russian Federation were not compatible with the Swedish and Finnish systems. Finland had its own system with Russia using UN/EDIFACT, but both countries agreed to a new start with the Green Corridor project in a trilateral agreement in December 2002, using XML as the basis for a new standard. This standard has been quickly adopted and developed for customs use. Sweden and Finland have completely fulfilled their requirements and the Russian Federation has tested its modified final version.

In September 2003, a pilot opening of the Green Corridor system began at the Russian Border Crossing Station Tofyanovka with selected “certified” Swedish and Finnish export companies. These companies can now make electronic export declarations with the complementary information that the Russian customs service requires. These declarations are sent electronically via the local Swedish customs office to the Head Office Computer Centre. Once the message has been verified, it is forwarded to the Russian Federation Customs Service Headquarters in Moscow. The message is then examined and approved, normally within two to three minutes, and thereafter a response with a unique ID number (bar code) is sent back to the Swedish computer centre. The Swedish computer centre then forwards the approval with bar code to the company and the practical export process can begin.

On the Finnish side of the Finnish-Russian border, the Green Corridor shipment has its own special priority line and is given immediate customs service, thus avoiding the sometimes very long lines at the Russian Border Crossing Station. The shipment can proceed directly to the Russian Border Crossing Station’s Green Corridor office, where the transporter has only to present two required documents (the freight documents (CMS) and the Single Administrative Document (SAD) with the Russian bar code that was provided electronically). The bar code is scanned, the information is sent to Moscow for identification and approval, and after a positive response, the shipment proceeds directly to its final destination in St. Petersburg or Moscow.

Figure 14: Finnish-Russian Green Corridor Shipment Schema
This Green Corridor system was made possible partly by the introduction of the modern and progressive New Russian Customs Codex in 2004 and partly by other complementary changes in the Russian Customs Legislation. The only lacking element is the full and complete implementation of all articles in this Russian Customs Codex. Further improvements are expected.

Political will for full implementation of the Customs Codex is very much at hand in order to improve the conditions for foreign trade with Russia in general, and at the same time provide a fast, smooth and problem-free customs service for law-abiding companies in a booming economy.
3. Standards and Implementation

Chapter 3.1: Paperless trade in Sweden: the e-Stairway, Gateway Sweden, and StairSec

Mr. Mats Wicktor, Deputy Head of the Swedish Customs Future Centre

The objectives of the Swedish Customs service are to improve service using paperless solutions and a single window environment to increase supply chain security, realizing that cooperation at all levels is essential.

The e-Stairway is a virtual Customs office providing 24-hour e-government agency access. The e-Stairway offers 164 e-services free of charge and serves as a single window for seven government agencies. It is a certification system in five steps, the last three requiring completely paperless trade. Currently, 99.9 per cent of Customs declarations are electronic. The e-Stairway currently receives more than 100,000 electronic messages a day, and processes over 5 million electronic declarations a year, of which 4 million are automatically cleared (within three minutes).

Another project, Gateway Sweden, provides paperless solutions for transactions between Sweden and Norway. Gateway Sweden is a “no-stop shop” for seven agencies, with a fast track for accredited clients. It is a paperless system for transactions between Sweden and Norway, using cell phones: an automated message is sent from a trucker’s cell phone to the Customs office, notifying it when the trucker crosses the border. The system also features a “track and trace” facility accessible via the Internet.

Finally, the StairSec project is a supply chain security module connected to the e-Stairway system and using the same accreditation principles. It seeks to maximize security in global supply chains with an
integrated security model in its accreditation process. In the future, the StairSec system will be connected to other systems, such as the U.S. system, C-TPAT, and combined with non-intrusive inspections to create a truly secure authorized supply chain.

![The Future – Connecting Systems](image)

Figure 16: The future – connecting systems

In the experience of the Swedish Customs Service, seven factors are important in facilitating paperless trade at any level:

- WCO Customs Data Model
- EU e-Customs Initiative
- Increased international trade
- Increased use of ICT
- Reduction of customs duties
- Promotion of compliance
- Openness and transparency

Trade facilitation and security are not truly contradictory. Rather, they are two sides of one coin: a facilitated process is easier to control and secure, and a secure process is easier to facilitate.
Chapter 3.2: E-logistics in Thailand

Dr. Somnuk Keretho, Director of the Institute for Innovative Information Technology at Kasetsart University in Thailand and Advisor to the Thai Ministry of Information and Communication’s e-Logistics Initiative

The Thai Government has developed a holistic master plan with the vision of creating a world-class logistics hub in Indochina. An important part of this plan is its Single Window e-Logistics Strategy.

Bilateral free trade agreements and more open access to the international market have spotlighted the importance of cost effectiveness and efficiency in the movement of goods, especially exported goods. In 2003, Thailand’s National Competitiveness Committee, a high-level public-private committee chaired by the Prime Minister and comprised of economics-related Ministers and business leaders, initiated an inter-agency task force to develop national logistics competitiveness. The cost of logistics in Thailand is quite high (see figure 17). If trade and transport efficiency are improved to decrease the cost to 5 per cent of GDP, about $7.5 billion could be saved annually. This cost savings will directly benefit enterprises, especially small and medium-sized enterprises (SMEs).

**Trade Facilitation as a Competitiveness of A Nation**

- Logistics – Efficiency flow of Goods
- Logistics Cost in Thailand is quite high.

<table>
<thead>
<tr>
<th>Current Logistics Cost/GDP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>19%</td>
</tr>
<tr>
<td>Japan</td>
<td>11%</td>
</tr>
<tr>
<td>USA</td>
<td>10%</td>
</tr>
<tr>
<td>EU</td>
<td>7%</td>
</tr>
</tbody>
</table>

**Cost Reduction Opportunity in Logistics**

*e.g. 5% of GDP ~ 7.5 Billion USD possible cost reduction*

Figure 17: Trade facilitation as a competitiveness of a nation

Thailand’s plan will focus on six strategic development areas:

- Improving the logistics infrastructure
- Linking transactions, information and database systems with the development of a single window e-logistics environment
- Building capacity for better logistics management
• Strengthening logistics services providers
• Cooperating for regional economic integration
• Redesigning the legal, regulatory and institutional framework

A key project in this development effort is the single window e-logistics strategy and its implementation roadmap. The single window will be implemented in phases, beginning with the Trade Compliance Hub, which includes Customs declarations and clearances, related Internet licenses, certificates and permit issuing. Pilot projects for the first phase were carried out in 2005 and 2006 in the areas of fruit and automobile exports. The second stage, begun in 2007, involves electronic documents and procedures related to transporters such as port operators, carriers, freight forwarders and other logistics service providers. Pilot projects will be extended to cover other products such as textiles, poultry and shrimp, for import, export and transport activities. During the third stage (2008), the system will be extended to include both export and import-related procedures and additional licensing agencies and products. This e-logistics platform and its work programme will be aligned with and support regional integration initiatives, such as the GMS (Greater Mekong Subregion) Cross-Border Agreement and the ASEAN Single Window Initiative. The estimated investment for the project is $31 million, with targeted benefits to at least 0.5 per cent of import/export volume, which would yield cost savings of $700 million annually.

Figure 18: Thailand single window paperless trade for efficiency and security in trade
Through its experience, Thailand believes that trade facilitation begins at home (behind borders), but it is enhanced by regional integration (across borders). Several elements are crucial for successfully implementing trade facilitation and paperless trade in particular:

- High-level political commitment and resources
- Inter-agency and public-private partnerships
- Change management
- Business and investment models
- A clear roadmap
- A standardized data set
- Common XML schemas.
Chapter 3.3: The World Bank experience in trade facilitation and paperless trade

Mr. Hamid R. Alavi, Regional Trade Facilitation Coordinator in Finance for the Private Sector and Infrastructure Group for the Middle East and North Africa Group at the World Bank.

Trade facilitation is increasingly important in World Bank policy support and operations. In its use of ICT to facilitate trade and the functioning of supply chains, the World Bank has learned that time can be a barrier to trade: trade occurs in physical space and the physical movement of goods takes time. Trade logistics costs can be as important as tariffs, as each day saved is equivalent to a 0.5 per cent reduction in the tariff rate and 7 per cent of the value of world trade comes from the cost of administering trade logistics. Time is becoming even more important in the global supply chain (multi-stage production), as the vertical specialization in trade (the use of imported inputs for exports) has grown by 30 per cent in the past 20 years and now accounts for half of overall trade growth. Many actors are willing to pay to save time, as evidenced by the growth of the share of airfreight in the United States from 7 per cent in 1965 to 30 per cent in 1998, although airfreight is seven times more expensive than ocean shipping.

