

**For discussion
on 28 July 2003**

Legislative Council Panel on Economic Services

**Progress in Development of
the Digital Trade and Transportation Network System**

PURPOSE

This paper updates members on the progress in the development of the Digital Trade and Transportation Network (DTTN) System.

BACKGROUND

2. In end 2000, the then Port and Maritime Board commissioned McClier Corporation to conduct a study to Strengthen Hong Kong's Role as the Preferred International and Regional Transportation and Logistics Hub. Completed in September 2001, the study report ("the McClier Report") identified a number of projects and initiatives which could gain immediate benefits and help maintain Hong Kong's competitiveness as a transportation and logistics hub in the region. It also recommended an institutional setup for promoting logistics development in Hong Kong. On the cyber infrastructure, the McClier Report noted that one of our weaknesses was the lack of an integrated IT platform which enabled interface between players in the supply chain. It recommended that an electronic architecture in the form of a DTTN should be developed to overcome the digital gap in the supply chain, and to facilitate speedy and reliable exchange of information and data between logistics players.

3. Established in late 2001, the Hong Kong Logistics Development Council (LOGSCOUNCIL) set up five project groups to focus on priority areas. The proposal to develop a DTTN system has been referred to the E-logistics Project Group, which advises on measures to improve our logistics cyber infrastructure. To further develop the conceptual framework of the DTTN as described in the McClier Report, Accenture Company Limited ("Accenture") was commissioned in June 2002 to conduct the Study on the Development of the DTTN System to support the development of Hong Kong as an international logistics hub. The consultants were tasked to assess the existing state of e-readiness and level

of IT sophistication of the logistics industry, identify the existing applicable IT standards and protocols in the industry, develop the architectural design of the potential DTTN system and establish its value/benefits to industry participants and stakeholders.

THE DTTN REPORT FINDINGS

4. Accenture completed the study and submitted the final report (“the DTTN Report) in November 2002. The Executive Summary of the final report is at Annex A.

Roles of the DTTN System

5. Accenture confirmed the strategic importance of establishing the DTTN system so as to enhance the overall competitiveness of the local logistics industry. The DTTN Report suggested that the DTTN system should play three major roles -

- (a) to offer a neutral e-platform to facilitate information flow and service integration both in the region (including the Pearl River Delta region) and globally;
- (b) to provide a stable and reliable environment and a technology platform for the exploration, development and delivery of innovative value-added services; and
- (c) to act as a catalyst to promote electronic business adoption, especially by small and medium-sized enterprises (SMEs).

Critical Success Factors

6. The DTTN Report suggested that to ensure success of the DTTN system, the following issues must be addressed -

- (a) compliance with the following guiding principles -
 - (i) ***improving the overall competitiveness of Hong Kong*** - contributes to enhancing efficiency and effectiveness, and provides an infrastructure to enable new business opportunities;

- (ii) ***neutrality*** - provides a level-playing field for all stakeholders, and be perceived by them as free from real or potential conflict of interests or sector influence;
 - (iii) ***non-exclusivity*** – provides fair access to all stakeholders without discrimination;
 - (iv) ***transparent, accountable, and responsible operation*** – its operation should be subject to strict scrutiny and control
 - (v) ***minimum intervention to internal business process and client relationship*** – flexible enough to allow participants to leverage the information infrastructure according to their own business practices;
 - (vi) ***facilitates and respects market force*** – acts as a neutral facilitator for market forces to develop business opportunities; and
 - (vii) ***easy to access and use*** – adopts a user-friendly design with multiple low cost choices of simple access channels;
- (b) industry acceptance of the DTTN system; and
 - (c) active involvement and participation of SMEs in the DTTN system.

Timeline, Cost and Benefits

7. The DTTN report estimated that it would take about three years to develop the DTTN system. Assuming that the DTTN system will be developed from scratch, the estimated total direct investment in the development and operation of the DTTN system over a 17-year period was approximately HK\$3 billion, with an estimated tangible benefit to the industry over the same period of approximately HK\$11.8 billion. Major benefits to be delivered by the DTTN system included -

- (a) improvement in the overall effectiveness and efficiency of the logistics industry;
- (b) enabling new business opportunities for service providers to provide value-added services;

- (c) allowing Hong Kong logistics industry to compete as premium service leaders on high quality value-added services rather than merely competing on cost;
- (d) providing a common tool to integrate with global trade initiatives and, in particular, to integrate with mainland China; and
- (e) improving IT literacy of the industry, especially the SMEs.

LOGSCOUNCIL'S VIEWS ON THE DTTN REPORT FINDINGS

8. LOGSCOUNCIL discussed the DTTN Report at the meeting in January 2003. Members agreed that it would be important to bring the DTTN system quickly to the market to enhance Hong Kong's competitive edge. They also recognised that adherence to the guiding principles including neutrality, non-exclusivity and transparency would be essential in securing support and acceptance by the industry. Whilst noting the estimated benefits of the DTTN system and its strategic importance in enhancing the competitiveness of the logistics industry, members considered that the estimated cost was very high and the time required for implementing the system was prohibitively long. Since time would be of essence in taking forward the DTTN initiative, LOGSCOUNCIL recommended that ways be explored to jump start the system in collaboration with the private sector.

