# Towards A Single Window Trading Environment

## BEST PRACTICE IN SINGLE WINDOW IMPLEMENTATION: CASE OF SINGAPORE'S TRADENET

A number of countries in the Asia-Pacific region are in the process of establishing national Single Window (SW) facilities. A Single Window would help to simplify trade processes and procedures and improve transparency and predictability in international trade transactions. This means fewer complexities, less delays and lower costs of trade that can ultimately lead to improved competitiveness and more trade.

UNNExT Brief series cover a range of critical issues to be tackled in the successful development of paperless trade and Single Window initiatives. Also, they showcase best practices in the region to share experiences and lessons learnt.

This Brief introduces Singapore's TradeNet as a best practice case in implementing a Single Window environment. TradeNet is regarded as a successful case not only in the region but also in the world. This Brief outlines the background and motivation for the initiative, institutional arrangements underpinning the development of the Single Window, major benefits from TradeNet, key success factors, and lessons for those countries that are in early stages of implementing national Single Windows.

# Developing a National Single Window – the Case of Singapore's TradeNet

The TradeNet system, which has been operational since 1989, began as an electronic data interchange (EDI) system that allows computer-to-computer exchange of inter-company business documents in an established format between connected members of the Singapore trading community. It links multiple parties involved in external trade transactions, including 35 controlling agencies[1], to a single point of transaction for most trade documentation tasks, such as processing import and export permits and certificates of origin.

## Background and Motivation

The idea of the TradeNet System originated back in 1979. Given the constraint Singapore faced in terms of its size, the Singapore Government realised that Information Technology (IT) could provide special opportunities for the economy. A Committee on National Computerization (CNC) was established in 1979 to develop specific recommendations on ways in which Singapore could pursue a future in the IT field.

In 1980, the CNC issued a report stating that Singapore could become a world leader in the creation and use of IT. To do so, it would have to mobilize its efforts and create a coherent plan of development. A special statutory board, the National Computer Board (NCB), was created to develop programmes to build Singapore into an IT society. Its first major effort was to bring computerization to government agencies under its Government Computerization Project.

One of the areas targeted for improvement was external trade. This resulted in concentrated efforts to implement IT in the port and airport, an important factor leading to TradeNet.

The Singapore Trade Development Board (STDB) (which has been renamed International Enterprise Singapore) was the government agency responsible for trade facilitation. STDB was mindful that while Singapore maintained its status as a reliable trading nation of integrity, the manufacturers and exporters were unduly hampered with cumbersome systems and procedures in their conduct of external trade. Therefore, it established service standards for the processing of trade documents, i.e., two days for normal service and two hours for urgent service.

However, with the shortage of labour looming in the 1980s and the need for quicker turnaround of goods for just-in-time (JIT) stock inventory management, the STDB realized the service standards for the approval of permits (2 – 4 days) were not satisfactory. A quicker processing system was required.

In addition, in 1985 Singapore experienced its first recession. The Government's response was the establishment of a high-powered Economic Committee to review the weaknesses of the Singapore economy and to chart new strategies to improve its economic competitiveness. One of the recommendations was to expedite the use of IT to improve trade competitiveness. In 1986, Hong Kong, China, a major shipping competitor, revealed that it was creating a trade oriented EDI system (TradeLink), which further strengthened Singapore's resolve to implement TradeNet.

## Initiation of TradeNet Development

In 1986, to emphasise the Government's commitment to this project, Mr. Lee Hsien Loong, then the Minister for Trade and Industry (presently the Prime Minister), announced publicly that the TradeNet project would be

---

[1] Examples of Controlling Agencies are Arms and Explosives Branch, Central Narcotics Bureau and Agri-Food & Veterinary Authority. There are 35 Controlling Agencies in Singapore including Singapore Customs.

completed within a two year timeframe. This had the effect of speeding up the work of various committees and officials involved. It also gave the TradeNet team full authority and resources to proceed.

STDB was given the task of mobilizing the trade community and became the coordinating point among various agencies such as Customs and Excise, Port of Singapore Authority, and Civil Aviation Authority of Singapore. In 1986, a core team comprising representatives from relevant government agencies and interested parties from the private sector were formed to conceptualise a nationwide Electronic Data Interchange (EDI) system for traders to submit trade declarations electronically to the regulatory authorities.