Efficiency gains can be had from streamlining and simplifying trade processes. For example, if the contents of a ship can be processed in half a day instead of a day, then infrastructure capacity is effectively doubled, allowing the shipment of twice the cargo, twice the number of containers with effectively twice the number of ships. In addition, harbour duties, excise and revenue would all increase while costs to traders would fall considerably. There would be further benefits, as these efficiencies would attract more trading partners, and the efficiency in vessel turnaround would attract new trading, market centres and distribution business.

The potential gains are impressive:

- Port efficiency improvements could reduce transport costs for a country equivalent to shortening the distance from its trading partners by 9,000 km)
- $100 million could be saved each year through the application of ICT
- Singapore has gained 1 per cent of GDP by streamlining and simplifying trade processes

Trade transactions are complex, involving many documents and players. A typical trade transaction can take as many as 150 different documents to complete and involve 10 or more categories of players (see Figure 20), each with its own set of paper forms and interactions with other organizations (including its counterparts in importing countries).

ICT can facilitate trade through:

- Systems built around the different agencies involved, such as ports and customs (where there are long-term difficulties in technology areas, such as flexibility, interoperability, international standards, volume, ongoing support and support costs)
- A single window environment that expedites and simplifies information flows between the trading community and Government(s)

Examples of paperless trade reducing time and increasing efficiency and security can be found in Mauritius in the Trade Net system, which has reduced average clearance times of goods from 4 hours to 15 minutes, and in Tunisia’s Trade Net (TTN), which has cut processing times of trade documents from 18 to 7 days (and even 3.5 days in cases not requiring technical controls). In all cases, advanced information-sharing has increased security.
Designing a paperless trade system requires more than simply applying information technology to trade processes. It necessitates a comprehensive approach and commitment at all levels:

- Cross-agency steering committees and working groups must design the components and action plans for streamlining and simplifying trade transaction processes, and for simplifying and eliminating duplication in trade documents.

- Back offices must be reengineered.

- After the agencies involved have developed codes and standards and have implemented a supporting infrastructure, a phased approach to automation and the creation of a single window can begin.

Due to its complexity, every implementation approach must be carried out in phases, yet it must also secure quick wins to build user confidence. Pilot users can respond to surveys to help evaluate and fine-tune the system. Finally, an implementing body must be established to maintain and develop the system, as well as to address any issues that arise in the implementation of a single window.
Some of the issues are:

- The “chain effect” of trade processes – processes are only as good as the weakest link in the chain, and the benefits of the system are only visible when everything works
- Problems linked to the complexity of such a system, which involves many details that must fit together
- Resistance to change, whether organizational or related to the shift from paper to electronic processes
- A lack of preparation to manage project risks, including issues that may arise from inter-institutional dependencies

Despite the obstacles, dramatic improvements in efficiency and security can come about when administrative and political commitment joins forces with advances in information technology. To be successful, any paperless trade system must:

- Convince the business community of its relevance
- Be supported by commitment at the highest level of Government
- Benefit from cooperation among private sector operators and various government stakeholders at all stages of the process
- Adopt a regulatory framework that allows for electronic processing and signature
- Include the simplification of customs requirements
- Extend electronic processing to all import and export administrations, and other agencies involved in trade transactions
- Adopt internationally recognized standards and codes in order to ensure a common language among different users and in different countries
- Align the relative costs of processing paper documentation and online processing
4. Private Sector Experiences on New Information Requirements for Secure and Efficient Supply Chains

Chapter 4.1: International Air Transport Association

Mr. Aleksander Popovich, Global Trade Head of Cargo at the International Air Transport Association (IATA)

In 25 years, the average end-to-end transport time for an air cargo consignment has not evolved (6.5 days, excluding flight time). On average, 20 to 30 paper documents accompany the Master Airway Bill for each consignment. With its many difficulties, air cargo presents a prime opportunity for simplification. It costs $30 per consignment to issue and process paper documents. The use of electronic methods could reduce this figure by 80 per cent, providing a cost savings opportunity for the air cargo industry of $1.2 billion per year.

In December 2004, IATA began developing an e-freight platform:

- To eliminate the need to produce and transport paper documents for air cargo shipments by moving to an industry-wide, simpler, electronic and paper-free environment
- To enable air cargo industry benefits of $1.2 billion per year by freeing the supply chain process from its dependency on paper
To target “early adopter” implementation by the end of 2007, and full adoption by the end of 2010.

IATA e-freight’s strategy is to drive a simpler, electronic, paper-free air cargo industry by aligning industry energies, harnessing forces for change from customs, security and forwarders, and enabling industry infrastructure that delivers a simplified electronic operating environment for air cargo. The IATA e-freight platform will accelerate delivery, help satisfy new and forecast customs requirements; reduce error and corresponding dispute rates and labour costs, and bring about greater process efficiencies and opportunities (see Figure 21).

For airlines and freight forwarders, specific benefits include: (i) a decrease in full-time equivalents (FTEs); (ii) reduced printing, warehousing and distribution costs; (iii) improved cash flow; (iv) diminished working capital requirements; (v) revenue retention and growth; (vi) an increase in market share (versus other transport modes); and (vii) aggregate industry financial benefits of $1.2 billion per year.

Importers and exporters can expect reduced levels of buffer stock, a decrease in insurance premiums, the recovery of unclaimed duties, improved cash flow and diminished working capital requirements.

Key factors for the implementation of the strategy:

- Acceptance from Governments and Customs services of electronic data records as a paper substitute
- Satisfaction of security requirements
- Agreed common industry procedures for handling electronic versions of ancillary paper documents (e.g. invoices)
- Introduction of an updatable FWB (electronic airway bill) record into airline systems
- Improved industry messaging quality
- Justification of the required programme investment

Measures that can be taken to achieve these key factors:

- Building a pilot network to link those authorities ready to move now. This includes identifying key gaps in major trade flows and lobbying those authorities to sign necessary treaties or grant necessary permissions
- Ensuring compliance with existing security regimes and working through the World Customs Organization and the United Nations to harmonize future requirements
- Using data imaging to capture non-standard documents for electronic storage and transmission, in conjunction with promoting the use of digital signatures or other means of document authentication
- Developing necessary messages and system protocols to provide for updatable FWB records
- Building on Cargo 2000’s work on quality improvement
- Developing standard cost/benefit templates for individual use and providing supporting industry data

For paperless trade to succeed, it must have a mandate from the top. The administrative bodies that will implement the change (e.g. Customs and security authorities) must also support it. Skills and experience are necessary to manage the transition to paperless trading and it is important to
accumulate a critical mass of “early adopter” forwarders, carriers, and Customs authorities. There should be a focus on implementation (e.g. pilot projects). All documents must be changed to paper, not just the Master Airway Bill.

Obstacles to paperless trade include:

- Inconsistent legal and regulatory frameworks
- Customs requirements
- Data and communication standards
- Data confidentiality and security
- Systems ownership and control
Chapter 4.2: Freight Forward International

Mr. Dermot J. Leeper, Senior Vice-President of GeoLogistics, United Kingdom

New information requirements in air and ocean transportation

Freight Forward Europe (FFE) was created in 1994 and led to the establishment, ten years later, of Freight Forward International (FFI). FFI is an interest group of nine leading global freight forwarders and logistics providers, who together transport more than five million tons of air cargo and five million twenty-foot equivalent units via ocean shipping. This represents a turnover of more than €37.7 billion and 30 per cent of the forwarding market worldwide. FFI serves as a standards-setting forum.

Within GeoLogistics, data transfer is standard. Due to security pre-alert requirements, information is now supposed to flow from the origin to destination customs. However, the differences in national customs requirements make this model impossible. Therefore, GeoLogistics has created quality departments at destination, which operate 24 hours a day, 7 days a week. Customs clearance information is transmitted from a GeoLogistics branch office through its global IT system to another branch office, which then processes the information and forwards it to the local customs office at destination. While the AMS\textsuperscript{10} and ACI\textsuperscript{11} initiatives are paperless, they are very labour-intensive. Being compulsory, they were implemented in a very short time.

![Customs clearance diagram]

**NOTES:**

- Within GeoLogistics, data transfer is standard.
  - Customs in every country is different, but sorted out at destination.
- Some Customs are paperless which speeds the transaction, but requires EDI Commercial Invoices.