9. The Administration fully accepted the recommendation of LOGSCOUNCIL.

FOLLOW UP ACTION: INVITATION OF PROPOSALS

Invitation of Proposals

10. The DTTN Report was uploaded on to the LOGSCOUNCIL website immediately after the January meeting. Since then, several potential service providers have approached LOGSCOUNCIL Secretariat to indicate interest in developing the DTTN system.

11. To facilitate early implementation of the DTTN system, the E-logistics Project Group openly invited interested parties to submit proposals by 30 April 2003. As stated in the relevant press release ([Annex B](#)), a general guideline on what should be included in a proposal ([Annex C](#)) was made available from the LOGSCOUNCIL website.

12. In light of the principle of non-exclusivity, no exclusive right or franchise would be granted for developing and operating a DTTN system. Proposals were drawn through an open invitation, which was *not* a tender exercise. Three proposals were received at the end of the invitation period.

Managing Possible Conflict of Interests

13. LOGSCOUNCIL adopts a one-tier system for declaration of interests to ensure the impartiality of advice tendered by members. Under this system, members are required to disclose their interests when they consider that there is a potential conflict of interest in a matter placed before them for deliberation. In view of the competitive nature of the three DTTN proposals and the need to ensure fairness and transparency in the assessment process, members of the E-logistics Project Group and its Assessment Panel for evaluating the DTTN proposals were invited to declare interest in writing prior to meetings. Members with real or potential conflict of interests were not provided with the relevant discussion papers and were advised to withdraw from meetings. The same arrangement also applied to LOGSCOUNCIL members when the matter was put before the full Council for consideration.

The Assessment Process and Outcome

14. The three proponents were each offered an opportunity to present their proposal to the E-logistics Project Group. They were then allowed seven days after the presentation to revise their proposal as necessary to address issues raised by members of the Project Group.

15. The Project Group set up an Assessment Panel consisting of members with no conflict of interest to evaluate the proposals in the light of the guiding principles, standards and requirements enshrined in the DTTN Report. It also formed a Technical Subgroup to advise the Panel on the technical aspects of the proposals.

16. After careful and thorough consideration, the Assessment Panel considered that the proposal from Tradelink Electronic Commerce Ltd (“Tradelink”) was the closest available one to the blueprint envisaged in the DTTN Report in terms of compliance with the guiding principles, service coverage and technical standards. However, in order to achieve an even higher level of compliance, members considered that Tradelink would need to further improve its proposal to ensure neutrality and to clarify its commitments in a few technical aspects, namely the scope of service,

supported message format, data inheritance and project implementation approach and timetable.

E-LOGISTICS PROJECT GROUP RECOMMENDATIONS

17. In early July 2003, the E-logistics Project Group accepted the findings of the Assessment Panel on the three proposals, and recommended that -

- (a) LOGSCOUNCIL should recommend the Government to jump start the project and enter into discussion with Tradelink immediately with a view to concluding an operating agreement with the company as a DTTN service provider. The Government should also ask Tradelink to further improve its proposal to meet the proclaimed principles, standards and requirements as far as practicable. The Government should report the result of the discussion with Tradelink to LOGSCOUNCIL.
- (b) The other two proponents should be informed by LOGSCOUNCIL Secretariat that their respective proposals have been carefully considered and are found to have fallen short in certain areas against the DTTN blueprint. While LOGSCOUNCIL will not recommend their respective proposals in their present form to the Government, there is no exclusive right to build and operate a DTTN system. The two proponents are at liberty to revise their respective proposals and put them to LOGSCOUNCIL for further consideration.
- (c) Subject to LOGSCOUNCIL's acceptance of (a) and (b) above, the E-logistics Project Group should continue to act as the conduit for industry participation in shaping the DTTN, and form a panel to advise the Government in the course of the discussion with Tradelink.

LOGSCOUNCIL DELIBERATION

18. At the meeting on 15 July 2003, LOGSCOUNCIL considered and accepted the recommendations of the E-logistics Project Group as detailed in paragraph 17 above. Members also suggested that the other two proponents should be advised of the specific areas in which their proposals had been found to be inadequate.

THE WAY FORWARD

19. Industry participation in and acceptance of the DTTN system are imperative in ensuring its success. The Administration has therefore accepted the recommendations of LOGSCOUNCIL as an industry-specific advisory body, and will soon enter into discussion with Tradelink. The E-logistics Project Group will form a panel to provide advice in the course of the discussion. We will report the progress and outcome of the discussion with Tradelink to LOGSCOUNCIL and when ready, to the Economic Services Panel.

*Economic Development and Labour Bureau
21 July 2003*



**Port, Maritime and Logistics Development Unit
Economic Development and Labour Bureau
The Government of the Hong Kong Special Administrative Region**

**Study for the Development of a Digital Trade and Transportation
Network (DTTN) System to Support the Development of
Hong Kong as an International Logistics Hub**

Executive Summary

20 November 2002



1 Executive summary

1.1 Why is a Digital Trade and Transportation Network necessary?

1.1.1 Background

"With Hong Kong's excellent transportation facilities and the Pearl River Delta (PRD)'s high productivity, together we can develop into a logistics hub to link the Mainland with the world. We can promote the development of an inter-modal system and consider other supporting facilities to speed up the flow of goods and information. The provision of integrated services will also strengthen Hong Kong's competitive advantages as a supply-chain base."