A TradeNet Steering Committee was created to oversee the process. In the subsequent year, three working subcommittees, one each for sea shipping, air shipping, and various government agencies were formed to specify functional requirements and propose data standards. The staff of the National Computer Board was appointed to support each subcommittee. Each subcommittee developed a profile of essential trade documentation activities, which were integrated by the NCB staff into an "Integrated Procedures Report." This became the focal point of procedural reform discussions. Efforts were made to reduce the 20 forms used in international trade into a single online form to serve nearly all trade documentation needs in Singapore. This single administrative document formed the core of the new computerized system.

## Implementation of TradeNet Services

It was also decided that the development of the TradeNet system and the provision of processing services were to be contracted to a newly set up company. This company was to be tasked to provide the TradeNet service as part of its core business function in addition to providing other IT services development. By creating such a company as an independent profit centre, the government shall not have to bear the cost of running and operating a nationwide network infrastructure and services. The beneficiaries, namely, trading companies, pay for the use of the services without incurring developmental or maintenance costs.

In March 1988, Singapore Network Services Pte Ltd (SNS) (now known as CrimsonLogic Pte Ltd) was created to own and operate the TradeNet system. SNS is owned by the four key agencies involved in developing the

**Figure1: TradeNet processes**
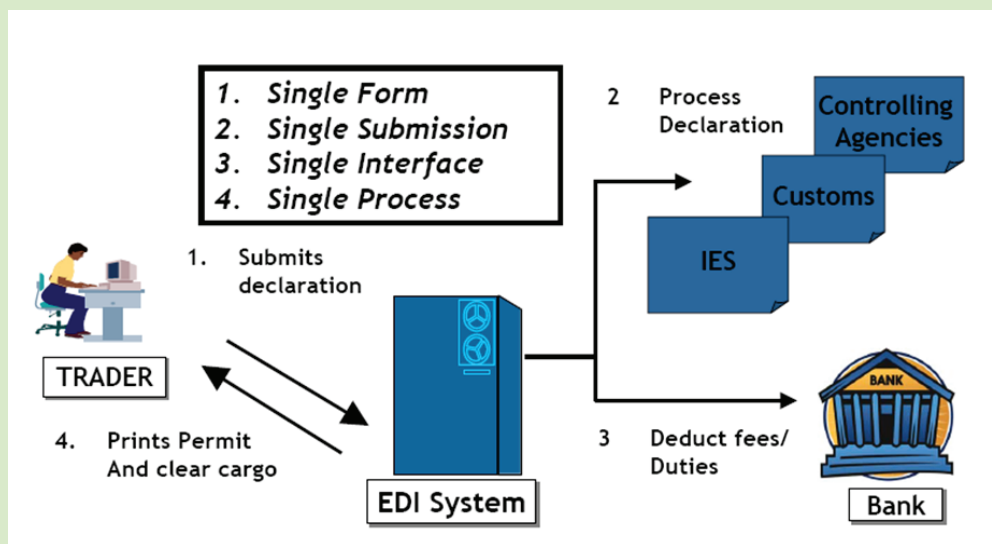
system – STDB (55%), Port of Singapore Authority (PSA) which runs the port facilities (15%), Civil Aviation Authority of Singapore (CAAS) which runs all airport facilities (15%), and Singapore Telecoms which runs the telecommunication system (15%)[2].

Next came the decision to adopt an EDI-based system. After careful scrutiny of the 23 responses to the initial Request for Information (RFI), the choice was narrowed to three vendors: IBM, McDonnell Douglas Infor-mation Systems and GE Information Services. All three were already operating EDI networks in other countries. A Request for Proposal (RFP) or tender was issued, and after intensive evaluation, which included overseas on-site visits, SNS selected IBM to develop the first version of the system. IBM had also sub-contracted a local software company, Computer Systems Advisers (CSA), to develop and write the respective interchange software programs and related modules.

The first transaction on TradeNet was a shipping application submitted on 1 Jan 1989.

Approval of the shipment was returned 10 minutes later. By December 1989, TradeNet had 850 out of 2,200 possible subscribers, and handled about 45% of all trade documentation for sea and air shipments.

**Table 1: Volume of Documents Processed through TradeNet[3]**

| Year | Target | Actual |
|------|--------|--------|
| 1989 | 15% | 45% |
| 1990 | 40% | 92% |
| 1991 | 70% | 95% |
| 1992 | 90% | 95% |

Due to overwhelming response, STDB changed the date for the use of TradeNet for all transactions to be made mandatory from early 1993 to early 1991. By mid 1991, 1,800 subscribers were using TradeNet to process 95% of trade documentation requirements.

