

Telecoms Infotech Forum

Briefing paper

**The Digital Trade and Transportation Network (DTTN)  
Radio Frequency Identification (RFID) Tagging  
and the Implications for Telecoms**

October 2004

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# Telecoms InfoTechnology Forum

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The output of the TRP is public domain research into economic, policy and regulatory aspects of telecommunications and related sectors such as IT, new media, Internet and e-commerce.

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- Chartered Institute of Logistics and Transport in Hong Kong (CILTHK)
- Hong Kong Article Numbering Association (HKANA)
- Hong Kong Association of Freight Forwarding and Logistics (HAFFA)
- Hong Kong Call Centre Association (CCA)
- Hong Kong General Chamber of Commerce (HKGCC)
- Hong Kong Information Technology Federation (HKITF)
- Hong Kong Internet Service Providers Association (HKISPA)
- Hong Kong Logistics Association (HKLA)
- Hong Kong Productivity Council (HKPC)
- Hong Kong Sea Transport and Logistics Association (HKSTLA)
- Hong Kong Shippers' Council
- Hong Kong Telecommunications Users Group (HKTUG)
- Hong Kong Wireless Technology Industry Association (WTIA)
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- Internet Professionals Association (iProA)
- World Teleport Association (WTA)

TIF aims to track and understand the economic implications of commercial and technological developments in the information and communications technologies (ICT) sectors and stimulate informed interest in the policy, regulatory and welfare implications.

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# DTTN and RFID

## Introduction

This Briefing Paper draws upon the output of the TIF conference *Putting Service in Broadband*, October 2003, Logistics Session 3.2 and the Briefing Paper for that forum, see <http://www.trp.hku.hk/tif/papers.html>. We begin with a brief review of the DTTN and RFID and why they are important to Hong Kong. During the forum speakers will be updating us on most recent developments from Mainland China as well as in Hong Kong, and the way forward. Important issues relate to standards and costs, the benefits of adoption and diffusion, the infrastructure to support the DTTN and the future use of RFID, the DTTN's architecture, the devices to access it, and the service applications that will ride on top of it. Finally, what is being done to facilitate the building and use of the DTTN and RFID, and develop relevant applications.

## DTTN, RFID, Hong Kong and the Region

The growth of economic activity from manufacturing to services, and of trade and investment across Mainland China holds threats and opportunities for Hong Kong. On the one hand overseas companies can access the Mainland directly, and can by-pass Hong Kong's high cargo handling charges (*SCMP*, 22 September 2003). On the other hand, Hong Kong can offer better value-for-money if it adopts smarter ways of doing business and uses electronic messaging and e-commerce over a broadband infrastructure to do it. It is the familiar choice, between shifting business onto the Mainland or improving productivity, widening the scope of services on offer in a convenient and integrated way, and ensuring top quality of service and security guarantees here in Hong Kong.

It is not a zero sum game. As Mainland China improves its infrastructure and adopts electronic messaging and e-commerce, the DTTN can be the electronic bridge that smoothly connects Hong Kong traders, wholesalers and retailers, distributors, carriers and financiers with their Mainland counterparts. The DTTN can equally link Hong Kong's trading community with those of Singapore and Malaysia, with Vietnam, and with Japan, Korea and Taiwan. There is an array of ancillary commercial developments that will stimulate, for example, the demand for intelligent and mobile devices to access and process trade information and the applications to allow this to happen, the need for clearing houses of information and for systems integrators.

Hong Kong needs priorities and focus. Four are suggested below.

- Successfully build the DTTN, in particular encouraging SMEs to join
- Build regional electronic bridges
- Foster the development of the ancillary commercial activities, applications and services
- Promote R&D through the universities, agencies such as the Productivity Council and ASTRI, and public-private collaboration

## What is the DTTN?

The DTTN is to provide a messaging platform using open architecture and industry standard protocols over the telecommunications infrastructure. It needs to be simple and transparent to use.

## The DTTN and Telecommunications

The telecommunications infrastructure of the future will be broadband, using protocols such as IP, transmitted over fixed line and wireless networks, and accessed by many types of devices. The traffic generated by networks such as the DTTN will require quality of service

and scale. For example, Descartes alone generates 95 million transactions a quarter according to Kevin Taylor<sup>1</sup> (see below).

### **What is RFID?**

RFID consists of a “passive” or “active” tag, an antenna or coil that can read/write data into the tag, and a reader. The antenna and reader are often integrated. One of the best known uses of the “passive” tag in Hong Kong is the Octopus card used on various modes of transport and for micro-payments at various shops. Unlike a barcode, RFID does not require line-of-sight.