The 2001 Policy Address

The policy objective of the Government of the Hong Kong Special Administrative Region (the Government) is to strengthen the role of Hong Kong as the preferred international and regional transportation and logistics hub. The Hong Kong Logistics Development Council (LOGSCOUNCIL) was established in December 2001 to provide a forum for private and public sectors to exchange views and take forward joint initiatives to promote and strengthen logistics development in Hong Kong.

The McCluer Report was commissioned by the Hong Kong Port and Maritime Board in December 2000 and was completed in 2001. This called for the creation of a "Digital Trade and Transportation Network" (DTTN) to reduce inefficiencies arising from the "digital gap" and to facilitate data sharing amongst the trade and logistics industry stakeholders. The DTTN implementation was subsequently identified as one of the top priority initiatives of the Government.

To take forward this initiative, the Port, Maritime and Logistics Development Unit (PMLDU) of the Economic Development and Labour Bureau commissioned a study to determine and recommend the options for developing the DTTN program that would enhance and facilitate data sharing and exchange amongst the existing and new communities in the supply chain industry. Specifically, the study was required to:

- Develop a functional and technical blueprint of the DTTN
- Recommend the standards and protocols to be supported by the DTTN
- Estimate the baseline cost to develop and operate the DTTN
- Determine the options for the ownership, management and governance structures of the DTTN

During this study, over 100 meetings, workshops and interviews were conducted with the key industry representatives to solicit their views and obtain their inputs on the potential business and technical needs, institutional framework, business and social benefits of the future system. The following sections summarise the findings and recommendations derived from this study.



1.1.2 Roles of the DTTN

With the key social objective established as being the need to enhance the overall competitiveness of the logistics industry in Hong Kong, the DTTN must play three major roles:

- ❑ ***To offer a neutral e-platform to facilitate information flow and service integration both in the region (especially with the PRD) and globally – making HK the e-logistics hub of choice.*** The DTTN as a secure and neutrally operated low cost common infrastructure can act as a conduit to streamline and automate data communications among the many players in the trade and logistics community both locally and internationally and so significantly improve the flow of both goods and information. The DTTN, when supported by both public and private organisations, can also facilitate the compliance of local businesses with overseas regulatory requirements. Having the DTTN as the focal point of logistics communication policy and global connectivity will ensure that changes in regulatory requirements and the effects of international trade initiatives can be more easily accommodated centrally with minimal compliance cost at the Small and Medium Enterprise (SME) business and social level.
- ❑ ***To provide a stable and reliable environment and a state of the art technology platform for the exploration, development and delivery of innovative value-added services.*** The DTTN can facilitate the provision of an open shared common electronic infrastructure to enable the development of services to improve the competitiveness of players in the trade and logistics community. Being the market enabler, DTTN is not intended to replace or compete with the private sector or existing service providers but can rationalise the technology directions and ensure the provision of a shared user infrastructure to enable cost-effective electronic business-to-business interoperability. The DTTN will complement the business and Information Technology (IT) environment of Hong Kong to increase the efficiency of the processes and thus improve the flow of goods and information. The DTTN can effectively increase the scale of the market available to the trade and logistics industry in Hong Kong by the provision of a globally recognised communications infrastructure.
- ❑ ***Catalyst to promote electronic business adoption, especially by SMEs.*** The marketing of the benefits and the associated efforts to manage the adoption of the DTTN will serve as a catalyst for the trade and logistics community, especially SMEs, to adopt information technology and take up electronic commerce to improve the overall competitiveness of the logistics industry and of Hong Kong. Education, training, general technology awareness programs, implementation assistance, and incentive schemes have all been identified as potential benefits to the SME sector.

1.1.3 Benefits

The need for rapid development of the DTTN concept into a practical solution has been voiced repeatedly and unequivocally by the industry in the various E-logistics Project Group meetings and during the many interviews conducted as part of this study. The key benefits that will be delivered by the DTTN include:

- ❑ ***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 realised. 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 per annum.



- ❑ **Enable new business opportunities.** The DTTN will strengthen Hong Kong'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 which will stimulate the development of the logistics and supply chain software sector and accelerate the transition of Hong Kong to a knowledge-based economy. As indicated by the E-logistics Project Group members, many software development companies in Hong Kong are eagerly awaiting the DTTN implementation so that they can provide value-added applications on top of this infrastructure.

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 World Trade Organisation (WTO) and the mushrooming of lower cost logistics service options in China, the Hong Kong 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 to leverage in order to rapidly address changes in the global logistics industry and to meet the requirements of global trade initiatives. Such a common information infrastructure in Hong Kong 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 lead the development of the PRD 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 and Mainland Chinese e-commerce infrastructures will be essential. With this common and neutral information infrastructure in place, Hong Kong businesses can leverage the DTTN to provide logistics services to the Mainland Chinese market.
- ❑ **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. For example, use of the DTTN will offer a simple low cost means to extend their business reach and improve effectiveness and efficiency through the use of e-commerce in a global market. 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 is to be significantly improved.
- ❑ **Response to competitive challenge.** The concept of the DTTN is not unique to Hong Kong. Some neighbouring competitive economies (e.g., Mainland China, Singapore, etc.) have plans to



implement, or have already implemented to various degrees, similar e-logistics infrastructures designed to maintain or enhance their competitive advantages and to reap potential benefits associated with improvement in operational efficiency. These developments leave little time margin for Hong Kong to hesitate about implementing the DTTN program.