## Figure 2: Before and After TradeNet Implementation



Before

After
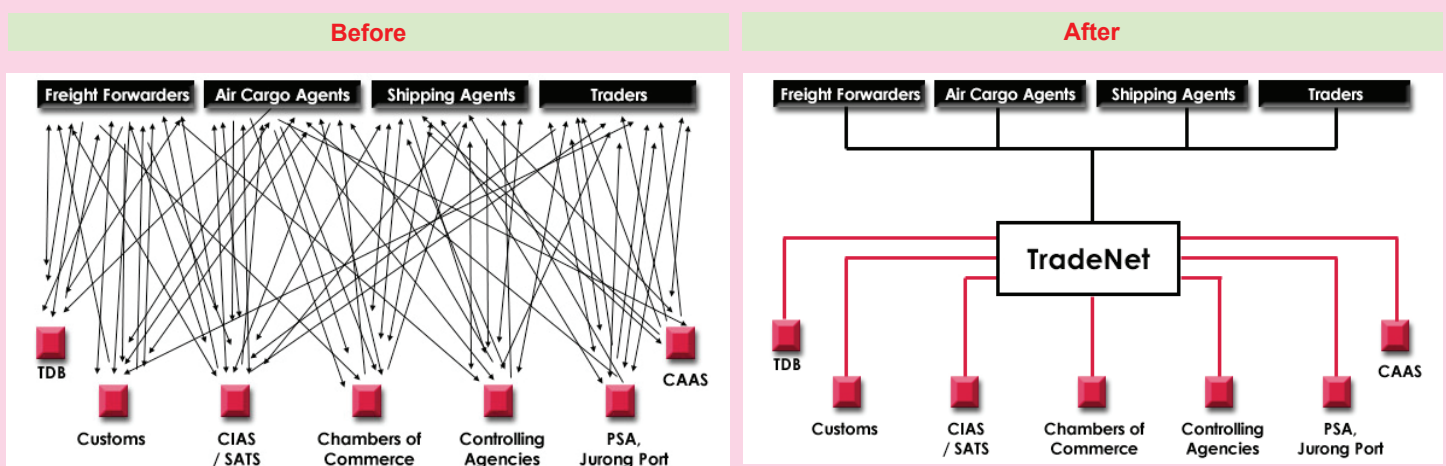
[2] The Singapore Trade Development Board has been renamed International Enterprise Singapore; both the Port of Singapore Authority and Singapore Telecoms have been corporatized and are now called PSA Corporation Ltd and Singapore Telecommunications ltd respectively.

[3] From "Managing Risk in Information Technology Projects: A Case Study of TradeNet" by BS Neo & SL Kwong, Nanyang Technological University, 1994.

Today, all trade documentations are electronically submitted. The number of permit applications had increased from 10,000 declarations per day in 1987 to between 30,000-40,000 per day currently. This amounts to some 9 million transactions a year. The number of companies using TradeNet has now reached approximately 2,500 companies with over 8,000 users.

## Capital Investment and Service Fees

The direct capital cost of TradeNet's development, i.e., contract cost to IBM and other sub contractors was in excess of S$20 million[4] in 1987. This does not include the costs incurred by various agencies in conceiving the project, developing requirements and specifications, managing contract or establishing SNS.

A company wanting to join TradeNet had to pay a one time connection fee of S$750, a monthly charge of S$30 for a dial-up port, and transaction costs of S$0.50 per kilobyte of transmitted information (the average declaration requires 0.7 kilobytes). A company also needed to have the necessary hardware for local processing of applications and transmission of the coded UN/EDIFACT data. The minimum required PC configuration then

cost about S$4,000, and software cost between S$1,000 and S$4,000.

However, the indirect costs to a company in making changes to procedures and protocols required for adoption of TradeNet were less clear than the direct costs. For some companies, the conversion was minimal because they already had the relevant systems in place. For companies with no prior experience in doing business with computers, the change was more difficult.

Today, the user pays a one-time registration fee of S$50 and a monthly fee of S$20 per user. In addition, the user pays S$2.88 for each declaration made through the system.