### **RFID and Standards**

RFID will grow in importance, but standards remain a problem. For example, ePC Global (Electronic Product Code), ISO (International Standards Organization), ANSI (American National Standards Institute) and AIAG (Automotive Industry Action Group) have all proposed different frequency bands. The most commonly used bands today are 125kHz in the LF (long frequency) waveband, 13.56MHz in the HF (high frequency) waveband, and UHF bands allocated in Europe (866-869MHz) and USA (902-928MHz) and Japan (950-956MHz). Europe clashes with CDMA allocations, the USA and Japan clash with GSM 900MHz allocations.<sup>2</sup>

### **RFID and Cost**

Lack of RFID global standards retards mass production and falling prices, but prices are coming down. The price of “active” tags has fallen from around US\$100 to half that, and are expected to be within the US\$2-5 price range by 2008. “Passive” tags are below US\$2 today and are expected to fall to as low as 5 cents US by 2008.

### **RFID and Privacy**

Consumer organizations are concerned about privacy should data from individually tagged consumer items be available to manufacturers or retailers or others. Anna Lin of HKANA refers to this issue, see below.

### **RFID Stages of Adoption**

Migration to RFID is expected in three stages: (i) the compliance stage as major buyers, such as retailers like Wal-Mart, manufacturers like Proctor & Gamble, and government agencies such as the US Department of Defense, require suppliers to use RFID<sup>3</sup>; (ii) internal supply chain management, such as stock keeping, track and trace; (iii) external supply chain management, such as just-in-time manufacturing and global procurement.

### **RFID Applications**

Boxes, pallets and containers will be the early applications over the next 5 years. It may take a further 10 years before all individual items are tagged. Industrial applications include passive tags on items that may require mass recall from the market, such as faulty car tyres and pharmacy pills that have dangerous side effects, and track and trace, especially of high-value items and security items. Consumer applications include being able to tell the ingredients of food items and medicines. See <http://www.hkana.org> for more information.

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<sup>1</sup> Kevin has since joined BT (British Telecom) in Hong Kong.

<sup>2</sup> Lower frequencies such as UHF that offer longer range but higher power are better suited for scanning boxes passing into warehouses, whereas the 13.56MHz frequency is more appropriate for scanning individual items.

<sup>3</sup> As from January 2005.

## The DTTN – Summary of TIF Logistics Session 3.2, October 2003

**Elizabeth Quat, President, iProA and V-P Corporate Development of SC Fulfil Ltd** chaired the logistics session. Elizabeth provided a short review of events leading up to the proposal for a Digital Trade and Transportation Network (DTTN) which is a network designed to provide an architecture open to all sectors of the logistics value-chain. Its guiding principles are (a) neutrality, (b) non-exclusivity and (c) transparency, using widely accepted industry standards. Following a bidding process, the Logistics Council resolved to negotiate a DTTN contract with Tradelink subject to final agreement.

**Leo Yeung, Director-Consulting Services, Asia Pacific, Global eXchange Services (GXS)** explains the structure of the logistics industry in terms of its usage of IT. At the retail end of the stack are leading companies like Wal-Mart adopting AS.2, an IP protocol to transport EDI messaging and requiring their suppliers to do likewise. Wal-Mart is also leading the adoption of RFID (radio frequency identification) on all pallets and containers destined to its retail outlets by January 2005. At the hi-tech manufacturing layer the not-for-profit organization RosettaNet has for a long time been promoting industry standards for EDI over IP with backing from companies such as Intel, supporting direct shipping, third-party logistics (3PL) and outsourcing to OEMs clusters, in which Taiwan is the leader. Malaysia's Dragonet is another example of such an initiative. The third layer is government, especially after the events of 9-11. The US Customs and Border Protection organization now requires under the Automatic Manifest System (AMS) ship manifests 24 hours before sailing.<sup>4</sup> Similar rules are being introduced for passenger airlines. Given these drivers, Leo also presents an interesting chart showing the impediments to going digital in the logistics sectors, a range of issues from financial and organizational to practical questions of handling items and trading partners – 'there is no quick fix.'