- **Improve Hong Kong'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 is committed to harnessing the benefits of IT. Hong Kong 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 centralising, 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.

1.2 What is the DTTN?

1.2.1 Objectives and scope

The DTTN is a platform that provides interconnection among the industry stakeholders and related community systems 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 including logistics software development, value added services etc., which will contribute to the development of the Hong Kong economy and create employment.

The scope of the DTTN will include 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, and (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 service providers and existing community systems operating in Hong Kong. The DTTN is also not seen as a competitor to the commercial Application Service Providers (ASPs) or Internet Service Providers (ISPs), or of the global network providers since it will lead to a greater take up of e-commerce techniques in the region to the ultimate benefit of the commercial sectors.

As a result of this study, a set of overarching principles have been identified and discussed with the Project Steering Committee and the E-logistics Project Group to guide the development approach for the creation of a DTTN for Hong Kong.

1. **Improve overall competitiveness of Hong Kong.** The DTTN should improve the overall competitiveness of the trade and logistics industry in Hong Kong. This should be in the form of improved efficiencies and effectiveness, and provide an infrastructure to enable new business



opportunities. This objective can be facilitated by the provision of an effective and common low cost communications infrastructure.

2. **Neutrality.** The DTTN should be perceived by all the DTTN stakeholders as a neutral platform for its services to be performed. Neutrality in this context refers to the intention and ability of an entity to provide a level-playing field for all stakeholders without undue bias towards any particular players. The entity must therefore be perceived by the stakeholders as free from real or potential conflict of interest or sector influence.
3. **Non-exclusivity.** The DTTN should provide fair access to all relevant stakeholders without discrimination.
4. **Transparent, accountable, and responsible operations.** As the DTTN will be handling commercially sensitive information; it should be subject to the strictest scrutiny and control to ensure integrity, transparency, accountability and open responsibility for its operations.
5. **Minimum intervention to internal business process and client relationship.** The DTTN should not in any way alter or dictate the industry players' internal processes and/ or customer relationships. The DTTN should be flexible enough to allow participants to leverage the information infrastructure at any point of the document/ data/ trade flow, according to their own business practices.
6. **Facilitate and respect market force.** The minimum intervention policy in business that has long been adopted by the HKSAR Government should continue to be observed. The DTTN should act as the neutral facilitator for market forces to develop business opportunities.
7. **Easy to access and use.** The design of the DTTN should be user-friendly, intuitive and participant centric. Multiple low cost choices of simple access channels should be provided to facilitate local and global communications for SMEs and larger corporations alike.

1.2.2 The DTTN model

The DTTN environment can be illustrated as structured into three layers as shown in Figure 1-1. Layers 1 and 2 are the core elements of the DTTN. They lay the foundation of the DTTN and provide a conducive environment for the continued growth of the third layer – the value added services. Collectively, layers 1, 2 and 3 form the DTTN.