Figure 22: Customs clearance

---

\textsuperscript{10} Automated Manifest System
\textsuperscript{11} Advance Commercial Information
For carriers, EDI supplements paper but does not replace it, leaving room for a lack of rigour in audit trails and a tolerance of poor data integrity. The benefits are uneven and not strong enough to drive rapid deployment.

Shippers and their forwarders are slowly implementing EDI. True paperless trade in the international supply chain cannot happen until EDI implementation becomes commonplace.

Security is a major concern in the international trade arena. Fraud through forged and incorrect documentation harms consignees, government revenues, forwarders and the public, and caused losses of about €3 to €8 billion in EU transit movements in the old transit system of the mid-1990s. Fortunately, the “New Computerised Transit System” (NCTS) of the EU has largely eradicated this particular type of fraud. Paperless trading can also help eradicate global fraud through forged paper certificates of origin. However, electronic trade can also present security and fraud risks from hacker access to the electronic systems or portals within the supply chain and the unauthorized diversion of sensitive data. Physical security is improved by a good “track and trace system”, which enables actors to know where goods are and where they are meant to be. This benefits the owners of the goods and governmental security in particular.

If paperless trade is carried out correctly, it can provide impressive benefits in international supply chains:

- Speedier data availability and transmission
• Improved accuracy through reduced re-keying of data
• Improved door-to-door transit time
• Enhanced customer service (e.g. track and trace systems)
• Reduced risks of fraud and security
• Lower costs for labour, stationery, postage and courier fees, filing space, and insurance and
• Reduced harm to the environment

Some issues are currently impeding paperless trade:
• AMS and ACI are different creating additional work and costs
• EDI with airlines is supplementary to paper, creating more work and costs
• Customs clearance in many countries is only finalized when paper copies are delivered
• Carriers refuse to sign non-disclosure agreements (and do not act to protect data), thus increasing security and fraud risks
• Forwarders are too slow in developing paperless processes with shippers. Re-keying leads to more work and data integrity problems downstream

As a result, (i) the benefits of paperless trade are only partially felt, (ii) the supply chain is less efficient and less secure than it should be and (iii) costs are shuffled along the chain, not eliminated.

In the experience of GeoLogistics and FFI, the transition should be made in a holistic manner. Making one transaction paperless does not improve the whole supply chain, but merely moves the bottleneck (and costs) along the chain. Information security is also crucial.

Most importantly, governmental involvement is essential, as Governments have the power to make things happen much more quickly. (They can also make the supply chain less efficient by failing to coordinate on an international basis or between national agencies.) Governments can help facilitate paperless trade by reducing “competition” between government agencies on security issues for political purposes. They should coordinate better between customs and other government agencies in aligning data requirements and standards to WCO recommendations, both internationally and between national government agencies. Governments should also push for increased partnership with legitimate trade experts to achieve synergies for both trade and government agencies, e.g. the EU Commission Trade Contact Group.

Relevant government agencies should become more involved in electronic trade initiatives proposed by trade bodies such as the IATA e-freight initiative, and could also offer financial support for portals that standardize and facilitate information flows in trade. Governments could facilitate paperless trade through the mutual recognition of traders approved for C-TPAT\textsuperscript{12} status in the United States and those accepted for Authorized Economic Operator status in the EU. Finally, the pooling of security data between aligned customs administrations and other governmental organizations will help optimize security risk analysis.

\textsuperscript{12} Customs-trade Partnership Against Terrorism.
Chapter 4.3: The Interbank Corporate Banking Association in Italy

Mr. Pierfrancesco Gaggi, Head of the Italian Banking Association’s Payment Systems Area and Secretary of SWIFT Italia

New Developments Enhancing e-Invoicing and e-Payments Services

The Interbank Corporate Banking Association (ACBI) aims to plan, design, develop, maintain and promote technical, legal and regulatory solutions enabling banks to link up and communicate with customers, with a view to domestic and international interoperability and electronic services of financial intermediation and other services.

To meet these aims, ACBI created Corporate Banking Interbancario (CBI), a national standard for multi-banking electronic banking. It targets small, medium and large corporate clients and enables them to exchange standard EDI flows with all their banks. Some 650 banks and 450,000 companies (of which 95 per cent are micro-enterprises) participate in the system.

The current CBI operating model is based on four players:

1. A company sets up and files payment orders
2. An access bank receives files from companies, routes them to other banks to be carried out and executes those that are charged to it
3. The interbank transmission network routes the file to the correct executing bank
4. The executing bank receives the file and executes the payment order
Current CBI financial services include:

- **Debits.** Debit transfers allow the payee to instruct his bank to debit the debtor’s account directly at the debtor’s bank

- **Payments.** Available credit transfer instructions include salary payments, domestic and cross-border credit transfers and tax payments

- **Reporting.** CBI provides daily (and optionally, periodical) reporting of statements and balances on bank accounts and securities trading activities, final settlement notifications of credit and debit transfer

- **Marketplace.** This service enables e-marketplaces to connect to the CBI payment initiation system to route payment orders to the customers’ ordering banks

CBI is also currently developing new end-to-end services with integrated financial value chain functionalities that connect all the players in a business community. These will seek to respond to business needs, corporate needs, and exogenous political-economic, legal, technological, business and international trends. The new main characteristics of CBI will be zero latency, end-to-end services, digital signatures, compliance with international standards, workflow and process automation, and automatic reconciliation. It will provide payment, reporting and document exchange services, and will allow e-invoicing as part of document exchanges.

The electronic documents exchanged can be structured or not, and can be based on EDI, EDIFACT, ebXML, Indicod, Visa or other standards. The financial content of an invoice should also be standardized, including the standardization of the invoice header to allow exchange of the header between companies and banks and between banks themselves. UN/CEFACT is currently working on
revising its Recommendation 6 on the Aligned Invoice Layout Key for International Trade\textsuperscript{13}, adapting it to the business and regulatory requirements of e-invoicing by increasing process efficiency and enabling access to new financial services.

The new CBI architecture is based on a logical network, which ensures the safe transmission of the messages sent on the physical network: a physical network, which manages the physical transportation of data; a directory, which provides general information about CBI customers and allows for information routing; and time synchronization, which allows connected parties to have synchronized systems. Message transfers will take place in real time.

![Diagram: The end-to-end communication](image)

The new technical CBI architecture enables the safe end-to-end communication between the CBI customers.

New services have already been identified for the new CBI and user group tests conducted. In June 2005, the technical standards of the new CBI were defined and preparations began for a migration from the current CBI services and the setting-up of new services. After a one-year transition phase, the new CBI is now providing services.

CBI is a part of the European Payments Council project, SEPA (Single Euro Payments Area). SEPA will be the area where citizens, companies and other economic actors can make and receive payments in euros within Europe (i.e. the EU and Iceland, Norway, Lichtenstein and Switzerland), both nationally and internationally, and under the same basic conditions, rights and obligations. SEPA will be delivered in priority to the countries in the euro zone and European countries outside the euro zone will also have opportunities to participate in euro payment systems and will be able to adopt SEPA standards and practices to contribute to the single market for payment services. Implementation of SEPA began in 2006. The system will coexist with other payment systems until 2010.

\textsuperscript{13} Available at: http://www.unece.org/cefact/recommendations/rec_index.htm
5. **Paperless Trade: the Road from Vision to Reality – Key Issues in Achieving Paperless Trade**

Mr. Duane Nickull, former Vice-Chairperson of the UN/CEFACT Bureau and Senior Standards Strategist at Adobe Systems Incorporated, Canada, was the moderator for a panel discussion on key issues identified in the first session of the Forum.

The panel was comprised of Dr. Panayota Anaboli\(^1\), Mr. Patrick Gannon\(^{14}\), Mr. Javaid Mansoor\(^{15}\), Mr. Aleksander Popovich\(^{2}\) and Mr. Abdoulahab Rezig\(^{16}\). With active participation by the audience, panel members discussed the key issues that act as barriers to paperless trade and the following is a résumé of the discussions.

In international road transport, the low level of e-development is a major problem. Most transport operators continue to operate using paper documents and fear the transition period to paperless trade. Any solution, including implementation measures from the EU, must take this into account. Although the EU is in permanent dialogue with industry, including transporters, barriers to e-paperless environment can also come from industry. Making relevant legislation compulsory would probably be the most helpful in changing mentalities.

The transition period is quite expensive, so a speedy transition is best. It was suggested that other industries might share best practices for managing the transition to paperless trade. Early adopters can demonstrate what is possible and technology vendors can make more solutions available. Proven examples of the benefits of paperless trade will make it easier for Governments to move forward with compulsory legislation. It is important for an actor to synchronize its transition with the other organizations it deals with.