**Anna Lin, CEO, HK Article Numbering Association** notes there are always two key issues arising in public discussion. One is the need across the industry for and difficulties of synchronization of the adoption of IT standards. The second is the need to adopt an electronic product code (EPC) for RFID, a technology that despite the recent hype has been around since World War 2 when it was used to identify aircraft. RFID is not just about technology, it is more about creating a network of information for the movement and management of goods. 'I call it the Internet of things.' Various standards have been developed, including the G-tag or global tag which defined the standard for the tag itself. Over 100 major companies, like Wal-Mart, P&G, Gillette, are currently exploring uses of RFID. Non-contactable RFID tags can be used in many different environments, and passive tags can be etched into any items, for example pills to identify their content. In 1999 the MIT founded the Auto-ID Centre to link RFID to the Internet and hundreds of companies have supported this programme. The EAN International-Uniform Code Council (UCC) – see <http://www.ean-int.org/> and <http://www.uc-council.org/> - has now formed the EPC Global to promote the adoption and standardization of the EPC network.

Anna sees the current drive by companies like Wal-Mart and Germany's Metro as leading the development of EPC for pallets and cases, and this will be followed over the next 2-3 years by an EPC in-store environment. Left to the market alone EPC would probably take 25 years to become adopted globally, but driven by EPC Global this could reduce to 15 years. There are however real issues to be resolved. Personal privacy is a key issue if personal items are to be bought ready-tagged, while disabling tags to protect privacy could also destroy many of the benefits of tagging. One option may be to somehow de-link personal ID and product ID. A further issue is to synchronize radio frequency bands globally, most likely around the 860-920 Mhz range. The next step locally is to set up a Hong Kong EPC Roundtable to promote EPC in Hong Kong.

**Justin Yue, CEO, Tradelink** begins with a stress on the high quality of Hong Kong's infrastructure, including commercial law such as the Electronic Transactions Ordinance, to support initiatives such

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<sup>4</sup> In the Container Security Initiative (CSI), US Customs and Border Protection officers assist local officials in HK and Singapore in screening suspect shipments before they are loaded aboard a ship to the US. Shippers must file a manifest with US Customs 24 hours before loading commences. This can be done electronically through the US Customs's Automated Manifest System (AMS).

as the DTTN. There are three recognized digital certification authorities in Hong Kong: Hongkong Post, Digi-Sign a subsidiary of Tradelink, and HiTrust. To date the first two have issued more than 300,000 certificates. Tradelink is 42% Government owned, the rest privately owned, and Tradelink provides all manner of trade-related services, including Hong Kong-China trade facilitation with JingMao Link and a China-Hong Kong Cargo Manifest Interface. Tradelink has also been instrumental in developing the Pan-Asian E-Commerce Alliance that covers China, Japan, Malaysia, Singapore, South Korea and Taiwan facilitating the mutual recognition of electronic trade documents, with pilot projects including package lists, invoices, purchase orders, advancement notices and bills of lading.

Referring to the government's decision to discuss with Tradelink the operation of the DTTN, Justin reiterates Anna Lin's point that the DTTN is essentially about the adoption of worldwide standards and protocols, and the DTTN operator is expected to provide a call messaging infrastructure, leaving value-added services to service providers unless there remains an obvious unfilled need. Most Hong Kong trading companies are SMEs and while they can join the DTTN it is expected that most of its members will be the service providers. The tasks of the DTTN Company will include forming standards groups and it is expected to have the first phase completed by 2005.

**Kevin Taylor, Regional VP, Descartes Systems Asia-Pacific Inc.** describes the IT sector as a fashion industry. One moment it's ERP, the next it's the dot.com, then CRM and the next wave is logistics. Supply chain costs of transportation and storage of materials, components and final products can be as high as 30 per cent of total cost. Cost efficiency is becoming a key driver giving rise to something called *mobile resource management* enabled by technologies such as GPS and RFID. Another driver is the customer's need to know where and when their goods have arrived. Leo, Anna and Justine outlined the importance of messaging and standards, and the key to it all is integration which is what the DTTN is all about.

Riding on top of an integrated standardized messaging infrastructure are applications, everything from track-and-trace to warehouse management to routing and scheduling. Achieving these goals requires a combination of mobile technologies, RFID and GPS. Pallet and cargo tagging is already with us. Item tagging will become widespread within five years, so for example scan-and-pay retail checkouts will be widely used where an entire trolley of items can be scanned in one go. The marriage of applications with mobile devices is the other important component, putting truck drivers in easy and ready contact with routing and scheduling applications for example. So the three components are: the systems infrastructure (DTTN), the applications and mobile networking.