## Legal Basis for the TradeNet[5]

TradeNet is an electronic Single Window that requires users (declarants) to submit their documents in the form of electronic records, and facilitates the issuance of electronic permits for trade clearance. The legal basis for TradeNet as the national single window is found in several legislative provisions.

Firstly, section 47(1) of the Electronic Transactions Act (ETA) provides that any department or ministry of the Government, organ of the State or statutory corporation that

### Table 2: Impact of TradeNet

| Key Indicator | Before TradeNet | After TradeNet |
|---|---|---|
| • Processing time/permit | • 4 hrs to 2 – 7 days | • 10 minutes |
| • Submission of documents | • Multiple submission | • Single document through a single interface |
| • Number of documents | • 3 – 35 documents | • 1 document |
| • Trade documentation fees | • US$6.25/document* | • US$1.80/application* |

* Assumed exchange rate of 1US$ = S$1.6 in late 1980s

[4] Exchange rate of 1US$ = s$1.6 in late 1980s.

[5] From "Legal and regulatory Aspects of International Single Window Implementation – The Asean Experience," Chong Kah Wei, Attorney-General's Chambers, Singapore.

accepts the filing of documents or requires that documents be created or retained, pursuant to any written law, may accept the filing, creation or retention of such documents in the form of electronic records. The ETA also provides that any such department, ministry, organ of the State or statutory corporation that issues any permit, licence or approval, pursuant to any written law, may issue such permit, licence or approval in the form of electronic records.

The ETA, which is based on the UNCITRAL Model Law on Electronic Commerce (1996), provides for the legal recognition of the electronic functional equivalents of written documents and written signatures through a number of provisions. The validity of a transaction entered into by electronic means is determined by the substantive law of the transaction (e.g. law of contract, legislation governing the transaction). The ETA provides that electronic communications are functionally equivalent to communications in paper form, and that an electronic document or transaction shall not be denied of its validity for the sole reason that it is in electronic form.

Secondly, various provisions in the relevant legislation provide authorisation for the establishment and operation of a computer service, and for the relevant documents (e.g. manifest, return, list, statement, declaration, direction, notice, permit, receipt) to be made, served or submitted by electronic means. Section 86(1) of the Customs Act authorises the Director-General of Customs to establish and operate a computer service and make provision for any manifest, return, list, statement, declaration, direction, notice, permit, receipt or other document required or authorised by the Customs Act to be made, served or submitted by electronic transmission (referred to in the Act as an electronic notice). Section 86 of the Customs Act provides that a registered user may make and serve an electronic notice to the computer account of the Director-General, and vice versa.

Section 8(1) of the Regulation of Imports and Exports Act ("RIEA") is similar to section 86(1) of the Customs Act, and authorises the Director-General of Customs to establish and operate a computer service and make provision for any document required or authorised by the Act or any regulations made thereunder to be made, served or submitted by electronic transmission. Section 8 RIEA contains provisions relating to service of electronic notices that are similar to section 86 of the Customs Act.
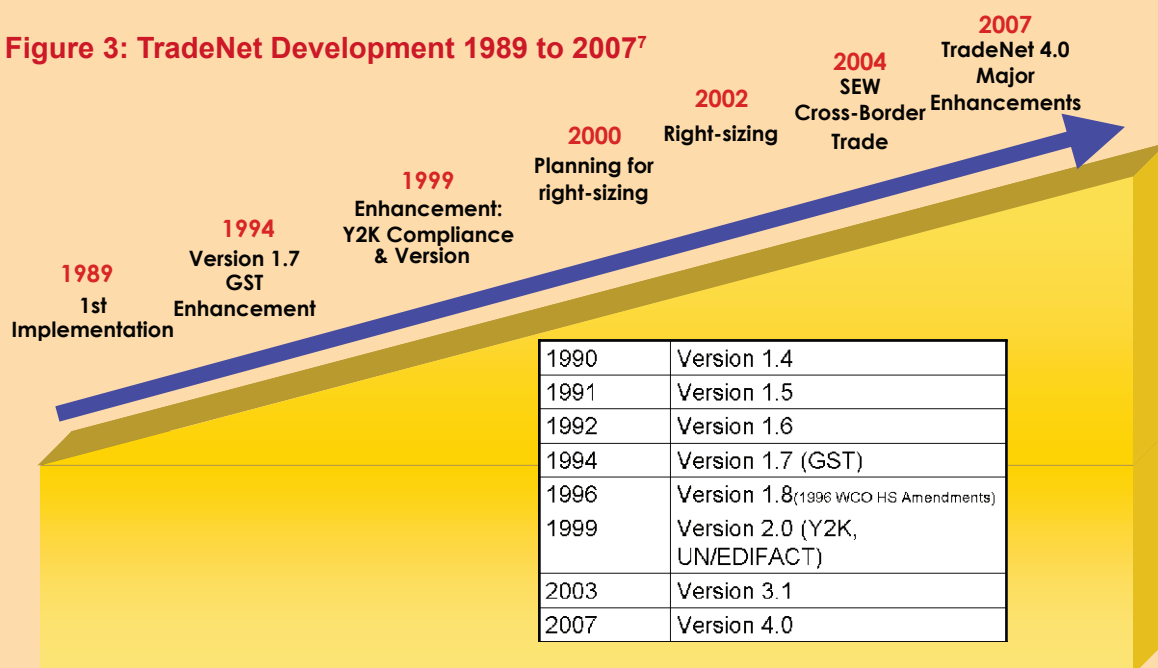
Section 42 of the Goods and Services Tax Act authorises the Comptroller of Goods and Services Tax to provide an electronic service for the filing or submission of any return, declaration or document, and the service of any notice, direction, order, permit, receipt or document by the Comptroller.

