

Hong Kong SAR

Background

What motivated the establishment of your Single Window (SW)?

In 1997, as an exclusive service provider appointed by the Hong Kong SAR (HKSAR) Government, Tradelink Electronic Commerce Limited (Tradelink) began production operations to electronically process specified Government trade documents (e.g. trade declarations, dutiable commodity permits, certificates of origin, production notifications, restrained textile export licenses, electronic manifests). The Government enhanced the Import/Export Ordinance to provide for digitally signed electronic submissions. Today, Tradelink processes annually over 20 million documents and has over 54,000 customers, the bulk of the Hong Kong SAR trading and logistics community.

To further strengthen the role of Hong Kong SAR as the preferred international and regional transportation and logistics hub, the HKSAR Government wished to expand the Single Window business-to-Government concept to be a Single Window for any commercial organization to all their trading, logistics, financial business partners as well as Government.

The Digital Trade and Transportation Network (DTTN) is the name of this expanded Single Window initiative.

One of the top priority initiatives to achieve this objective was to establish the DTTN to reduce inefficiencies arising from the “digital gap” and to facilitate data sharing amongst the trade and logistics industry stakeholders.

A comprehensive analysis on DTTN was conducted in 2002, and a consultancy report (DTTN Report) was published in November the same year. With reference to the suggestions proposed in the Report, the HKSAR Government invited experienced solutions-providers to submit proposals for establishing the DTTN. In 2003, Tradelink was endorsed by the HKSAR Government to develop and operate the DTTN. After a comprehensive exercise of planning and preparation, the system development work formally began in 2004.

What year was it established?

Aiming to demonstrate the benefits of the platform, DTTN started a Pilot Program in December 2005 with companies in the trade and logistics sector. The feedback was very encouraging. Building on the success of the Pilot Program, the DTTN platform was fully launched in 2006.

What is the current status of the facility (study, pilot phase,

In addition to allow any company to interconnect and exchange electronic documents quickly with its trade, logistic and finances

running)?

partners, DTTN has been expanded its service by incorporating with business portals and allows buyers and sellers to stay online and execute electronic commercial documents.

Establishment

How did the SW interface with already established systems (if any existed)?

Interconnection maps will be developed to enable any-to-any protocol connections to the DTTN. In other words, the maps will facilitate conversion from standards adopted by the established systems to that of the DTTN to make the data exchange possible.

Did any other SW model serve as inspiration or model?

In the DTTN Report published in November 2002, overseas e-business operations with a reduced scope were studied as background for the DTTN (e.g. Singapore's Portnet, the Netherlands' W@VE, the US's FIRST, Australia's Tradegate, the UK's FCPS/Destin8 and Germany's Dakosy).

What process was followed in setting it up? Was there a pilot project?

To showcase the value and benefits of the DTTN, a Pilot Program was launched in December 2005. Companies with foresight in the trade and logistics industry participated and the results were very encouraging. Following the success of the Pilot Program, the platform was fully launched in 2006.

What kind of training for the staff was required in the establishment and how was it organized?

By observing the guiding principle of minimum intervention to the existing business process, all participating companies are able to make use of the existing in-house IT systems or even Microsoft Excel spreadsheets to connect to the DTTN. Therefore, only minimal training was needed to use the DTTN Portal for information enquiry, reporting and downloading.

How long did it take the facility to become operational?

The facility was designed, developed and the pilot services launched within 15 months.

Services

What services does the SW provide? What documents /information/process are covered?

The DTTN is a neutral, open and secure community platform that enables any company to interconnect easily and quickly with its trade, logistics and finance partners using one single, low cost, digital link and conduct business electronically with increase efficiency and reduced costs.

Generally speaking, DTTN is:

- A Super Electronic Document Conversion Engine, that supports "any-to-any" transformation of data format and communication protocols
- A Mega Electronic Data Store, that stores data online for 2 years and offline for 7 years

- An E-Business Enabler for the Entire Supply Chain, that connects all parties along the supply chain from buyers to forwarders, banks and government

The diagram below demonstrates the core services of the DTTN:



How many transactions per day are handled? What percentage of total transactions?