#### **Panelists:**

**Philip Lam, Vice President of Information Technology Committee, HK Logistics Association** refutes the idea that SMEs cannot benefit from RFID, giving the example of its use by an SME that is the sole importer of pigs and livestock from China. RFID has cut down the number of wagons required to be able to separately identify which pigs come from which shipper. A reusable RFID tag the size of a \$5 coin is attached to each pig's ear.

**Ringo Ng and Almon Yu of the HK Association of Freight Forwarding and Logistics** emphasized the need for cost effective access to a DTTN, suggesting that ubiquitous broadband can make this affordable and lower barriers for SMEs. Justin Yue points out that probably 90 per cent of Tradelink's existing customers are SMEs, and anticipates most will migrate to using the DTTN.

**Leo Chow, Chairman of the Information Services and Communications Committee, Institute of Purchasing and Supply of Hong Kong** raises the question of whether the DTTN would be run primarily as a community service or as a profitable concern, to which Justin responded that first and foremost as a community service because participation was voluntary and non-exclusive. A further question concerned the role of telecom companies. Here Kevin Taylor points out that Descartes alone generates 95 million transactions a quarter, so the role of the telecom companies as service providers and as partners is vital.

## The DTTN and Hong Kong's Logistics

A quick glance at Hong Kong's logistics sector reveals an astonishing diversity in the sheer number and size of companies involved, in the number and variety of documents and transactions handled, and in the degree of sophistication present or absent in company IT systems.

Mapping out the steps in a freight forwarder's documentation flow illustrates the extent to which diversity is a fact of life in logistics – see Figure 1. The extensive paper trail is being rendered electronically, as much of the data [content, weight amount, destination, etc.] is repeated. Tradelink in Hong Kong is a platform for the electronic submission of trade declarations (just one of the many documents in the documentation flow). It has a user base of around 53,000 “trading” companies. This figure is made up of the different types of companies involved in the logistics business in HK, either as a “cargo owner” – i.e. the consignee, the shipper, the import-export firm, the manufacturer, the retailer – or as a service provider – i.e. the freight forwarder, the carrier, the shipping line, the third-party logistics firm, the trucking company, the terminal operator, the air cargo handler. Many of these companies are SMEs – “two guys and a truck” – engaged in some aspect of the logistics industry in HK – see Table 1.

Table 1  
Number of Logistics Companies in HK

Sector	Number of Companies
Stevedore	100
Sea Freight Transport	205
Ship Management and Chartering	92
Cargo Handling Terminals	8
Trucking and Container Haulage	9,354
Warehouse and Cold Storage	298
Airfreight Transport – Airline Companies	40
Air Cargo Terminal Operators	2
Forwarding Agents (Air and Sea)	1,902
International Couriers	17
Other Transport Logistics Service Providers	47
SMEs	Tens of thousands