## Benefits from TradeNet

One of the main benefits of TradeNet was a reduction in the turnaround time for processing of typical trade documents, which was reduced from 2 – 4 days to as little as 15 minutes. Most transactions are actually completed in less than 10 minutes. This resulted in productivity improvements. Studies suggest that TradeNet reduced trade documentation processing costs by 20% or more[6]. Users of TradeNet found that there were significant savings accruing from filling out single online form versus over 20 paper forms in the past.

TradeNet streamlined trade procedures and protocols, which made the entire trading community more competitive internationally. The use of clerks or couriers to transport trade documents to various agencies was eliminated, leading to saving time and better deployment of staff and vehicles. Staff no longer needed to stand in queues and wait for documents to be cleared. Faster turnaround made it possible to better organize shipments and improve overall productivity. Freight forwarders have reported savings of 25%-35% in handling trade documentation as TradeNet operates 24 hrs as opposed to agencies that open only during normal office hours.

6   From "Singapore TradeNet – The Tale Continues" by Neo, King & Applegate, Harvard Business School, 1993.

**Figure 3: TradeNet Development 1989 to 2007** [7]

**1989** 1st Implementation

**1994** Version 1.7 GST Enhancement

**1999** Enhancement: Y2K Compliance & Version

**2000** Planning for right-sizing

**2002** Right-sizing

**2004** SEW Cross-Border Trade

**2007** TradeNet 4.0 Major Enhancements

| 1990 | Version 1.4 |
| 1991 | Version 1.5 |
| 1992 | Version 1.6 |
| 1994 | Version 1.7 (GST) |
| 1996 | Version 1.8 (1996 WCO HS Amendments) |
| 1999 | Version 2.0 (Y2K, UN/EDIFACT) |
| 2003 | Version 3.1 |
| 2007 | Version 4.0 |

Benefits also accrued to government agencies using the system. Customs moved from a system of post-approval of applications to pre-approval, such that Customs duties are now pre-paid through electronic means and Customs receive payments faster. The TradeNet also enabled faster compilation of more accurate and complete external trade statistics. This is possible because the data from the documents need not be re-keyed in by the Government agencies to compile the trade statistics.

Such accurate statistics will not only serve the private sector better by providing them with timely trade statistics for market analyses and marketing policy formulation but also help the Government agencies for their use in trade policy, trade surveillance and trade monitoring.

While joining TradeNet posed no problems for larger companies, which already had significant in-house computer capabilities, not all smaller companies were willing to invest to join TradeNet right away. STDB developed three plans to help these companies. One, they could use the facilities of service centers; two, they could go direct to STDB where data would be captured by available officers; three, they could go to the public terminals opened by STDB, where access and assistance could be obtained for a modest fee.

## Continual Enhancements to TradeNet

More trade related services were added to the TradeNet. In 1990, a module that enables traders to apply electronically for certificates of origin (CO), which enables preferential tax treatment in importing countries, was made available. Automation of CO applications reduced the approval processing from 2 days to half a day. A fully web-based electronic certificate of origin (ECO) system was launched in April 2003 by CrimsonLogic and the Chambers of Commerce, to allow exporters to apply for and print certificates of origin from any computer anytime, thus saving the trading community time and money. This ECO platform (www.certoforigin.com), was built on Public Key Infrastructure and supporting security-related technologies such as print control and optical watermarks, enabling secure and convenient approvals of documents required to authenticate the origin of the goods traded.