It was noted that domestic requirements and practices often differed from international customs requirements and that often paper was more important in a domestic situation. An industry round table could be a relevant venue to discuss this type of issue.

How should actors choose between the multiple choices available when looking towards transition? For example, in the worst-case scenario for the EU for example, half the traders would use paper and half would be paperless. A solution would be a transition period of one and a half years maximum, during which both systems would be valid. The first step is to pass the necessary legislation for electronic transactions. Pakistani Customs took a step in this direction by introducing an electronic clearance system in a pilot project expanded over two years. Adopting UNeDocs is a priority for Pakistan. Experience working on the UN/CEFACT e-Med Business project demonstrated that it was also important to focus on the needs of future users. There will be specific needs at the regional and subregional levels, as well as needs and levels of development that will vary from country to country. Transition should happen neither too quickly nor too slowly and the benefits must outweigh any investment in paperless trade.

How should an organization react when it is asked to incorporate the transition by two different sources with two different systems? Practical demonstrations of feasibility could help resolve differences in approaches. It is important for organizations to use a system that applies to the entire supply chain, because creating efficiencies in only one segment of the supply chain might simply move inefficiencies elsewhere. The approach should also be one that can be adopted on a broad and global basis. OASIS addresses this problem by providing an environment where different approaches can be proposed, tested and evaluated. User feedback then determines the feasibility of using an approach internationally.

---

\(^{1}\) Chief Administrator, E-Customs sector, European Commission

\(^{14}\) President and CEO, OASIS, and Chair, UNECE Team of Specialists on Internet Enterprise Development.

\(^{15}\) Executive Secretary of the International Trade and Transport Committee, Pakistan.

\(^{2}\) International Air Transport Association (IATA)

\(^{16}\) Former Director of the Sub-Regional Centre for Development for North Africa, ECA.
How to extend Web EDI systems to promote paperless trade? Was the general goal to have a maximum amount of data interchange or to have the data interchange take place in an open environment? In answer to the first question, standards are not needed, but in the second, they are crucial. What is the possibility of having an open exchange of information between independent IT systems? Is the mixture between proprietary standards in a closed environment and open standards in an open environment hard to achieve?

In Mauritius, for example, paperless trade is well advanced, with the complete elimination of paper for air and sea manifests, permitting, certificates of origin and funds transfer. All actors are linked through an electronic network, yet they still rely on paper because there is no interface with users in other countries and no move to an international paperless environment. It has been a challenge to convince importers to move to paperless, as they do not always see the benefits of such a move. Mauritius has introduced an authorized economic agent system and approved the top importers in the country for the move to paperless customs declarations after a pre-audit by Customs. These companies will be audited periodically by Customs and will have to pay electronically. In return they were guaranteed the very rapid movement of goods. About 40 per cent of importers were authorized economic agents. The Customs Service could then focus on the other 60 per cent of importers, who were higher risk. Mauritius had a single window for permits, and although Customs can do a lot to facilitate the clearance of its declarations, most delays are caused by other government agencies (especially the health authorities), as is the case in many other countries. These problems need to be addressed at the national level.

International organizations have had to work hard to establish standards, but because countries and regions are driven by different economic, political and cultural factors, the only way forward is to conduct pilot projects that involve local Customs offices, carriers and forwarders. The problem is then to link these projects to the international supply chain. The roadmap developed in this Forum will have a single goal, but the road there will be different for each country. Cultural sensitivity is crucial in developing paperless trade. Budgets and plans for transition must be created since costs may go up before they go down. The experiences gained in the area of trade facilitation come from many different sources throughout the supply chain and from many different supply chains. Coordination and cooperation across different industry sectors is indispensable.

International trade is a partnership and developed countries could help developing countries in many ways. Paperless trade will be restricted to certain parts of the globe unless the standards and work methods of developing countries can meet those of developed countries.

Paperless trade is not a goal in itself but rather a tool for trade facilitation and security. IT and technological solutions should never be separated from policy questions; the two should always go hand in hand. Any solution should integrate international and intergovernmental dimensions, and traders should develop synergies to make their voice heard by policymakers. An open dialogue is one of the most essential elements.
PART II: LESS AND BETTER DATA TO BUILD TRUST AND EFFICIENCY

1. Digital Information for Efficiency of Transport Systems

Chapter 1.1: Introduction: The importance of the transport infrastructure and of private sector cooperation

Mr. Tahseen Ahmad Khan, Vice-Chair of the UN/CEFACT Bureau and Deputy Director General of National Informatics Centre (NIC), India

Introducing the thread on “Digital Information for Efficiency of Transport Systems”, Mr. Khan highlighted the importance of national transport infrastructure, citing the example of his country. India has migrated from a closed economy to an open one with huge potential for foreign direct investment. The migration went well, yet there was little investment because the country’s transport infrastructure was not conducive to just-in-time production. This problem had not been anticipated and the Government was now trying to modernize and automate the transport system.

Public-private sector cooperation is also crucial in implementing single window platforms. Although the Indian Government has introduced a Single Window for all trade clearance transactions and requires that documents arrive before goods, in a six-month period only 40 to 50 per cent of documents complied with the new requirements. There is a lack of cooperation from the private sector, which does not see the potential benefits. The Government is now using legislation to make implementation a reality.
Chapter 2.1: The Port of Felixstowe, United Kingdom

Mr. Alan Long of Maritime Cargo Processing Plc, United Kingdom

Maritime Cargo Processing Plc was set up to manage, market, sell, develop and enhance the Felixstowe Cargo Processing System (FCPS). FCPS was designed “by the trade for the trade”: All sectors participated in its development, from the port authority to shipping agents to government agencies.

Introduced over two decades ago, FCPS now handles more than 80 per cent of the United Kingdom’s maritime container throughput, with 3,000 users throughout the country. Prior to its creation, declarations presented to the Customs Service contained a 30 per cent error rate and took four to five days to clear.

Today, all actors use FCPS to exchange information, and declaration processing time is one hour or less. Indeed, 95 per cent of cargo arriving at Felixstowe is cleared immediately and without paper. The system stores all import, export and transhipment information.
FCPS has dramatically reduced the amount of paper exchanged. In 2004, 49 million transactions were handled by the system, with more than 75 million EDI messages processed using a mixture of proprietary and EDIFACT messages. At the request of carriers, the system was designed not to display any commercially sensitive information.

The main benefit of FCPS is the timely availability of accurate information, which leads to enhanced security, increased profitability and improved customer service, coupled with a more efficient and effective use of resources.
Chapter 2.2: DAKOSY and the port of Hamburg

Ms. Evelyn Eggers, DAKOSY AG, Germany

DAKOSY provides EDI services for all participants in the transport chain. The company was created at the port of Hamburg by forwarders, liner agents, and tally and quay operators as a port communication system. Its goal is to speed up information flows by using a central node (an EDI clearing house) to exchange data.

Figure 29: User community and services

At the time of its creation in 1984, no standards and very little software with built-in EDI functions were available. DAKOSY had to create its own software and grew to offer applications and IT services for the entire transport sector. The public sector joined once it became clear that DAKOSY was a neutral platform for IT infrastructures. Currently, DAKOSY offers EDI, ASP, Internet and IT services to the whole transport chain on an international level.

Under the DAKOSY business model, shareholders pay a yearly fee for traditional EDI business within the port community. To participate, outside users must sign a contract with a shareholder and pay that shareholder for the use of the DAKOSY EDI network; in essence, the shareholder receives its share indirectly by reselling DAKOSY services. Additional DAKOSY services are available directly from DAKOSY on a per-transaction basis. The average cost for a DAKOSY service transaction is from €0.01 to €1.00.

As mentioned above, at the time of the creation of DAKOSY, no standards for message syntax and content existed. DAKOSY thus had to create its own standards. Once it became available, DAKOSY rapidly adopted the EDIFACT framework, which it still uses today, as XML cannot yet compete with
the existing “message library” of EDIFACT. DAKOSY also provides conversion services for clients that use different standards.

The DAKOSY single window with ASP and EDI conversion services provides SMEs with barrier-free access to paperless trade. The benefits of the system include savings of time and money, efficiency, visibility, control, avoidance of double input, reuse of data, improved data quality and up-to-date status information.

Figure 30: Key trends: low-level entry to the world of EDI!