Source: Interviews, Vocational Training Center 2002 Study

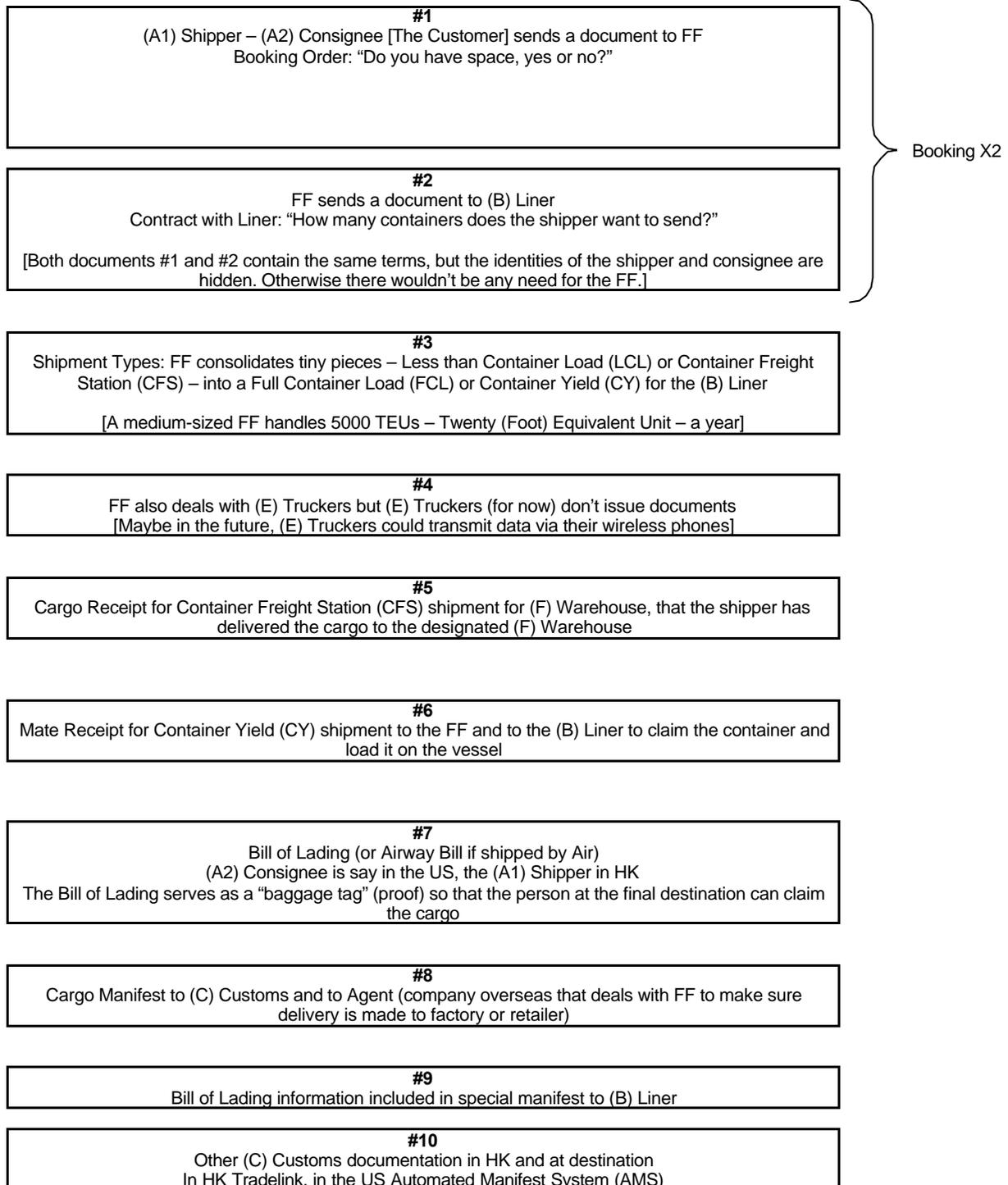
The SMEs handle approximately about half of HK's total trade, and a large number of them aren't doing electronic submissions to Tradelink. This raises the point that all these different players have radically different levels of IT capabilities and requirements. Figures 2A and 2B outline the surprising hodgepodge of information systems, networks, and services currently in use in HK's logistics sector.

# Figure 1: Diversity Alive

## Parties that a Freight Forwarder (FF) Deals With

(A1) Shipper – (A2) Consignee (B) Liners (C) Customs (D) Ports (E) Truckers (F) Warehouse