Being at the early stage of community development, the transactions are growing rapidly.

	2006	2007	2008	2009	2010	2011	2012
Adoption Rate (%)	21.7	23.5	26.7	34.2	46.8	59.4	66.9
Total Document Volume via DTTN	47.5	51.4	58.7	75.2	103	130.7	147.2

The number of transactions per day has been significantly increased more than 1000 in 2009

How many clients does the SW have at the present time?

Amongst the nine key stakeholders, most of our clients are freight forwarders, buyers/sellers and carriers.

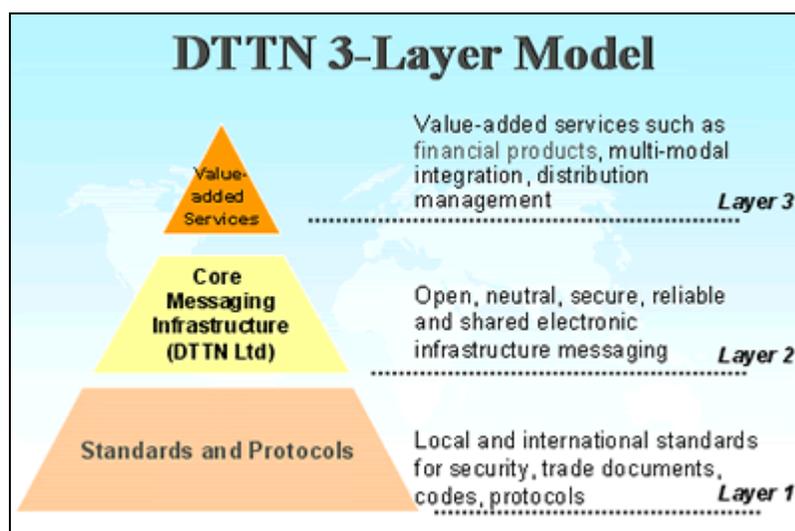
Operational model

How does it work? What is the operational model for the SW (describe the business process model)?

The DTTN is a platform that provides interconnection among the trade, logistics and finance industries to facilitate information flow and enhance efficiency. It will facilitate the Business Process Interconnect (BPI) requirements of industry and provide a platform to promote development of new business opportunities. The existence of a common and shared user platform with defined standards and protocols will attract existing suppliers and spawn the development of new businesses such as logistics software development and value-

added services, which will contribute to economic development.

The DTTN environment can be illustrated as structured into three layers (see below). Layers 1 and 2 are the core elements of the DTTN. They lay the foundation and provide an environment conducive to the continued growth of the third layer; the value-added services. Collectively, layers 1, 2 and 3 form the DTTN.



Who are the main clients?

The DTTN includes nine major communities:

1. Buyers / importers
2. Sellers / exporters
3. Freight forwarders, including third party logistics service providers
4. Carriers (ocean, river, road, rail and air), including express integrators
5. Terminals
6. Government and its agencies
7. Banks and financial institutions
8. Insurance companies
9. Inspection agencies

These industry stakeholders are involved at different stages in the trade chain and they are closely related to one another. The DTTN will co-exist with and complement offerings provided by the various Application Service Providers (ASPs), Internet Service Providers (ISPs), and the global service providers; and it will help to promote further development of e-business in the region to the ultimate benefit of the commercial sectors.

Which public and private agencies are involved in the facility?

In 2004, in order to ensure a neutral and community-focused DTTN operating framework, a corporation was formed between the Digital Trade and Transportation Network Limited (DTTN Ltd), which is jointly owned by Tradelink Electronic Commerce Limited, the HKSAR Government and other industry associations.

DTTN establishes an advisory board which comprised of representatives from different walks of the business community to ensure a level of community participation in the operation of DTTN, transparency of its operation and guide DTTN in the business direction that will offer maximum benefits to its users

Business model

*What is the business model?
How is it financed
(government, private sector,
Private-Public partnership)?*

In March 2009, DTTN becomes a wholly owned subsidiary of Tradelink. As the holding company of DTTN, Tradelink is committed to continue to support, maintain and deliver DTTN service to DTTN's existing and future customers.