To make paperless trade a reality, standards, messages, rules and procedures must be harmonized. A “core component” library needs to be built up, and the electronic signature should replace the “red stamp”. In general, the EU NCTS customs procedures can be used as a model.
Chapter 2.3: A community model for paperless trade development in Hong Kong, Special Administrative Region

Mr. Peter Stokes, CEO of Digital Trade and Transportation Network Limited (DTTN) of Hong Kong Special Administrative Region (SAR)

Tradelink is the Single Window of the Government of Hong Kong SAR, and Digital Trade and Transportation Network Limited (DTTN) is a community model for a Single Window environment.

Tradelink provides trade-related government services electronically, processing 17 million transactions per year for over 53,000 company subscribers. All documents transmitted using Tradelink are digitally signed and encrypted. For organizations that are not yet computerized, Tradelink has a network of 27 service centres converting paper documents to electronic format.

Tradelink is a member of the Pan-Asian e-Commerce Alliance (PAA), which was established in July 2000 to facilitate secure cross-border paperless electronic services for efficient global trade. Other members include China, Japan, Macao Special Administrative Region, Malaysia, the Republic of Korea, Singapore, Taiwan Province of China and Thailand. The PAA builds trust in cross-border transactions by providing a legal framework for electronic cross-border trade transactions and through the mutual recognition of digital certificates between its members. The PAA is helping countries in the region move their Single Windows from a national model to a community (regional) model.

DTTN is such a community model that includes nine major communities: (i) buyers/importers, (ii) sellers/exporters, (iii) freight forwarders, (iv) carriers, (v) terminals, (vi) Government and its agencies, (vii) banks and financial institutions, (viii) insurance companies and (ix) inspection agencies. It was established to increase the competitiveness of Hong Kong SAR by adopting e-commerce methods and making Hong Kong SAR the e-logistics hub of choice. DTTN ensures a neutral and community-focused operating framework and has three owners: Tradelink (51 per cent), industry associations (28 per cent), and Government (21 per cent). DTTN is a government-endorsed, community-wide platform that allows any company to reduce its costs and improve its efficiency by interconnecting with its trade, logistics and finance partners using a single rapid and low-cost digital link. It also helps to facilitate trade information flow with economies in the region and with Europe, the United States, Japan and other countries with well-established Internet connections. It seeks to interconnect the whole trading community, including e-logistics hubs in other parts of the world (e.g. Felixstowe in the United Kingdom and DAKOSY in Hamburg).

In short, DTTN is:

- **A Super Electronic Document Conversion Engine.** It supports “any-to-any” transformation of data format and communication protocols

- **A Mega Electronic Data Store.** It stores data (including the documents transacted and comprehensive audit trails) online for two years and offline for seven years

- **An e-Business Enabler for the Entire Supply Chain.** It connects all parties along the supply chain, from buyer all the way through to forwarders, banks and Governments

Connecting to the DTTN is as easy as a simple action of “plug and play”. Users may choose a direct integration approach connecting seamlessly with internal application systems (e.g. ERP/FMS/SCM), using existing interfaces with no or minimal system changes. No system change means no additional training and, most importantly, no loss in productivity during implementation. For the less technically sophisticated users, the option of using the standard Microsoft Excel spreadsheets is also available.
UNECE Model for Worldwide Paperless Trade Interconnections

Finally, DTTN is developing a canonical XML document structure, using UBL methodology for more than 80 international and local trade documents, which have already been endorsed by its Standards Advisory Group. DTTN is also exploring the submission of these document structures to UBL for incorporation with UBL V2.0, as part of the proposed alignment with UNeDocs under the UN/CEFACT framework.

DTTN provides many benefits to the trading community, including:

- A low-cost community infrastructure – charges are based on each successfully transformed and delivered document, plus initial connectivity, annual and customization fees that also apply
- Reduced operation costs through fewer delays, less double-handling and double data entry, as well as fewer errors
- Time and cost savings for document delivery
- Reduced IT costs, by maintaining a single digital link to interconnect with all trading partners instead of integrating with each partner individually
- Nine years’ data at users’ fingertips
- Enhanced supply chain visibility
- No need for users to change their operations, hence no additional training and no loss in productivity
- Better financial management

Figure 31: UNECE Model for worldwide paperless trade interconnections
However, challenges for paperless trade still remain:

- The lack of IT sophistication in many SMEs, which makes it difficult for them to compete against multinationals
- The expense of integrating local and overseas trading partners
- The limited acceptance by Governments of electronic documents from overseas
- The lack of a commonly accepted trust framework
- The continued domination of paper documents for payment and settlement
- The lack of coordinated and neutral interconnected platforms to streamline the “total” trade chain for all parties
3. **Paperless Trade for Integrated Trade and Logistics Information Systems**

Chapter 3.1: Moving towards paperless trade in Turkey

Ms. Nurcan Özyazıcı, e-Document Implementing Group Coordinator and Head of Data Processing and Communication Department at the Turkish Undersecretariat of Customs

With increased globalization, regional integration activities have become more and more important. Turkey has initiated an e-Customs programme enabling actors to electronically generate the Single Administrative Document (SAD) using EDI, Web-based and DTI technology. Using the BILGE software, between 1998 and 2003, 52 customs directorates were automated, moving from paper-based to paperless documents processing.

![Transformation at Customs 1998-2003](image)

Figure 32: Transformation at customs 1998-2003

Since 2003, 19 more customs directorates have been automated. Over 99.5 per cent of customs transactions are now electronic.
Some documents with an original signature still must be submitted to Customs or different regulatory agencies. Other actors are also evolving towards e-government and e-trade, but for the moment little information sharing and much duplication is noticeable, a situation that wastes time and financial resources. The solution would be to provide electronic public services in foreign trade, and, basing them on information instead of documents, to electronically carry out foreign trade transactions.

Under the impetus of the e-Trade Coordination Board, “e-Turkey” working groups have been established to carry out “e-Europe + action plan” studies. In particular, under the coordination of the Undersecretariat of Customs, government agencies and industry associations have formed an e-Documents Implementing Group for a project on e-Documents in Foreign Trade, which seeks to:

- Enable foreign trade transactions using a standardized e-document to create an effective, efficient, fast and reliable e-business infrastructure
- Constitute a single window environment, so that parties in international trade can present all required information to a single body
- Propose the legislative amendments necessary for paperless trade
The Undersecretariat of Foreign Trade, the Ministry of Industry and Trade, the Union of Chambers of Commerce and the Turkish Exporters’ Assembly will all participate in a pilot project in the Gemlik region. Documents that will be included are the A.TR Movement Certificate, the EUR.1 Movement Certificate, the Import Licence, the Licence for Goods Subject to Supervision, the Import Licence for Goods Subject to Quota, and the Warranty Certificate. Web services have already been prepared for exchanging the required data between Customs and the e-document server, and between the e-document server and the participating organizations.

---

17 This pilot project began on 4 January 2006.
Chapter 3.2: E-logistics and e-customs in the Republic of Korea

Mr. Ki Hyun Oh, Managing Director of the Korean Trade Network (KTNET), Republic of Korea

KTNET was established 14 years ago and now processes about 9.6 million transactions a month, relating to 300 kinds of e-documents. Its users include trading firms, banks, customs brokers, bonded warehouses, shipping companies, airlines, the Customs Service of the Republic of Korea, and other government agencies and trade-related authorities.

KTNET provides services in commerce, trade finance, e-Customs and e-logistics:

- About 6,000 trading firms and most trade-related organizations participate in the commerce and trade finance network

- In partnership with the country’s Customs Service, KTNET developed the Customs Information System to handle cargo-related activities rapidly and precisely. Its EDI system for export clearance was launched in 1994, followed by its import clearance system two years later and, in 1997, the automated duty drawback system. Customs procedures are now almost completely paperless

- The e-logistics service drives the processing speed of logistics and reduces time and costs for cargo management. Completely covering the cargo management process and using EDI-based document standards and simplification, KTNET provides a 24-hour real-time logistics service. Connecting the country’s Manifest Consolidation System (MFCS) with other countries’ cargo management systems will enable global sharing of information and better customs service administration. The backbone of this service is an intelligent and proactive “track and trace” platform with a global connection that allows data sharing. Customers can book logistics service providers online, and pre-alert event management and inventory control (in motion and at rest) is provided

KTNET is involved in several global projects, including the Pan-Asian e-Commerce Alliance (PAA). Starting from a multilateral agreement that set the background for legal issues, the PAA has developed technical standards for interconnection (interoperability), e-documents and security (PKI). It is moving towards secure cross-border transaction services, which currently include B2B and B2G e-documents and visibility services, and in the future will add e-bills of lading, e-negotiations and e-payments.
Figure 35: e-Certificate of Origin scenario

Figure 36: e-LogisFrame™ service
Another global project in which KTNET participates is the Asia-Europe Meeting (ASEM). ASEM seeks to facilitate international trade between Asia and Europe, and includes public-private joint efforts to develop e-B2G as well as e-B2B documents. It seeks to create a seamless paperless trade process through e-bills of lading, e-negotiations and e-payments.