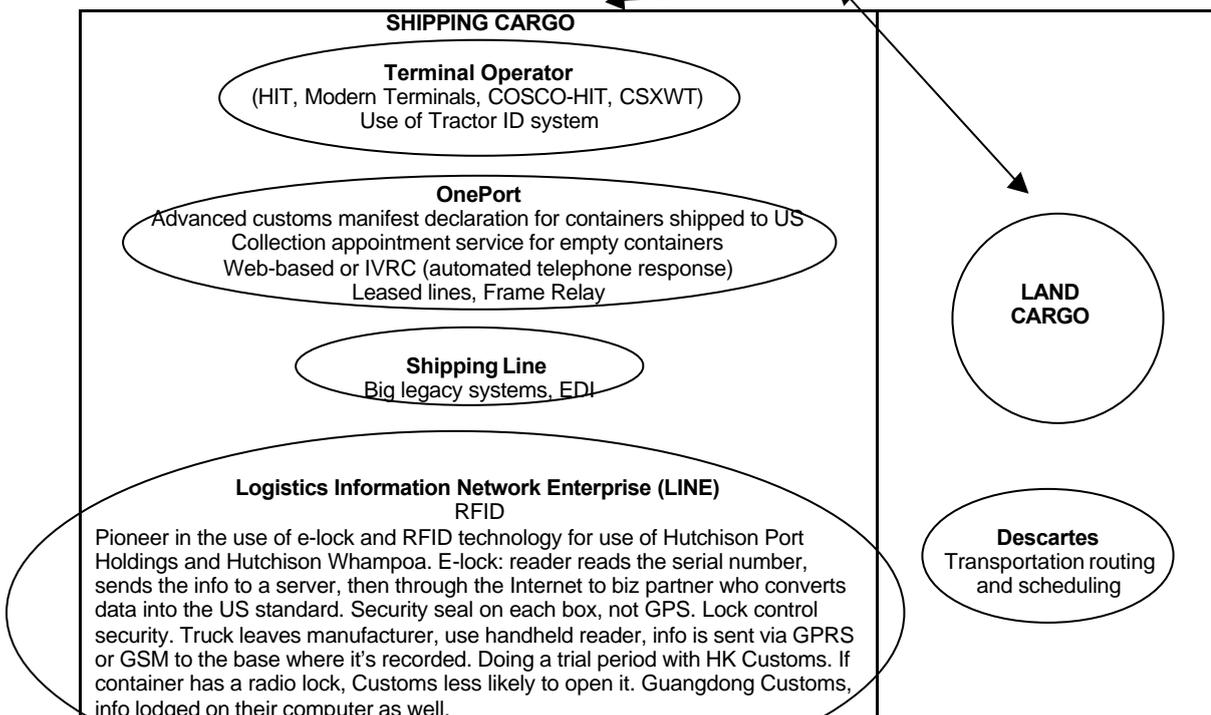
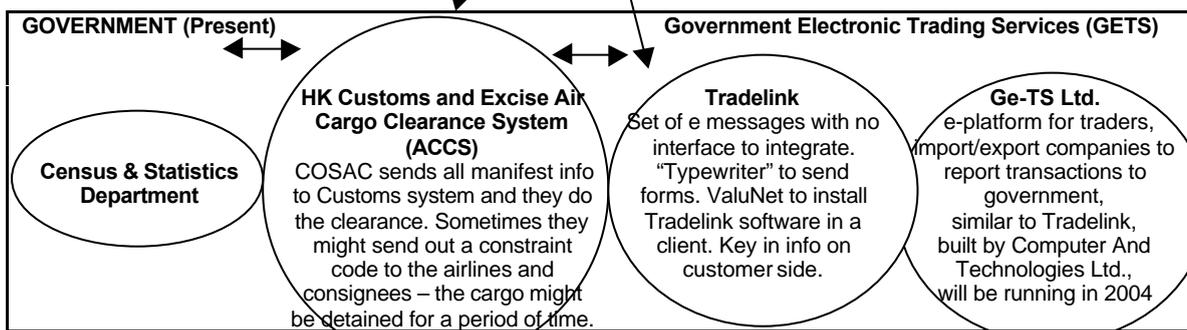
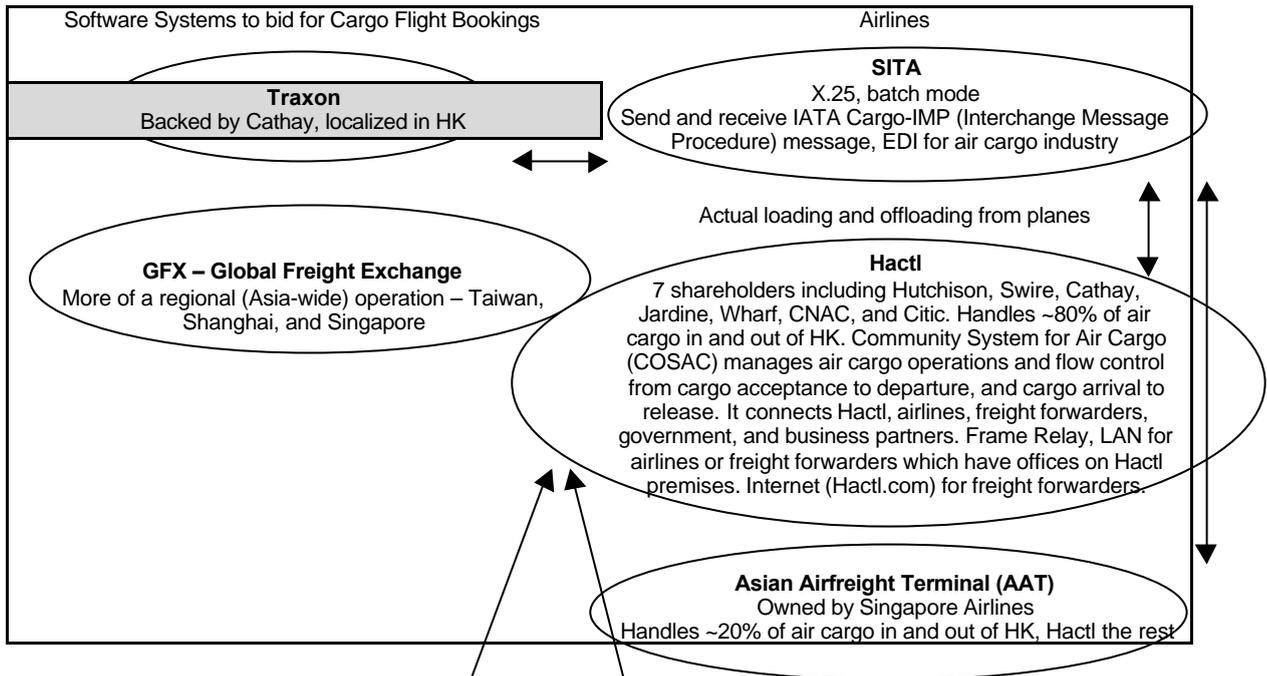
### FF Documentation Flow