What were the costs of establishment of the facility?

Hardware, system and application software licenses, application development and integration, document structure standards development, testing, marketing and promotion.

What was the difference between estimated costs and real costs?

The service was implemented below the planned/budgeted costs.

What are the ongoing operational costs (annual)?

Key ongoing annual costs include staff costs, outsourced operation and support services costs, facilities repair and maintenance.

What are the user fees (if any) and annual revenue? Model of payment (fixed price per year, price per transaction, combination, other model)?

The DTTN document fee is charged in accordance with the usage volume. The charging principle is based on the "Beneficiary Pays" concept, which usually means the beneficiary party is the recipient of the document and, therefore, the recipient will pay.

However, DTTN will also allow the parties of a document exchange to agree who pays. The customer will not be charged for more than HK\$2.50 (US\$0.32) for each document successfully converted and delivered. Further discounts are available. If value-added services from the Application Service Providers are utilized, they may levy charges for their own services, separately or in addition to the DTTN charges.

How will the SW be sustained over the coming years?

Operations of the DTTN Ltd will be sustained primarily by revenue from document fees charged for the document conversion and exchange services.

Do the revenues generated cover operational costs or do they make a profit?

Revenues are intended to provide a small profit to sustain ongoing enhancement of the platform.

Are the revenues (if any) reinvested in the SW? Yes.

Technology

What technology is used? Technically, the DTTN is an HP-UX / Oracle based system with an Axway XIB messaging hub that provides a transformation service and facilitates communication among various trading parties through the exchange of messages conforming to a set of defined and agreed message standards. The DTTN leverages the Internet as the public infrastructure to transfer information from the sender to the recipient.

How are data submitted (electronically – what type of format/language, paper – what forms, combination – what kind of combination)? DTTN supports any-to-any protocol, character set and document transformation. For example, a message submitted using FTP to the DTTN as an EDIFACT formatted document is translated to the DTTN XML structure and then delivered as an email in the recipient's required format such as Excel.

Protocols supported include: FTP/S, HTTP/S, SMTP, S/MIME, AS/1, AS/2, ebMS V2.

Document formats supported include: XML, EDIFACT, ANSI X12, Excel, Flat file, Cargo-IMP, SMS.

Where are data sent and lodged (government or private entity)? The data is sent directly to the intended recipient, which are primarily the commercial business partners of the sender. All data (including documents, messages and audit trails) will be stored online for 2 years in the DTTN servers, and offline for 7 years.

Who can submit data (importer, exporter, agent, customs broker)? All companies in the following sectors who are registered with the DTTN are eligible to use and exchange documents via the DTTN:

- Buyers / importers
- Sellers / exporters
- Freight forwarders including third party logistics service providers
- Carriers (ocean, river, road, rail and air) including express integrators
- Terminals
- Government and its agencies
- Banks and financial institutions
- Insurance companies
- Inspection agencies

Promotion and communication

How did you promote the facility? The marketing and promotional activities currently focus on raising public awareness of this initiative, especially among the trade and logistics players in Hong Kong SAR, China and the Asia Pacific region, utilizing seminars, conferences, exhibitions, advertisements, press releases and media interviews. Normally, most of the marketing events are organized together with the HKSAR Government or related

industry associations.

In addition, we are also organizing customer recruitment events with strategic clients and partners. Normally, these events are tailored for specific needs of different strategic clients or partners.

In order to attract early-movers to join the DTTN, special promotions are offered from time to time to encourage adoption. Interested users may visit our website (see below) for details: <http://www.hk-dttn.com/home/english/home.html>

Recruitment events have been organized as 15 seminars/workshops in 2008 and 6 seminars/workshops in 2009 so far with different strategic partners. Our marketing and promotional activities are continued by utilizing seminars, conferences, exhibitions, advertisements, press releases and media interviews.

How were all stakeholders kept informed about the facility's progress?

The key channels for keeping the stakeholders informed include different briefing sessions, seminars, conferences, and e-newsletters.