The GSCM (Global Supply Chain Management) project seeks to build up a public supply chain management platform for the country’s SMEs, to upgrade their competence, to support investment in overseas manufacturing facilities and in their IT-based business activities, and to increase business flexibility by responding to changes in the global market.

KTNET seeks to encourage the move to paperless format of private, administrative (B2G) and legal documents. To achieve seamless paperless trade at the global level, it is crucial that it works also at the local level, where the public and private sectors must cooperate for local promotion, standardization and related laws, systems, and process enhancements. For the effectiveness of paperless trade at the international level, public-private partnerships for international promotion, standardization and guidelines, as well as conventions and agreements, must be established.

Figure 37: KTNET networking
Chapter 3.3: Implementing paperless trade in Malaysia

Mr. Yong Voon Choon, General Manager of Dagang Net, Malaysia

In Malaysia, Customs declarations, duty payments, manifests, free zone declarations, and dangerous goods declarations are now all paperless.

Dagang Net’s Actions in Paperless Trade

- Application Architecture / Infrastructure refreshment
- Integrating the trade value chain through the deployment of BPM (Business Process Management) workflow and technology
- To provide a Single Window platform to enable common standardised data from one application to be re-used by other applications for various authorities approval. (Example: filing permits, and the permit data is re-used for Customs declarations)
- Roll-out of Cross-border services
- Use of RFID

This transition has provided numerous benefits, including:

- Savings in bank guarantee charges (about $4.75 million annually in Port Klang)
- Improved safety (security services are no longer needed during the transfer of duty collections, and messages are automatically routed to relevant parties)
- Faster clearance times through the re-engineering of the approval process
- Lower operating costs

Factors critical to the success of achieving these benefits were: governmental support, including policy and legislative changes; a phased implementation approach (moving from paper-based to less paper to paperless); stakeholder commitment; support from associations; and education and awareness (over $2.1 million was spent on user education and re-education).

Malaysia’s single window project is fully and privately funded by Dagang Net, and is based on the premise that the senders pay. (Charges depend on the complexity of a document.) The Malaysian Government also pays Dagang Net for responses sent back. Dagang Net evolved from a traditional EDI service provider and has rolled out its MyPorts services (providing value-added services at no charge to customers) and ASP hosting services.
Malaysia encountered several obstacles in implementing paperless trade. Some actors were resistant to change. Business processes had to be redesigned in conjunction with the other government agencies involved in trade facilitation to streamline processes. Furthermore, it was necessary to expand broadband services nationwide.

Dagang Net plays a key role in the implementation of paperless trade in Malaysia and fills multiple needs. Dagang Net:

- Operates and manages the National Clearing Centre
- Provides front-end solutions for users to submit electronic documents and duty payments
- Manages access and passwords
-Facilitates systems use through education, awareness and training
- Hosts a national help desk
- Troubleshoots
- Designs and develops messages
- Converts multiple standards
- Develops application architecture and refreshes infrastructure
- Integrates the value chain through the deployment of business process management workflow and technology
- Provides a single window platform to enable common standardized data from one application to be reused by other applications for various authorities’ approval
- Participates in the roll-out of cross-border services and of RFID (radio frequency identification)
Chapter 3.4: Harnessing IT in Singapore to enhance international trade efficiency and security

Mr. Velusamy Mathivanan, CEO of CrimsonLogic Pte Ltd., Singapore

The global trading community is challenged by growing world trade flows, including an increase in the number of free trade area agreements (for example, Singapore alone has 15 that are either in force or under negotiation), documents and agencies involved in trade processing, and security threats to cargo, vessels, people and money.

![Figure 40: Just Singapore’s FTA Alone](image)

Trading partners are moving from a local trade environment to a global one that involves communication in different languages, with differing proprietary standards, practices, trade agreements and systems that must be understood by at least two trading partners and must use certain standards or specific technology.
To these growing challenges, Singapore’s response has been to harness IT for trade, creating systems interoperability and system and network security to obtain transparent, standardized, streamlined and more efficient processes. The result is the TradeNet single window.

Created in 1989, TradeNet was the world’s first electronic trade clearance system. It integrates 34 controlling units’ requirements, and seeks to reduce the cost and turnaround time of trade documentation. Since its implementation, processing times have fallen from seven days to two, and currently, to just two minutes. Up to 30,000 documents are processed per day (triple past levels), and only 1 document may now be required where 3 to 35 were needed in the past. Cost savings to traders are estimated at $1 billion per year. This single window for customs administration and trade facilitation serves more than 2,500 companies and 8,000 users per year, processing about 9 million permit applications annually. The vast majority (over 97 per cent) of applications are auto-processed.

TradePalette will be an extension of TradeNet, allowing traders to share information with the national Government and actors in other regions (including those in the Pan-Asian e-commerce Alliance, North America and Europe). It will be a hub for the trade and logistics community, providing end-to-end collaboration and visibility through intelligent data sharing and payment settlement services.
Governments, chambers, banks and forwarders are currently working together on Singapore’s CertOfOrigin project, which provides a way to apply for, approve and receive a certificate of origin electronically after a simple verification of the goods with a repository of information. This system produces a paper document from the electronic workflow system, as a step in the transition to paperless information exchange. The document integrates numerous security features to prevent fraud. It is expected that the CertOfOrigin will save the Singapore trading community about $1.6 million per year, saving businesses about four to seven days and 54 per cent in costs. (see Figures 43 and Figure 44)

Singapore is a member of the Pan-Asian e-Commerce Alliance. It also collaborates with Malaysia through the Trade Declaration Exchange project, under which the two countries exchange trade-related documents electronically over a secured infrastructure (Singapore’s TradePalette links to Malaysia’s eDeclare system). This collaboration has dramatically reduced data entry, minimized data errors with the re-use of data, and sped up permit processing times.

Singapore collaborates with Australia on e-health certificates and with Mexico on proof of origin documents. It created a Textile Tariff Preference Level System to provide required input to the U.S. Customs Service. Singapore works with several countries in the area of risk management, including Panama (the Automated Data Collection System), Thailand (the Advanced Passenger Information System), the United States (Advanced Manifest Submission), and Canada (WebCustoms/Advance Commercial Information).
Figure 43: Putting Technology Together

Figure 44: Putting workflow together
Chapter 3.5: A regional business case: Implementing e-invoicing in South Karelia, Finland

Mr. Kari Korpela, eBusiness Teknologiakeskus Kareltok Oy, Finland

In Finland’s South Karelia region, a long-term plan is underway to improve the competitiveness of SMEs by developing their business networks and focusing on e-business processes and e-document exchanges between companies. The first step in the process is e-invoicing, followed by orders and order confirmations.

Kareltek is leading the e-invoicing project, with the goal that a €1.2 million investment in the area will improve the competitiveness of regional businesses by €50 million per year. This was the first step in digitalizing the whole procurement process.

![Image: Impact on one invoice]

**Figure 45: Impact on one invoice**

The project began in 2002 with a focus on internal applications and processes for e-business for SMEs. In 2004, an e-business networks phase was initiated to concentrate on inter-company e-documents and e-processes, including e-invoices. In 2007 and 2008, the focus moves to e-documents and product document management, where the expected benefits will be even greater than with e-invoicing. This will be followed by a two-year phase on digital network management.

Stakeholders in the Kareltek project include the Government and SMEs, which are expected to save considerably in handling costs:

- For the Government, the handling of purchasing and travel invoices and billing comprises half of the State Treasury’s expenditures in man-hours (see figure 48 below). E-invoicing could cut costs at least in half, or up to two thirds in the case of purchase invoices.
A regional study found that the top 10 per cent of companies send 50 per cent of invoices, and the top 20 per cent of companies send 80 per cent of invoices. If all the companies in South Karelia e-invoiced just half of their invoices, they could save €52 million per year.