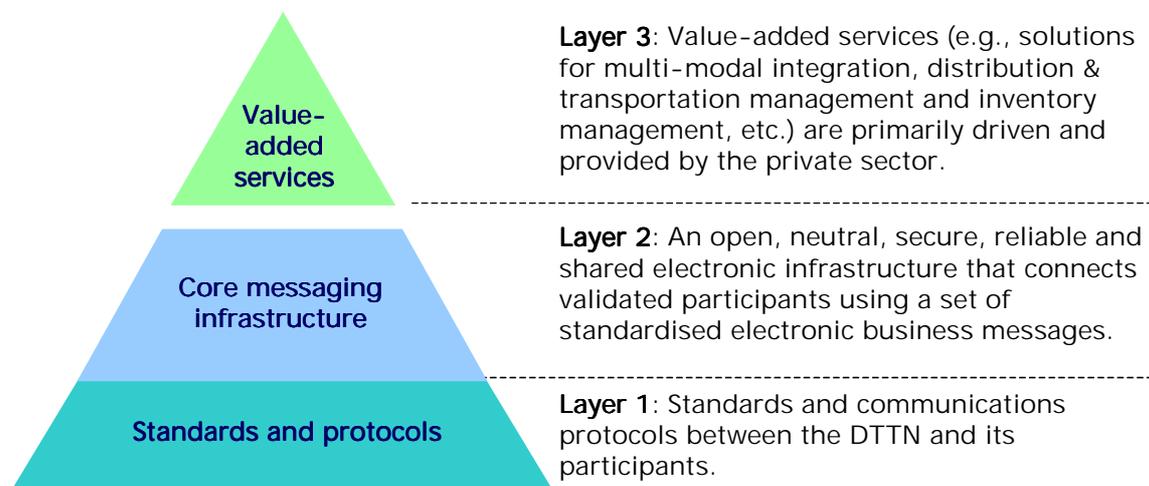




Figure 1-1 Three-layer model of the DTTN

- ❑ **Layer 1 - Standards and protocols.** The core foundation of the DTTN lies in a defined but flexible set of standards and protocols that the DTTN will support. This will cover the standards and protocols in different areas (e.g., message standards, coding standards, security standards, communications protocols, etc.), and will form the basis for the messaging infrastructure in the layers above. Rather than being exclusive, the DTTN will support a wide range of locally and internationally recognised “open” standards and protocols, as inclusive as practicable.
- ❑ **Layer 2 - Core messaging infrastructure.** An open, neutral, secure, reliable, accessible and shared electronic infrastructure that connects validated participants to facilitate BPI using a set of agreed electronic business message standards and communications protocols.
- ❑ **Layer 3 - Value-added services.** The end – user service layer that will represent the interface for communication with existing and further development of third party services to users of the DTTN. Layers 1 and 2 are the DTTN basic common user functions that will provide a conducive environment for the continued growth of layer 3, that is driven and provided by the private sector.

1.2.3 Functional blueprint

Any industry stakeholder with appropriate means (i.e., Web browser, system gateways and an e-mail application) can interface with the DTTN, either directly or indirectly. The industry can leverage the DTTN to explore business opportunities and develop new service offerings. The DTTN is an industry wide infrastructure that allows businesses to communicate electronically to support trade and logistics transactions. It is envisaged that the DTTN will support this objective through the provision of six services:

- ❑ **Electronic message routing services** – facilitates communication among stakeholders by routing business messages and provides guaranteed delivery. For example, this includes the routing of payment instructions and payment confirmations among financial institutions, payers and payees for the settlement of trade related services.
- ❑ **Data inheritance services** – supports both inter- and intra- company data inheritance. Participants can choose to reuse relevant business data wherever appropriate along the end-to-end trade and logistics business processes. Inter-company data inheritance is supported through electronic message routing and transformation services.
- ❑ **Electronic message transformation services** – supports the transformation of commonly adopted message formats and character encoding from one standard to another such that the implementation and maintenance costs for individual companies are minimised. This is the “any to any” function where a message can be received by the DTTN as, for example, an Electronic Data Interchange (EDI) transmission in a particular standard, translated or converted to another standard, and delivered to the recipients choice of media as a Fax, EDI message, e-mail attachment etc.
- ❑ **Information security services** – provides a secure communication environment such that participants will have mutual confidence. Messages sent through the DTTN can be encrypted



and authenticated to ensure the confidentiality, integrity and non-repudiation of the messaging services.

- ❑ **Statistical and analytical reporting services** – supports the reporting requirements (e.g., transaction log with audit information such as time of sending, recipients, status of the message) at both individual company level and macro level with proper privacy control.
- ❑ **Portal services**
 - *Message management* – provides a Web-based graphical user interface for participants to construct, send, receive and re-use their business messages in an interactive manner.
 - *User profile management* – provides a set of administrative tools for participants to manage their own accounts and profile information stored in the DTTN.
 - *Single sign-on* – supports single sign-on capability such that participants can acquire services from multiple service providers by signing-on only once in the DTTN.
 - *Access to value-added services* – allows participants to invoke services offered by service providers or other participants via the DTTN portal.

The functional blueprint of the DTTN is depicted in Figure 1-2 below.

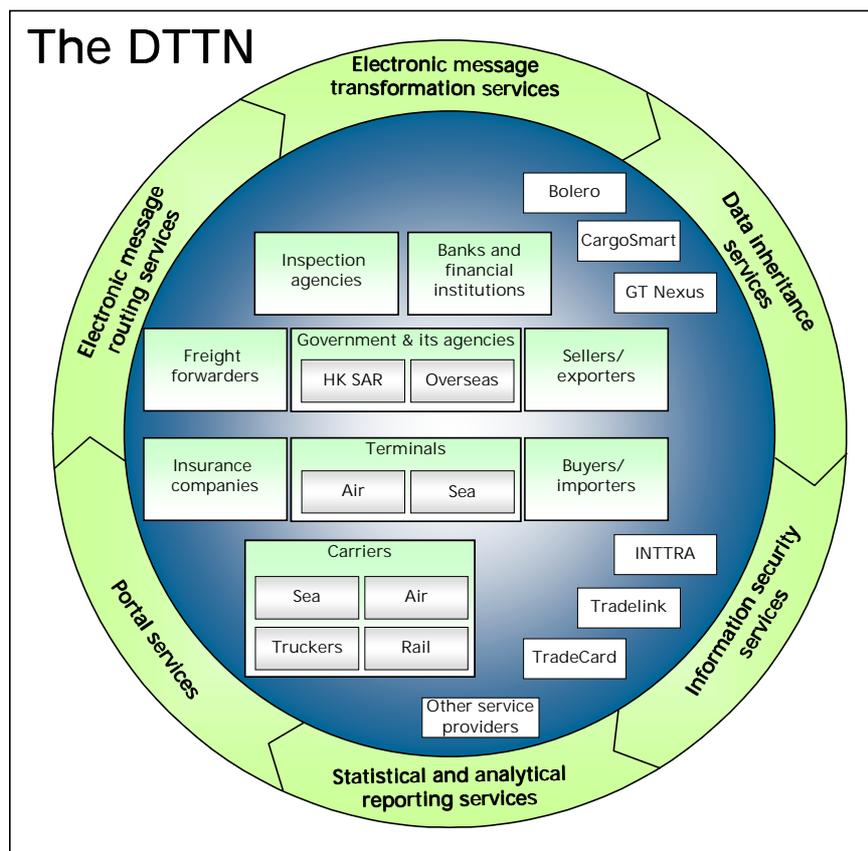


Figure 1-2 Functional blueprint of the DTTN

In addition to those communities and businesses involved in the trade and logistics processes, service providers will also be key stakeholders of the DTTN. Generally, service providers offer