What kind of training was provided for users?

On site training tailored for specific needs of different clients are offered.

Do you provide any helpdesk or customer service?

Yes.

Judicial aspects

Is use of the facility obligatory or voluntary?

Use of the DTTN services is voluntary.

Do participants need to sign a contract with provider/agency in order to participate?

Yes.

Was specific legislation (or change of old legislation) necessary?

No. The Electronic Transactions Ordinance is already in place and since the DTTN services are primarily for commercial documents and are voluntary, there is no need for any change to legislation.

How is the privacy of information protected?

DTTN recognizes that “trust” in business is critical, and we are implementing a "trust" framework that utilizes the highest level of security backed by a comprehensive legal framework that is effective for both local and cross-border electronic transactions.

The DTTN provides a security and legal "Trust Framework" that implements the four pillars of electronic trust: authenticity, integrity, confidentiality, and non-repudiation of origin. It allows users of the DTTN community to reliably exchange legally recognized documents.

The technical security implementation primarily utilizes Public Key Infrastructure (PKI) technology to apply message encryption and digital signatures generated using certificates issued by commonly accepted Certification Authorities, such as Digi-Sign Certification Services Limited or Hong Kong Post. It also allows the use of other secure connection technology such as leased lines and secure Virtual Private Networks to ensure authenticity, integrity and confidentiality.

A key part of the Trust Framework is the DTTN user agreement, which accepts the use of electronic documents and digital signatures as being equivalent to their paper counterparts, both for local and cross-border transactions.

In addition, recognizing that different business transactions may require different levels of security, DTTN allows trading partners the flexibility to agree on different security requirements for different types of documents exchanged through the platform.

Standards

What is the role of international standards (UN/EDIFACT, UNLK, UNLOCODE, UN/CEFACT Single Window Recommendation, etc) in your SW?

DTTN flexibly supports a defined set of standards and protocols that facilitates any organization to interconnect with the DTTN as the digital express link to their trade, logistics and finance partners.

This covers standards and protocols for:

Communications and secure messaging protocols: Regarding the common communication protocols, DTTN supports SMTP, HTTP, HTTP/S, FTP, and FTP/S. Regarding the secure messaging protocols, DTTN supports ebMS V2.0 using SMTP or HTTP or HTTP/S, AS/1 using SMTP, and AS/2 using HTTP or HTTP/S.

Document formats: The commonly used business document formats that DTTN supports include: XML Vx.0, UN/EDIFACT, IATA Cargo Interchange Message Procedures (Cargo-IMP), ANSI/X12, Microsoft Excel, Comma-Separated Values File, and Short Messaging System (SMS).

DTTN XML Canonical Document Structures: DTTN has adopted the UN/CEFACT Core Component methodology in defining the document structure standards and has made reference to the Universal Business Language (UBL), which has implemented the Core

Component methodology. While DTTN will use the DTTN standard document structures as the canonical format for the transformation between the sender and recipient formats, it is important to note that DTTN allows an interconnecting party to use whatever format is simplest for them to interconnect with the DTTN, and accordingly, the DTTN supports the use of international document standards (e.g. UN/EDIFACT, ANSI X.12, IATA CargoIMP) and end user specific formats (e.g. XML, MS Excel, CSV) by both the senders and recipients.

Code Sets: DTTN supports both proprietary code sets and internationally recognized/commonly adopted code sets. The DTTN provides facilities for the mapping to be specified between a proprietary code set and any other code set, be it another proprietary code set or an internationally recognized code set.

To ensure the standards adopted or developed are in line with industry requirements and practices, the DTTN Standards Advisory Group (STAG) was established in November 2004. While the STAG may review all aspects of standards and protocols, its primary focus is the review and endorsement of the DTTN XML Canonical Document Structures, which are maintained and developed by DTTN Ltd.

Benefits

What are the benefits to clients and to participating agencies?