Case 1: Estimated Personnel Work Load of the Process of Financial Management (3,737 man years) of Finland’s State Treasury

Of the ten companies participating in the test phase for the e-invoicing project, the vast majority have interoperable systems. The overall success ratio of interoperable e-invoicing services was 88 per cent for bank-to-bank e-invoices, 50 per cent for operator-to-bank e-invoices, 44 per cent for operator-to-operator e-invoices, and 40 per cent for bank-to-operator e-invoices. The technology has not posed problems; the problem has been its usability.

About one in five companies in the region have begun to use e-invoicing, and almost all companies will use e-invoicing by 2008. The main reason companies cite for not adopting it is a lack of demand from their suppliers and customers. So far, SMEs are the biggest users, with savings for the private sector of about €4.4 billion. In the public sector, cities, the State Treasury and customs services are the biggest users.

Lessons learned by Kareltek in implementing and promoting e-invoicing show that one should:

- Start where there is the biggest input to B2B and B2G competitiveness
- Make the service easy and cost-effective, to meet the needs of SMEs
- Build up demand and synchronize timing with all stakeholders
- Ensure that connectivity is high (at least 60 per cent, and preferably more)
- Standardize usability
Chapter 3.6: Supply chain security

Mr. Marcus Hallside, CEO of Innovative Compliance, United States

Innovative Compliance provides integrated risk and regulatory data management services for the international transportation industry, related in particular to U.S. Intermodal Dangerous Goods Data Management, U.S. Air Cargo Security and EU Air Cargo Security.

Business drivers in the field include the lack of mutual recognition of supply chain security procedures and processes, both within the EU and between the EU, the U.S. and other countries and regions; the fact that actors must register with and report very similar information to more than one authority; and the “carrot and stick” approach to compliance. There are many authorities providing many different types of accreditation to participants in the international supply chain, while requiring differing shipment validation measures for per-shipment risk evaluation and targeted inspections and screening.

Innovative Compliance carried out a pilot study of industry and regulator procedures to enable mutual recognition. Data interchange was then prototyped, and future trends (EU-wide and multimodal) were identified. Innovative Compliance now provides Web services to validate and exchange information on actions taken to render cargo secure, with online web access and XML data exchange between the industry and regulators. Its users include regulatory authorities in pilot EU member States, participants in the EU transportation industry, and an industry/Government study group.

The EU Directorate General for Energy and Transport (DG TREN) in Brussels took the lead for the project, and selected France, Austria and Poland to participate in the development of a system link to the U.S. transportation authority. The pilot project seeks to evaluate the feasibility, costs and potential for private-public partnerships in the creation and use of such a single window. The single window would be financed through direct costs, while system development and operation could be financed through usage fees from Governments, industry and other stakeholders. The project’s success will depend on joint government and industry participation in the regulatory process, the technological solutions developed, political leadership, industry reaction and the development of commonly agreed standards.

Standards and interoperability will be important features of any future single window environment, especially data standards, evolving regulatory standards, and IT standards that support interoperability, maintainability and data security.
4. Technology as an Enabler of Innovation

Chapter 4.1: Microsoft: Technology and the international supply chain

Ms. Renee Stein, Senior Manager of Customs Compliance and Global Trade Policy at Microsoft, United States of America

Today’s global supply chain environment is characterized by multinational companies trading among themselves, changing security requirements, e-commerce making optimum use of ICT, and the exploitation of many opportunities. This impacts the supply chain in a variety of ways:

- There are more and more smaller shipments
- Trading and shipping patterns are changing: countries are exporting different goods to different countries, and importing different goods from different countries
- Customs administrations are increasingly expected to act consistently, quickly and in a harmonized manner

Microsoft is, in essence, a trading company that moves goods across borders (over $1 billion per year in the U.S. alone). The emergence of e-commerce has created a global and borderless environment. As a trader, Microsoft relies very heavily on express courier services (an industry that is growing six times as fast as other industries).

Microsoft has seven lines of business that are vertically integrated. Its supply chain model is complex and entirely outsourced; as a result, its ability to communicate with its vendors is crucial. It uses an
information supply chain to transmit trade information electronically. The best strategies for working in the e-commerce environment exist, although they are not yet at their best level. As part of an optimum information flow, Microsoft needs the ability to receive and print an XML document, or forward it, or integrate it into another document and send it electronically.

Microsoft caters to SMEs, which represent 99.99 per cent of its business customers and 40 per cent ($19.6 billion) of its commercial revenue. Critical success factors for Microsoft:

- High-speed, low-cost communication and collaboration
- Effective information and material flow
- Improved productivity, cost reduction and customer service
- Demand information

Technology presents opportunities and challenges. On the one hand, more and more information is available in an electronic format, making it easier to transmit trade information, especially when documents are standardized. Governments and business alike can benefit from standardized documents. Standardized documents will help Governments provide: (a) advanced customs clearances; (b) help them increase their ability to collect revenue, their audit and real-time data confirmation capabilities and their reporting capabilities; and (c) help them secure supply chains. Business will benefit through (i) efficiency gains; (ii) lower transaction costs; (iii) flexibility for usage, systems and third party partners; (iv) quick border clearance; (v) a secure supply chain; and (vi) greater protection of intellectual property rights.
On the other hand, technology for country-specific automated systems is often being developed independently and unilaterally. Electronic solutions must be flexible and far-sighted, customs procedures and processes harmonized, and data requirements for export and import standardized. Standards developers must work together to develop a comprehensive IT security strategy, applying appropriate rules uniformly to combat computer-related crime.

Microsoft, with Adobe, is one of the two vendors currently supporting UN/CEFACT and its UNeDocs project. UN/CEFACT has participated in the joint development of the Microsoft Office InfoPath prototype, partnering with the IT industry for custom implementations.

Today, Microsoft is focusing on the SME Enterprise Resource Solutions (ERP) field, which provides XML-based business solutions in Microsoft Office that are EDIFACT-enabled and support electronic trading. In the future, Microsoft plans to continue developing enterprise solutions, participating in SME campaigns to promote paperless trade, working with solution providers including UNECE, and promoting awareness of the benefits of paperless trade.
Chapter 4.2: Adobe’s intelligent document platform: A seamless transition from paper to paperless

Mr. Alfred Taylor, Director of Government Practice for the Europe, Middle East and Africa region at Adobe Systems Europe Ltd.

Adobe’s Intelligent Document Platform (IDP) provides a seamless transition from the paper world to the electronic digital environment where XML is readable. The platform mixes PDF and XML for presentation and data exchange. It eases the adoption of paperless trade because there is no need for SMEs to purchase specific enterprise software.

People like the physical contact that paper provides, and it is unlikely that paper documents will ever completely disappear. As a result, an environment where an electronic PDF document travels ahead of goods can streamline the process of entry to any country, and support just-in-time delivery by providing readily available shipping data. The Adobe Intelligent Document allows publishing of information in PDF and two-way transactions: Intelligent Documents can automatically “round-trip” data, capturing it from both within and beyond the firewall and route and return the data to the organization and its back office systems, all without any human intervention. This avoids re-keying, manual processes, and time-wasting work-arounds.

PDF documents can contain UNeDocs-compliant XML data, digital signatures, encryption and watermarks, as well as information on who can access a document, from where, and for how long.
The UNEDocs Intelligent documents comprise a deep and rich set of document services that integrate intelligent documents into the user’s IT environment and business processes, as well as enable the user to manage those documents throughout their entire life cycle. The user can assemble UNEDocs intelligent documents in PDF format by merging data from a variety of resources, such as databases, applications and web services with pre-designed document templates, to produce both rich and highly personalized documents.

Adobe has partners involved in supply chain management, such as DAKOSY and the Djibouti Customs service, to which it has provided IDP off-the-shelf to implement UNEDocs-based export documentation.

Figure 50: UNECE – FFI Doc. example
Chapter 4.3: Axway and electronic single window solutions

Mr. Bruno Joguet, Solutions Manager at Axway, a software editing company

The Axway focus is B2B integration, providing solutions that automate exchanges within the extended supply chain. Axway has much experience in providing electronic single window solutions in international trade – such as, especially in Asia, eTrade HUBs – which require the integration of large business communities with customs administrations, other government agencies, banks, and intermediaries.