Figure 4: Schematic Diagram of Singapore TradeXchange®
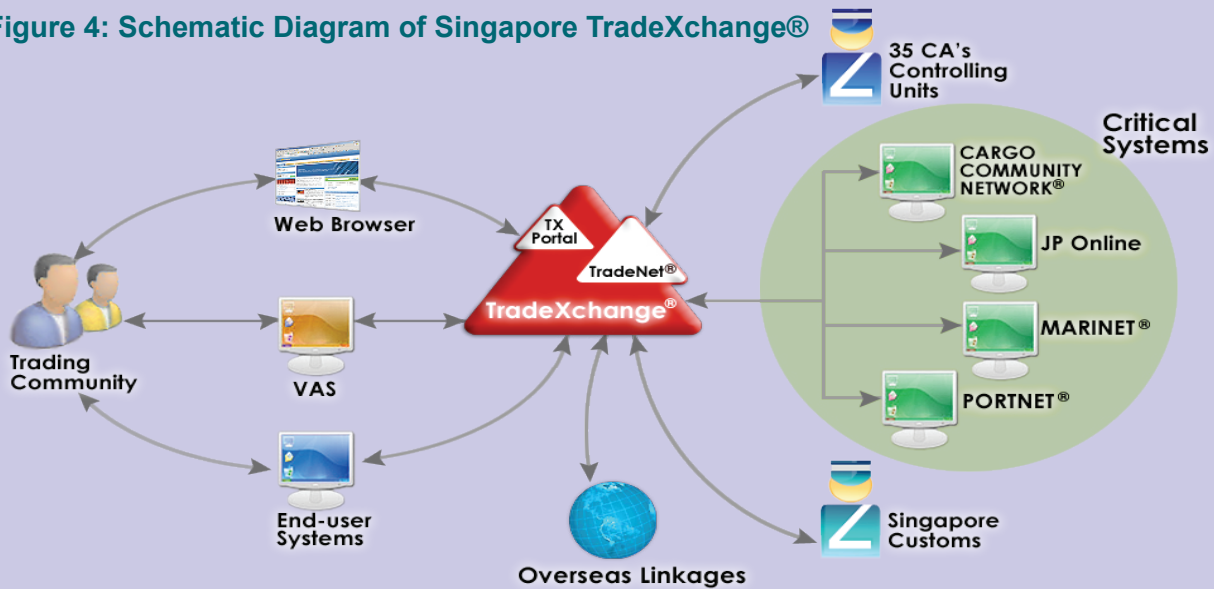
To facilitate faster customs clearance for the air transport community, an Advance Clearance for Courier and Express Shipment System (ACCESS) was developed. ACCESS enables pre-clearance for courier companies, allowing them to submit the pre-clearance shipment information for the air express and on-board-courier shipments to the Singapore Customs.

In 1999, further enhancements were made to the TradeNet system called TradeNet Plus. TradeNet was made to be Y2K compliant and processing time was reduced to 1-2 minutes. In 2003, a major system re-sizing was conducted.

The current web-based TradeNet version 4.0 was implemented in October 2007. It comprises major enhancements, providing a more simplified permit structure, with less declaration fields. TradeNet 4.0 also offers a full suite of permit services. Other than declaration of imports and exports, traders can also amend permit details, cancel unused permits and submit claims for refund of duty and GST (Goods and Services tax) erroneously paid. The new version also has other new features; for example, traders bringing in goods for re-export can now use the new "import for re-export" permit to cover the entire shipment. Under the previous version, two declarations would

have to be lodged – one for the import leg and another for the export leg. Along with this new version, traders also enjoyed further cost savings through the reduction of fees. The processing and transmission fees were reduced from the S$2.00 and S$0.40 (per kilobyte) respectively to S$1.80 and S$0.18 (unlimited size). This will result in savings of S$0.42 per declaration due to reduction in cost from $3.30 to $2.88.