Key benefits of the DTTN include but are not limited to:

- Save time and cost for document delivery, e.g. EIR, HWB
- Cut operating costs through reduced delays, double handling/date entry and minimized errors
- Better financial management, e.g. credit, cash flow
- Easy, cheap and fast to interconnect with trading partners
- Any-to-any protocol and document transformation
- Retain existing business against competition
- More timely, accurate and value-added services
- Significant business and efficiency opportunities
- “Just in time” supply chain management
- E-access to more trading partners
- Facilitate supply chain collaboration

How did it benefit the trading community and the Government?

Improved operational efficiency: The DTTN will improve the overall effectiveness and efficiency of the industry. Significant savings in terms of the reduction of paperwork, process time, and time spent in data re-keying will be realized. With assistance and input from the key

industry representatives, the project team has conservatively estimated that the annual savings from operational efficiency improvement to the industry will be around HK\$1.3 billion (approx. US\$167 million) per annum.

Enable new business opportunities: The DTTN will strengthen Hong Kong SAR's capabilities in attracting foreign direct investment to establish value-added service businesses. The service offerings from value-added service providers are dependent on timely and seamless information flow across transportation modes and trade chain participants. The DTTN will provide an infrastructure to enable these service providers to make the best use of their physical assets and resources. The local IT industry will benefit from the DTTN, as it will generate new demand for software and professional services. The DTTN will create an environment that will stimulate the development of the logistics and supply chain software sector and accelerate the transition of Hong Kong SAR to a knowledge-based economy. Many additional spin-off benefits including increased employment will result from the new business opportunities enabled by the DTTN across multiple trade business sectors.

Compete on value, not just cost: With China's accession to the World Trade Organization (WTO) and the mushrooming of lower cost logistics service options in China, the Hong Kong SAR trade and logistics industry is expected to transform into a league of premium service leaders offering high quality, value-added services rather than merely competing on cost. Efficient information flow is seen as the key. The provision of a neutral and secure infrastructure as envisaged for the DTTN will be a critical service enabler and market differentiator.

Integration with global initiatives: The DTTN will be a common tool for Hong Kong SAR to leverage in rapidly addressing changes in the global logistics industry and meeting the requirements of global trade initiatives. Such a common information infrastructure in Hong Kong SAR will facilitate compliance with changes of this type in a timely fashion, and more importantly, reduce the social cost since change can be negotiated, managed and implemented as a sector.

Integration with Mainland China: The DTTN can lead change. By helping Hong Kong SAR lead the development of the Pearl River Delta regional economy through the use of the DTTN as an anchor to secure market position and facilitate integration in the areas of logistics and supply chain management. The DTTN can become the de-facto standard for other emerging initiatives in Mainland China. Compatibility between Hong Kong SAR and Mainland Chinese e-commerce infrastructures will be essential. With this common and neutral information infrastructure in place, Hong Kong SAR businesses can leverage the DTTN to provide logistics services to the Mainland Chinese market.

"Hong Kong International E-Commerce Service Platform . Tradelink Portal" (<http://hk.trade2cn.com/>), jointly developed by Tradelink and

China International Electronic Commerce Center (CIECC) of the Ministry of Commerce, PRC was officially launched on 28 August 2009. This portal is a new member of www.trade2cn.com which is the only national and authoritative trusted e-Commerce platform in China. It aims to provide international secure, trusted and real-time business matching and e-Commerce services for enterprises in Hong Kong and the Mainland for promoting e-Commerce development across boundaries.

With its wealth of experience as a pioneer in the electronic service, Tradelink has incorporated its popular DTTN (Digital Trade and Transportation Network) functions in Trade2CN enabling sellers and buyers to stay online to continue execution electronic commercial documents after business matching. From that, it will be a simple step to embrace the full range of e-Commerce transactions with all stakeholders along the supply chain.

Induce changes to improve IT literacy of the industry: The DTTN will change the way in which local businesses operate, and induce continuous improvement in the standard of IT literacy of the existing workforce. The consequences will be of particular relevance to SMEs. Traditional processes in the current paper-centric SME environment have effectively discounted the drive for change and made them unprepared for the demands of electronic transactions that are now being mandated in international trade.