## Figure 2A: PORTS AND TERMINAL OPERATORS

IT Smorgasbord, Profusion of Information "Clouds" for Air, Sea, and Land Transportation: Some Examples in HK

### AIR CARGO



**Figure 2B: LOGISTICS SERVICE PROVIDERS AND USERS**

**Land/Sea/Air**

**Third Party Logistics Providers  
3PL to 4PL**

(Outsourcing Movement)

Accommodate many different data formats

**Kerry**

Tracking via GPS, view status on Web browser, do inhouse software development  
FR, will move to MetroLink, a local carrier's high bandwidth offering, DDN leased lines in China, VPN to Australia office

3PL: Retailer sends clothes to warehouse. Put in the labels and the bar codes, sort and pack clothes according to different colors, sizes, and ship them to different stores. Run them through Warehouse Management System (WMS) and shipping system – and they're off to Australia or New Zealand. Retailer sends us a purchase order and we send them back a confirmation. Some use SAP, others JD Edwards. Generate a file which we can feed into our own system, then generate a confirmation in a defined format that complies with the systems run by our customers. They don't touch the integrity of the data – nor do we touch the integrity of their data.

4PL: Vendor Management Inventory for mainland PC maker who wants to cut costs and reduce inventory, handle all suppliers, system to system, machine to machine integration, seamless, don't need to rekey info

**Exel**

EDI, American standard (ANSI) and European (Edifact), WAN, FTP, DDN leased lines in China, FR Dongguan Hub

i-Exel: permits (SMEs) to do shipper letter of instruction via the Internet

3PL: VAS: Dell in Xiamen – “reverse logistics.” Do repair maintenance agreement for them – ship back (faulty) PC and get replacement.

Software Startups – Aggregators – ASPs  
Aimed at SMEs

**DigiLogistics**

Just provide the IT platform, the documentation, not the actual execution; an aggregate view by collecting info from different service providers. This way the user (shipper) doesn't have to go to different websites to view shipment status. They view all their shipments (with different “service providers”) on our website. At the same time, they can check out schedules, do [online] booking, negotiate prices [through a module we've built], confirm or create shipping orders. Orders are sent to the service providers who in turn generate a bill of lading > *visibility*, management, track & trace. Perceived neutrality. For SMEs who don't have resources like a Kerry or Exel and aren't willing to invest in building such a platform themselves.

**Truck Driver**

Wireless notification (SMS)

**Government (FUTURE)**

**Digital Trade and Transportation Network (DTTN)**  
Integrated logistics IT platform for HK SMEs. Company like Exel can get the “pieces” from SMEs more easily when they're part of DTTN.

Overcoming the “digital gap in the supply chain”

**SEE APPENDIX**

**Cargo Owner Community**

**Retailer Point of View: Distribution**

Supermarket Chain  
From ISDN to MetroLink  
Efficient Customer Response (ECR) system, ERP

Trying to reduce direct deliveries from suppliers to stores, consolidate distribution, work closely with small local suppliers, try to raise their IT level  
Inventory Management, Stock Replenishment  
Lots of mistakes are made when store staff scan items – need to better train staff and routinize procedures  
Want to do global sourcing and buying as embark on international expansion, quickly bring new stores online

**RosettaNet (Intel)**

XML

B2B standard in support of IT, EC, semiconductor industries. Facilitate ERP to ERP, server to server communication – reducing the # of keystrokes even further.