TradeNet is now a core application within Singapore TradeXchange platform, which also went live in October 2007. TradeXchange is a neutral electronic platform that facilitates the exchange of information in the trade and logistics community. In addition to TradeNet which connects users to government agencies in Singapore, TradeXchange also provides connectivity to commercial systems and regulatory systems in other countries. Leveraging on the connectivity and core applications of TradeXchange, a number of value-added service providers are providing various application services to the trade and logistics community in areas such as trade documentation preparation, supply chain management, logistics and freight management, trade finance and insurance.

TradeXchange is the first IT project in Singapore to be implemented as a Public-Private

Partnership (PPP). CrimsonLogic Pte Ltd has been appointed by the Government through a competitive tender to develop, operate and maintain TradeXchange which is led by Singapore Customs, the Singapore Economic Development Board and the Infocomm Development Authority of Singapore to promote the adoption of TradeXchange® services.

## Major Development Factors Considered in TradeNet

It is critical that institutional arrangements, specially the lead agency and its role, should be clearly defined at early stages. Private sector buy-in for the new system is another factor that needs careful consideration:

### (i) Lead Agency for the NSW System

To develop and implement the new National Single Window (NSW) system, there must be a lead agency to spearhead the concept and co-ordinate activities of all the parties to be involved in the new system. At the initial stage, the lead agency needs to put in place a multi-agency steering committee by identifying its members. The lead agency itself chairs this committee and acts as liaison between the steering committee and the government.  In Singapore, the lead agency was STDB.

The lead agency is therefore responsible for drawing up the concept of the system, setting up the policy direction for change and putting in place the mechanism to implement the new system.  The final blueprint of the NSW based on feedback and discussions with all members of the steering committee and sub-committees is fine tuned by the lead agency and submitted to the government for endorsement, funding, and implementation.

The lead agency is responsible for the NSW system until it is directed to hand it over either to a private operator or a newly established government agency specifically established to operate the NSW system.

### (ii) Primary Users of the System

The NSW system is developed primarily to ensure the efficiency and integrity of the trade and Customs documentation system. The objective is to enable the government agencies to receive the trade and Customs documentation electronically for processing and approval. The government agencies are therefore the primary users of the system. The government agencies need to take the initiative in consultation with the private sector to study and set up the NSW system for the benefits of all participants.

### (iii) Support from the Private Sector

The private sector will use the NSW system to prepare and submit their trade and Customs documentation for processing and approval.  A change is required to move from manual submission to electronic submission. The government agencies must ensure that the NSW system has the total support of the private sector, especially since the initial set up costs are significant.

### (iv) Partial Government Grants and Financial Assistance

To defray part of the expenses and to enlist support, the government agencies may consider giving grants and other financial assistance to the first group of companies willing to participate in the newly established NSW system.  After the introductory period and when the NSW system is in place and working smoothly, the government agencies may terminate this financial assistance.

### (v) Training and Technical Support

Comprehensive training programs need to be developed to train the staff of both the public and private sectors on how to operate the new NSW system efficiently.  Such courses should be conducted regularly well in advance of the system implementation. Ready technical support in the form of a Help Desk and technical support teams must also be set up to provide immediate assistance when a user has problems in understanding or operating the NSW system.

### (vi) Secrecy of Processing Criteria and Data

The NSW system allows the private sector to prepare and submit trade and Customs documents to the government agencies for processing and approval. The processing criteria, including the business rules, are built into the NSW system. These criteria should be kept secret so that no one can override these criteria to get their documents wrongfully approved.

The NSW system will also allow compilation of trade statistics from the documents submitted for processing. Again, the data in the NSW system should be kept secret from disclosure.

### (vii) Legislative Empowerment

To provide the legal basis for the NSW system, there must be regulations that will empower the government agencies to set up the system for use by both the public sector and the private sector. The regulations should provide for complete and accurate electronic submission of the data to the NSW system by the users for processing and approval.

Severe penalties including fines and imprisonment may be meted out for those who abuse the system and use it for false declaration and for those who hack into the system to cause mischief or to steal data.

## Critical Success Factors in Single Window Implementation: Lessons Learnt from TradeNet

To ensure the successful implementation of NSW system, the government lead agency should consider the following critical success factors:

### (i) Commitment at the Highest Level

To develop and implement the NSW system successfully, the lead agency must ensure the commitment from the government at the highest level for change, for computerization and to facilitate trade. In Singapore, the then Minister of Trade and Industry provided full support to the TradeNet team. The government found it useful to set a deadline for the NSW system to be developed and implemented.