The DTTN can help to provide good business reasons, benefits and a persuasive argument for SMEs to adopt new and more efficient business practices. The need to achieve incremental growth in the use of IT and e-commerce is seen as a critical factor if the overall competitiveness of Hong Kong SAR is to be significantly improved.

Improve Hong Kong SAR's image: Complementing "Digital 21", the Government's e-Government blueprint, the establishment of the DTTN will unequivocally deliver a positive and assertive message to the public and the international business community that Hong Kong SAR is committed to harnessing the benefits of IT. Hong Kong SAR can promote e-commerce for global logistics as part of a clear strategy to be the leader in the adoption of IT in a cyber world.

Shield the industry from frequent upgrades: The DTTN will enable significant efficiency gains across the entire trade and logistics sectors by centralizing, consolidating and managing around a defined set of standards and protocols for both technology and messaging. A centrally managed DTTN can effectively shield stakeholders in the trade and logistics sector from the effects of frequent upgrades in standards and protocols, and thereby reduce the in-house resources required.

What was the impact on Customs revenues?

Since the DTTN is basically a Business-to-Business (B2B) communication platform, no impact is expected on the Customs revenues.

What problems did it solve? The tremendous efforts wasted and the efficiency lost in data re-capturing and error checking activities along the supply chain.

Lessons learned

What were the crucial success factors? In order to ensure successful implementation and community adoption, the DTTN will be developed and operated in accordance with seven overarching principles, which are considered crucial to the development of a critical mass of users:

Neutrality: The DTTN provides a level-playing field for all stakeholders without undue bias towards particular players or industry sectors.

Non-exclusivity: DTTN provides fair access to all industry stakeholders without discrimination, and does not preclude some segments of stakeholders from using the DTTN.

Transparent, accountable, and responsible operations: DTTN is subject to strict scrutiny and control regarding its transparency, accountability and responsibility for its operations. Transactions involving confidential and mission critical information will not be misused in any way.

Minimum intervention to internal business process and client relationships: DTTN recognizes that each industry stakeholder has its own way of conducting business and of interacting with business partners. DTTN will only provide data interchange capabilities and will not require organizations to change their business processes or customer relationships just to make use of the DTTN.

Facilitate and respect market force: The DTTN is an infrastructure to facilitate or complement businesses and will not compete with other existing private sector initiatives over the provision of value-added services. DTTN will only offer value-added services when there are industry needs that cannot be satisfactorily fulfilled by the commercial market, and that non-fulfilment may lead to adverse impact on the DTTN community as a whole.

Easy to access and use: The design of the DTTN is user-friendly, intuitive and participant centric.

Improve overall competitiveness of Hong Kong SAR: By providing a low cost community infrastructure that helps improve efficiency, the DTTN can help the overall competitiveness of the trade and logistics industry in Hong Kong SAR.

What were the greatest challenges? To educate the clients on the benefits of the DTTN and to create the critical mass of users.

What are the main lessons In order to satisfy the demands of the customers, DTTN continues to

learned?

develop and provide value-adding services or applications by ourselves or working closely with partners

Future plans

What are the plans for further development of the SW?

To expand regional and global interconnections and extend the business scope of DTTN outside of Hong Kong

What are the biggest obstacles to further development of the SW?

Acceptance by overseas countries of electronic documents originating in another country, for customs clearance and payment settlement.

Do you intend to make agreements concerning SW cooperation on the regional level?

Yes. The Pan-Asian E-Commerce Alliance has been established with this in mind and it is intended to expand such initiatives. We are continuing to actively explore opportunities to interconnect with the other SW initiatives in China, Europe and North America.

"Hong Kong International E-Commerce Service Platform . Tradelink Portal" (<http://hk.trade2cn.com/>), jointly developed by Tradelink and China International Electronic Commerce Center (CIECC) of the Ministry of Commerce, PRC being launched on August 2009 is one of good SW initiative in China

Are you planning to have agreements for exchange of data with SW running in other countries?

Yes. The Pan-Asian E-Commerce Alliance has been established with this in mind and it continues to expand more initiatives.

Source for further information

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www.hk-dtt.com

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