software solutions and services which assist customers to achieve better efficiency and effectiveness in their supply chain and logistics operation, as well as better integration with their business partners along the supply chain or trade flow. Third party service provision is a vital component of the DTTN model. The DTTN provides a flexible, neutral and open infrastructure to enable service providers to further extend their offerings and deliver additional value added services. Service providers will enjoy benefits from the DTTN in a number of ways:

- ❑ By reducing infrastructure cost to deliver their services
- ❑ By extending their business reach in terms of customers and business partners
- ❑ By improving speed to market for their value-added offerings
- ❑ By focusing resources on the development and delivery of value-added services

Historically, messaging services were provided in closed and proprietary environments as Value Added Network (VAN) services usually associated with traditional EDI (store and forward) methods of conducting e-commerce. Since the emergence of the Internet, many service providers are now delivering their messaging services as “point to point” communications. These are offered together with other value added services delivered over the Internet as ASPs or ISPs. Since there is no network processing cost this latter form of Internet communications is significantly less expensive than the traditional VAN. However, since the DTTN can be accessed from a VAN or any ISP and can offer access to an ASP it can offer an alternative communications channel for these service providers. DTTN will offer non-exclusive access to a valuable community of users that will generate a competitive market for all service providers.

1.2.4 Technical blueprint

The technical blueprint for the DTTN design is characterised by the following attributes:

- ❑ **Componentised and modular.** The model technical architecture for the DTTN has been developed based on a modular and componentised architecture to protect investment, allow more technology choices, facilitate upgrades, and improve scalability.
- ❑ **Robust, secure and reliable.** The proposed DTTN architecture balances proven technology options and new, emerging technologies. Security, reliability, high availability and other critical features (e.g., guaranteed delivery, non-repudiation, etc.) of the messaging infrastructure were taken into account in the architectural development.
- ❑ **Open and accessible.** The architecture will support multiple standards and protocols in different areas (e.g., multiple message standards, multiple coding standards, etc.), and provide flexibility to accommodate convergence over time. To broaden usage and encourage adoption, multiple channels and open access mechanisms were emphasised. The details of the connectivity module of the DTTN will be open and published to encourage the integration and development of other value-added services for the DTTN.

Technically, the DTTN is a messaging hub that provides a transformation service and facilitates the communication among various trading parties through the exchange of messages conforming to a set of defined and agreed message standards. As illustrated in Figure 1-3, the DTTN leverages the Internet as the public network infrastructure to transfer information from the sender to the recipient.

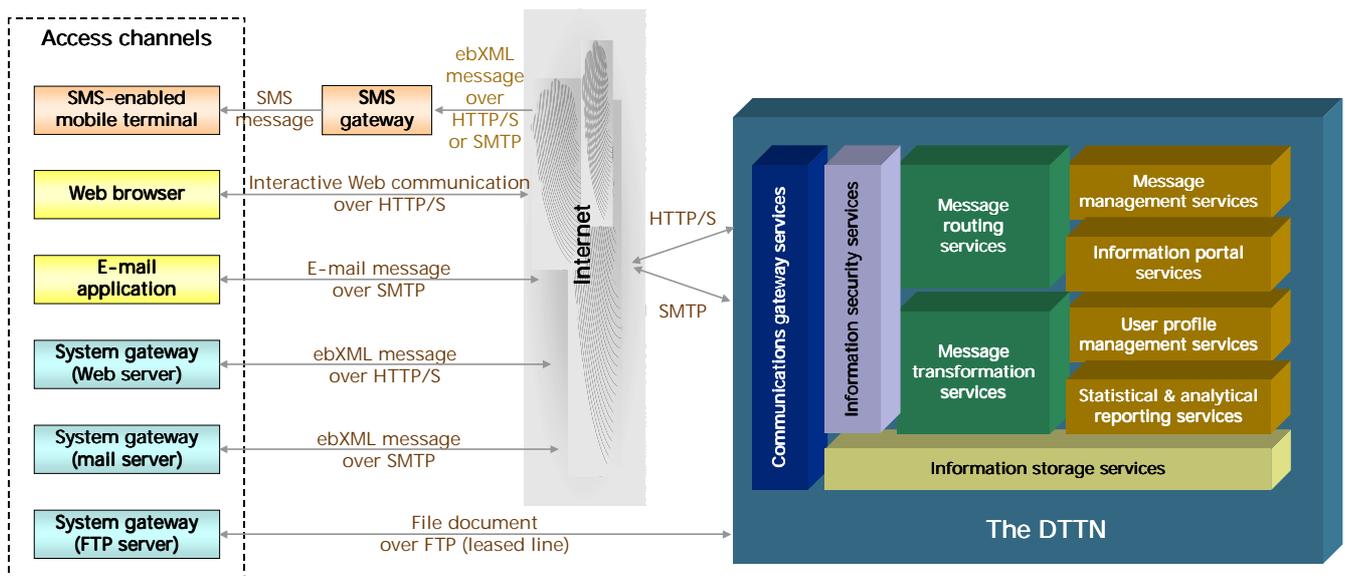


Figure 1-3 Overview of the DTTN architecture

1.3 Summary of institutional framework

DTTN should be considered in the light of effective use of public resources against the Policy Statements that show the development of the Logistics Sector infrastructure as high priority for Hong Kong. A key consideration for the DTTN has been the definition of the options for the institutional governance models for effective neutral delivery of services to the industry. Three potential institutional models were considered for the establishment, funding, and ownership of the DTTN:

- An entity entirely owned by commercial operators
- A community-based company that may have Government as one of the stakeholders
- A government-led model. This model can be implemented through either:
 - A new statutory body owned by the Government
 - A private company fully or partially owned by the Government initially but may be hived off to the private sector when circumstances permit
 - A public corporation established by the Government to provide public services, either through transfer of assets or injection of equity

An analysis of the various options was conducted taking into account the results of a Strength, Weakness, Opportunities and Threats (SWOT) analysis, the confirmed guiding principles for the DTTN, and the experience of overseas operations. It was suggested that any of the institutional models considered would work for the DTTN if they can satisfactorily address the identified weaknesses through appropriate means, as discussed below.



1.3.1 A commercial entity

- ❑ If a viable commercial entity can achieve a balance between the aims of maximising its shareholder value through profit and improving the overall competitiveness of Hong Kong and that entity is perceived by the industry stakeholders as neutral and non-exclusive, then the commercial entity can be a viable option.
 - Neutrality in this context refers to the intention and ability of a commercial entity to provide a level playing field for all industry stakeholders without undue bias towards a particular sector. This entity must therefore be perceived by all stakeholders as free from real or potential conflict of interest which would otherwise compromise the stakeholders' interests.
 - Non-exclusivity relates to the provision of fair access to all stakeholders. This implies that no means or measures should be used by the DTTN's operator to preclude particular groups of customers from using the DTTN in practice, and thereby create undue competitive advantage for some stakeholders.

1.3.2 A community-based company

- ❑ This model is a proven model adopted for similar initiatives overseas (e.g., Australia's Tradegate, the U.K.'s Felixstowe Cargo Processing System (FCPS)/ Destin8).
- ❑ This model is predicated on gaining wide ranging industry support to the agreed solution. To achieve this will require strong neutral leadership with perceived neutrality to drive the DTTN program. This is a particularly important factor to be considered for the extremely fragmented logistics industry in Hong Kong that is largely an SME domain.
- ❑ Funding is a key concern for this institutional model. SMEs, are the largest sector, weakest financially, and the most fragmented community in the logistics industry. As such they are unlikely to have the ability to contribute to the funding of the DTTN in the short term. Indeed it may be necessary to provide financial support, subsidy or incentive for the SMEs to participate in the DTTN.

1.3.3 A government-led entity

- ❑ Some similar overseas initiatives that were studied are owned either fully or partially by the Government (e.g., the Netherlands's W@VE¹, the U.S.'s Freight Information Real-time System for Transport (FIRST)).
- ❑ Be it in a form of statutory body, government-owned company, or public corporation, the key challenge for a government-led entity is to progress the DTTN initiative in the shortest possible time, given the time required for funding approval and possible legislation.
- ❑ Public resources are always limited and must be used in an effective, accountable and transparent manner. Government will assess initiatives and allocate public funding appropriately to support those with high priority, i.e. initiatives that represent the most effective use of public resources and can only be implemented with the support of public funding.

¹ Web Application voor Voormelden met EDI (English equivalent: Web @pplication for EDI)



1.4 Next steps

During the study, a series of baseline estimates were developed including indicative benefits, implementation timeframe and investment requirement associated with creating the DTTN. These estimates were developed for two reasons: firstly to provide a perspective on the order of magnitude of a program of this nature; and secondly to provide a baseline against which the alternative options can be measured. The highlights of this baseline analysis are:

- ❑ **Benefits.** The DTTN will deliver an estimated total benefit of HK\$11.8 billion² to the trade and logistics industry over a 17-year timeframe.
- ❑ **Implementation timeframe.** Releases 1 and 2 of the DTTN development are both estimated to take around 12-15 months after the necessary funding approval and mobilisation.
- ❑ **Investment requirement.** In total, the direct investment to develop and operate the DTTN over a 17-year timeframe is estimated to be around HK\$3 billion.

During the Study, a number of industry participants and service providers expressed their interest or willingness to create, own and/ or operate the DTTN for Hong Kong. Indeed more than one commercial entity has claimed to be capable of doing so at less cost and in a shorter timeframe. Clearly, there is recognition of the need for, and a strong interest and willingness within the industry to create the DTTN. However, there remain two challenges that need to be addressed:

1. **Industry acceptance.** Any operator of the DTTN will require broad support from the logistics community as a whole to maximise the number of participants over time. They will need to demonstrate neutrality, integrity, financial standing and a commitment to comply with the guiding principles.
2. **Involvement of SMEs.** The full realisation of the DTTN value propositions is based on gaining SME involvement and active participation. Strategies and actions will be required to allow these important members to actively participate in the DTTN and reap the rewards accordingly.