![Axway for Trade: our markets](image)

Figure 51: Axway trade markets (2004)

The single window environment links B2B networks and e-government. Its main functions are to provide a backbone for messaging infrastructure, featuring enhanced transformations and data inheritance through the use of EDI and XML. An Internet portal on top of the messaging platform can be used for end-user interaction and trading partners management. More advanced functionality, through supervision and monitoring, tracking and PKI, and business process management can also be added. The electronic single window solutions can handle several dozens of thousands of trading partners exchanging documents on a daily basis. In this context, the use of UN/CEFACT standards can help provide the necessary interoperability.
In the Asia-Pacific region, Australia, Hong Kong Special Administrative Region, Japan, the Republic of Korea, Singapore, and Taiwan Province of China have high levels of paperless trade, at around 80 per cent. In China, Malaysia and Thailand, however, paperless trade represents only about 40 per cent of total trade transactions.

Currently in the Asian market, enterprises are embracing paperless trading to increase competitiveness, accuracy and reliability and to reap the benefits of faster information flows. At a national level, economies are planning and implementing trade facilitation and single window infrastructures, which benefit both business and Governments. With cross-border cooperation, political, economic and trade agreements are supporting this trend. Paperless trade improves a country’s ability to secure borders and to manage and control the movement of goods. The maturing of technology and standards has helped support implementation of such infrastructure. As a result, private trading hubs or single windows are emerging, and efforts are being made to integrate the processes that help enterprises manage the entire business process.

Many Asian countries already have dedicated e-trade hubs or e-logistics, such as KTNET in the Republic of Korea, Dagang Net in Malaysia, Tradelink in Hong Kong Special Administrative Region, and CrimsonLogic in Singapore. China also has a similar platform (Shanghai EasiPass).

Issues still remain, however. Currently, it is often difficult to find an agency to take the lead in the move towards paperless trade. Political will (from governments and business) and funding are also a key factor to start implementations. Public-private partnerships have been slow to form due to resistance from parties with vested interests. Clear business models are needed, and failed projects are getting wide publicity, which discourages new implementations and arrests development. Finally, the
elongated sales cycles of such projects often come in conflict with the expectations of implementers and technology providers.

International organizations such as the United Nations, the World Bank, the World Customs Organization and the World Trade Organization can help by:

- Advocating approaches to enhance paperless trading and closely monitoring experiences to overcome challenges and translate plans into action
- Encouraging Governments to implement projects with programmes that involve leadership with suitable rewards for accomplishment
- Handholding some economies to lessen the risks of growing economic disparities
- Adopting implementers fearlessly and advocating solutions with programme proposals

For countries that have already implemented electronic single windows for international trade, the next step will be to implement cross-border electronic exchanges. Bilateral discussions and several pilot projects have already started. Axway believes that interoperability of national single windows is a key factor for success, and supports UN/CEFACT in its role of designing and promoting international standards for e-business.

Figure 53: Next steps for existing single window providers
Chapter 4.4: The SAP approach to the challenges of global trade processes

Ms. Angela Baumann, Solution Manager for Global Trade Solutions at SAP

Today’s business environment is characterized by volatile demand, decreased customer loyalty, shorter product life cycles and tougher global competition. The supply chain is no longer enterprise-focused, but is instead an adaptive supply chain network in which multiple trading partners are interconnected, creating a complex network held together by information flows.

The volume of international trade is increasing from year to year because companies must build and maintain global relationships. The challenge of this globalization decade is to create automated business processes across multi-party, multi-country supply chains that will result in faster, more reliable, lower risk, and lower cost transactions. Companies must accomplish this while complying with different laws and regulations across the globe. The right information has to be communicated to the right party at the right time. It can be very complex to collect the data from different systems and departments, and to communicate it using the given national standards.

An integrated IT solution is the key to reducing manual efforts and errors, increasing security and transparency, providing more reliable information, and reducing costs significantly. A defined communication channel will increase efficiency, enable the stable growth of international trade volumes, and support global security initiatives. Governments need to set up communication channels with industry as well as with national authorities such as tax administrations, police, homeland security and border protection departments. These efforts often require a reworking of existing trade processes, which results in a higher and often earlier demand of trade relevant data that needs to be communicated electronically to the authorities, and these authorities often have communication requirements that are quite similar to those of businesses. One of the major challenges is to create and implement a globally accepted data model for conducting international trading processes.

More than 27,000 companies run SAP, representing over 12 million users in over 120 countries. To meet various industry-specific requirements and characteristics, SAP has a strong industry focus and a global partner network over 1,500 strong. In addition to business applications, SAP offers a flexible and open application platform called Netweaver. Netweaver enables SAP customers to integrate business processes and people very easily to respond quickly to the ever-changing requirements of the business world. SAP supports modernization projects through an open application infrastructure. It offers an easy way to combine and adapt processes across systems and business areas, and also provides change management solutions.

SAP Global Trade Services (GTS) offers solutions to help enterprises manage the challenges and issues of global trade:

- Compliance management, which eliminates the risks of costly fines and penalties for non-compliance
- Customs management, which allows users to classify products easily, calculate duties, and communicate with the different customs authorities in the required formats using the required procedures
- Risk management, which helps users benefit from existing preferential agreements

SAP GTS is fully integrated in existing system landscapes and business processes.

Because Governments face nearly the same issues as enterprises in terms of integration, data accuracy and automation, SAP provides Customs Management applications for customs agencies, allowing agencies to mitigate the risk associated with customs modernization projects and to improve customs operations, while realizing lower costs through the total cost of ownership.
These applications:

- Ensure integration by providing the necessary integration from duty assessment to tax calculation and remittance handling
- Can process a complete shipment life cycle, from manifest and declaration through inspection and audit
- Handle risk assessment, including cargo, passenger and immigration screening
5. Creating an Enabling Environment to Make Paperless Trade a Reality

Chapter 5.1: Transition to paperless trade: Key characteristics and steps required for implementation

Mr. Mike Doran, Chair of UN/CEFACT and Senior Administrator at CERN, chaired the discussion to end the Forum

A general discussion on the draft Roadmap for a migration to paperless trade took place on the last day of the Forum. The Roadmap, incorporating suggestions and comments from the participants and the audience can be found at: http://www.unece.org/forums/forum05/presentations/Roadmap_Final.doc

Benefits for Governments and the private sector

1. For Governments, paperless trade is an important instrument to increase security, development and revenues from international trade.

2. For the private sector, paperless trade can greatly increase the efficiency of supply chains, and can provide new value-added services.

3. For developing and transition economies, paperless trade can provide benefits in terms of simplified and less costly trade procedures, increased transparency, higher compliance and higher governmental revenues.

Costs

4. Companies will only adopt paperless trade if they see a clear net benefit.

5. Paperless trading has characteristics of a public good and its introduction is likely to imply external costs and benefits.

6. Paperless trade presents specific challenges for developing and transition economies, related to, for example, a lack of adequate telecommunications infrastructure, resistance to change, less capacity for implementation, and a need for preceding organizational and regulatory reform.

7. Its implementation carries technology and market risks.

Policy and Strategic considerations

8. Elimination of paper in the international supply chain is achievable, but the transition needs to be managed.

9. Governments should take a leading role in initiating the transition to paperless trade.

10. Successful implementation projects for paperless trade grow rapidly in scope and volume.

11. Facilitation and simplification of trade procedures and documents should take place prior to automation.

12. Paperless systems should be based on international standards, but should also reflect and take into account regional specificities.

Implications and policy recommendations for the transition to paperless trade

Identifying the key issues relating to paperless trade is a prerequisite for drawing up private and public strategies for its introduction. The Roadmap includes a table suggesting activities that could support the transition to paperless trade. The table is based on input received by UNECE during various regional capacity-building workshops, policy documents by various regional initiatives and the presentations and interactive discussions at the 2005 Executive Forum.
Recent Publications

2006

A Roadmap towards Paperless Trade

2005

Trade Facilitation Toolkit and Forms Repository

The Trade Facilitation Toolkit and Forms Repository assist Governments and trade associations to simplify their documentary requirements and develop consistent national series of trade documents.

The Toolkit and Repository support the requirements for simplification of documents and transparency in the implementation of trade regulations as set out in GATT Articles VIII and X.

Trade Data Elements Directory/UNTDED 2005

Contains the standard data elements that can be used with any method for data interchange on paper documents as well as with other means of data communication. They can be selected for transmission one by one, or used within a particular system of interchange rules, e.g. the UN/EDIFACT.

Recommendation and Guidelines on Establishing a Single Window

Recommends the establishment of a “Single Window”, whereby trade-related information need only be submitted once to fulfil all import, export and transit-related regulatory requirements. The publication also contains a detailed set of Guidelines designed to assist countries in implementation.

These and other publications may be downloaded at the UN/CEFACT website:
http://www.unece.org/cefact/publica/publi_index.htm