An influential person who would champion the new system is a critical factor in its adoption. TradeNet had two influential champions.

### (ii) Multi-Agency Steering Committee

At the policy level, the lead agency should set up and chair a multi-agency steering committee with private sector representation as early as possible. The Steering committee will consider policy issues and set the direction for the sub-committees to work out the procedures and implement the system. This will ensure private sector support for and use of the new system when it is developed. This steering committee may draw its membership from a National Trade Facilitation Body (NTFB). The steering committee will consider policy issues and set the direction for the sub-committees to work out the procedures and implement the system.

### (iii) Sub-Committees

The steering committee should set up a series of sub-committees comprising of representatives from both the public and private sectors to look into the following:

■ Simplification of Documentation and Procedures - The work of this sub-committee will be to review the existing documentation requirements and operational procedures that will result in a more efficient port clearance of cargo. The sub-committee will also look into the harmonization and standardization of the practices and procedures for the business community.

■ Development of a Community System - This sub-committee may look into an overall integrated trade and Customs documentation system using Information Technology (IT) and Internet to better service the trading community.

- Data Administration - This sub-committee may examine the coverage and definition of trade data and published statistical reports for dissemination through the system.

## (iv) Establishment of a Corporate Vehicle

The private sector on its own may not be prepared to take the risks to put forward the large capital outlay necessary to develop and implement a system that essentially performs a regulatory function for the government. To overcome this, the lead agency may consider setting up a company with shareholders from both the public and private sectors. The company will have the necessary capitalisation to develop and operate the system. This was done in the case of Singapore's TradeNet system by creating a separate corporate entity, Singapore Network Services Ltd (SNS).

## (v) Technical Service Providers

To provide for competition, the lead agency may select a number of (the actual number will depend on the volume of daily transactions to be handled) service providers to develop software to run the system. The software developers shall sell their software and services to the business community based on their marketing and merit. They shall also provide the training and technical support to their customers to operate the system efficiently.

## (vi) Phased Implementation

To ensure success, the lead agency should consider a phased implementation of the NSW system. Phased implementation does not mean that, in the first phase, each government institution or party develops and implements its own system, and that, in the second phase, these institutions or parties attempt to merge their existing systems together. Rather, it means strong cooperation between all institutions and parties involved in implementing an integrated system of limited scale or scope, followed by a full-scale or scope implementation. The sequential approach outlined below may be practical:

- Selected Documents and Goods - During the initial period, the system only accepts the simpler type of documents such as those for non-dutiable and non-controlled goods for processing. After the system has been tested and stabilized, the lead agency may consider expanding the system to accept for processing the documents for other goods such as dutiable, controlled or quota items.

- Pilot Group - The system could initially be configured to accept a pilot group of users in the initial period. At launch, it is not certain that the new system will operate smoothly. It will be a disaster if the "big bang" method is adopted and fails. This will affect the entire business community. For the first phase, a pilot group of users may be accepted to use the system. After the system has been found to function well, then the lead agency may open the system gradually to other users.

Once the system is found to be working smoothly, the lead agency may then set a deadline for all users to use the system by a certain date following which they will have to pay a punitive charge if they continue to use the manual system for submission and processing.

## (vii) Establishment of Document Service Centres

The setting up of document service centres is critical to the acceptance and success of the new system. There may be a large number of SMEs that do not have the daily volume to justify buying a computer system to prepare and submit their trade and Customs documents.

For such enterprises, the lead agency should encourage the use of document service centres. These centres are registered users of the new system. However, instead of preparing and submitting the documents for their own trade, they do it on behalf of the SMEs. They will levy a fee to provide such services.

### References
*More information about Singapore's TradeNet can be found at https://www.tradexchange.gov.sg*

The United Nations Network of Experts for Paperless Trade in Asia Pacific (UNNExT) provides a networking and knowledge-sharing platform for policy makers, practitioners and technical experts to bridge the implementation gaps between the countries with different level of trade facilitation. Its mission is to establish an ongoing community of knowledge and practice to facilitate the implementation of single window and paperless trade in the Asia-Pacific region. The UNNExT intends to enhance capacity of its members to make informed decisions about policy issues at stake and to implement related international instruments and standards. It is operated jointly by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the United Nations Economic Commission for Europe (ECE).
Visit UNNEXT at: www.unescap.org/unnext