To address these challenges and sustain industry support for the DTTN it is recommended that the Government continue to lead the next stages in the development of the DTTN. Specifically, it is recommended that the Government take the following immediate next steps:

- ❑ **Explore various collaboration approaches** with the private sector to jump-start the DTTN program, and formulate an appropriate sourcing strategy for the program. Any solution must address both the supply side of the equation (i.e., delivery of the DTTN at the lower level of investment and in a quicker timeframe) as well as the demand side (i.e., adherence to the basic blueprint functions and business principles). This will require strong leadership and negotiation skills.
- ❑ **Determine the appropriate financial contribution**, either direct or indirect, that the Government may be required to make. This financial contribution could take the form of direct cash injection as an investor in the DTTN or indirect contribution such as tax breaks or subsidies to the participants of the DTTN.
- ❑ **Develop and conduct a structured, transparent, and accountable process** to invite business and technical proposals for the development and/ or operation of the DTTN. The process should be

² On a conservative basis, only benefits from operational efficiency improvements are included in the estimation with corresponding DTTN adoption rate assumption. Strategic benefits are not quantified here.



designed to ensure the DTTN addresses industry requirements on a minimalist, neutral, low cost basis with the necessary control mechanism to ensure compliance with the guiding principles. The baseline scenario developed will serve as the objective benchmark for comparing alternatives.

- ***Continue to engage the logistics industry*** to sustain the momentum of the initiative. The industry will need to be consulted on any proposals to develop and/ or operate the DTTN.

The role of the Government in this respect will be twofold: on one hand the Government will act as the negotiator on behalf of the industry to deal with potential DTTN operators, and to refine and produce a proposal acceptable to the industry at large; on the other hand the Government will act as the facilitator for the industry to select and obtain buy-in for an appropriate proposal for the DTTN program. The involvement of PMLDU should continue and be expanded as necessary to play these roles.

- ***Enlist participation from the industry in the establishment and ongoing operation of the DTTN.*** The Government should help secure participation from the industry in the DTTN during its establishment and ongoing operation. The Government should lead by example and demonstrate its commitment through:
 - Offering to promote the DTTN to overseas countries through established official channels for trade related matters; and
 - Taking actions to ensure the participation of SMEs in the DTTN including further education and if appropriate financial assistance to acquire necessary IT equipment/ training.

Press Release

Submission for DTTN Proposals to Close on 30 April 2003

The E-logistics Project Group of the Hong Kong Logistics Development Council (LOGSCOUNCIL) resolved at its meeting held yesterday (3 April) that 30 April 2003 should be the deadline for receiving proposals on developing the Digital Trade and Transportation Network (DTTN) System.

“At its last meeting on 24 January, LOGSCOUNCIL endorsed the broad direction of the recommendations arising from the DTTN Study. The role of the E-logistics Project Group is to canvass support from and participation of the industry, and to advise on compliance of the eventual DTTN blueprint with the guiding principles, including openness and neutrality,” said Mr. John Hammond, Shepherd of the Project Group.

The DTTN Study completed in December 2002 confirmed the strategic value of the initiative and the importance of jump-starting the project so as to enhance Hong Kong’s competitiveness as an international logistics hub.

At yesterday’s meeting, the E-logistics Project Group received a presentation by Tradelink on its proposal to develop the DTTN system. “This is the only formal proposal put to the Project Group in time for our regular meeting. We had a useful exchange with the proponent and clarified a number of issues relating to the proposal. Several other solution providers are expected to submit their proposals very soon, and we look forward to considering them,” said Mr. Hammond.

“Since the Final Report of the DTTN Study was made public in January, we have been approached by several potential service providers indicating their interests to develop the DTTN system. To facilitate early implementation, the E-logistics Project Group has set a deadline for receiving submissions. We will then examine each submission and offer advice to LOGSCOUNCIL,” Mr. Hammond added.

He urged interested parties to submit their proposals by close of play on 30 April 2003 to the LOGSCOUNCIL Secretariat 38/F, Two Exchange Square, Central. Both the Final Report of the DTTN Study and a general guideline on items to be included in the proposal are available from the LOGSCOUNCIL website (www.logisticshk.gov.hk).

End

Points to cover in the proposal to develop the DTTN System

Companies/Organizations Framework

- Company/Organization structure, including shareholdings and management
- Illustrate how this framework would satisfy the guiding principles of the DTTN as described in the consultancy report

Scope of Service

- Specify the trade and logistics business sectors which the proposed system will support (the consultancy report identified 9 sectors)
- Coverage of the technical standards
- Technical platform system architecture
- Software and messaging standards and protocols proposed
- Access channels by service providers and users

Timeline

- Detailed timeline on the development of the DTTN system, mobilization period, integrated detailed design of the system, testing and roll-out.
- If services are provided in phases to different sectors, please specify.

Investment

- Estimated project costs

Pricing

- Proposed pricing scheme

Economic Impact

- Estimated number of job opportunities to be created, including management, technical and clerical.

Adoption Facilitation

- Marketing strategy to encourage industry (in particular the SMEs) adoption locally and regionally