Partner Interface Process (PIP)

**Li & Fung**

Microsoft BizTalk Server  
SME supply chain software

EDI engine & translator for whatever input/output format one's got to deal with; exchange “shop” info at the server level

As a result of the key drivers mentioned earlier, the logistics business is making more demands on a company's IT capability. Table 2 below summarizes the major technology and service trends in logistics, keeping in mind what the implications are for HK SMEs.

- What is the cost to HK SMEs for not upgrading their IT capabilities?
- Do they risk losing business to more IT capable organizations located elsewhere in the region?
- What motivates SMEs to adopt new IT systems?
- Are large companies and government the only ones who benefit from IT? Will SMEs be sucked up to plug and play into a unifying system?
- Will IT, like it or not, truly transform the industry? Or are IT gains overstated?
- Is change more of an incremental market development that will sort itself out over the long run?

Table 2: False Gods?

<b>Technology &amp; Services</b>	<b>Benefits</b>	<b>Issues</b>
Old: DDN, Frame Relay	Reliable	Limited bandwidth
ADSL	Available widely throughout eastern seaboard of China	Connection fails, mission critical data may be lost
VPN	Data safety: can't be trapped by outsiders, more robust, ability to connect different freight offices in HK and China New World, PacificNet	SMEs don't like to commit commercial data to electronic form
MetroLink: bandwidth product 2-3-5 Mps	Handle communications traffic increase to run datacenter, warehousing system, freight transportation system, Internet access, ability to store and transfer pictures of products Hutchison Global Crossing, PCCW, CPCNet	Only available in certain districts of HK
EDI	Tried and tested legacy system	Not real time, not Web-browser enabled, need for middleware which requires customization and inhouse development, numerous different standards, manual bookings then inputted into system so still lots of manual labor required
XML	Unifying standard, harmonization	Still under development, many major users perfectly content with EDI legacy systems (inertia) – airlines and shipping lines
RosettaNet Intel Business Link	Near to complete automation of process, system-to-system integration, increase number of transactions done, cut down on mistakes  Benefits from a dominant market player like Intel pushing the standard on its customers	Pricey, market acceptance still missing, IT "silos" within companies, trust issue: letting a potential competitor inside your system
DTTN	Open, transparent platform which makes sharing of information easier, raise SMEs IT levels without SMEs "breaking the bank"	Vague idea in community of what DTTN stands for, no great expectation, still more concept than reality, reinventing the wheel? needs strong backing and push by HK government to cultivate the market, compulsory participation on part of HK SMEs? How comprehensive the deployment? How easy to integrate with other platforms? How to come up with one standard for an industry as diverse as logistics?
RFID	Tracking via RF tagging. Can replace barcoding. Can be affixed to anything from large crates to individual items. Can hold many different types of info [expiry dates, dues, etc.]. More than just electronic locks.  e-lock/e-seal "Without CSI, we wouldn't be doing this."	How is cross-border coordination of radio tags supposed to be achieved? So many different partners to work with, especially slow moving government bureaucracies Who owns the scanning machine at port (local Port Authority?)? Cost: only more expensive items like plasma TV screens and not for individual oranges. Who bears responsibility and cost for e-lock?

		Manufacturer, HK Customs, US Customs, airline, shipping line, freight forwarder? Privacy concern: inform consumers when RFID tags are present, offer them the ability to turn off tags, and offer control over how information collected from RFID tags is used
GPS	Better tracking	Integration with RFID?
SMS	Could become a popular way of sending data to truck drivers	They still prefer voice
Wireless PDA for internal use	In use now by companies like UPS and FedEx for employees to access database	Too expensive for SMEs?
Web-based portals like OnePort or Digilogistics	Accommodate dynamic relationships	Neutral? Overlapping? Incentivization?
<b>Better Service: Improved Customer Service and Satisfaction Levels</b>		
Track and trace status of shipment through Website	Total visibility, ability to respond to customer requirements (pressure) more quickly	Front-end & back-end integration has to be worked out
New information flows are generated	"Many of our customers don't know how much stock they have and all the stocks' movements. [Now they can make] better informed business decisions, when to manufacture clothes, when to stop a production line."	A lot of financial services for the logistics sector remain offline (no online letter of credit clearance)
Outsourcing: more service-oriented	4PL move to VAS like Vendor/Warehouse Management and Distribution Center Hubs, "one-stop, one-shop, end-to-end" logistics solutions; higher margins; work with customers to do sales promotions (packing together 2 bottles of soy sauce for the price of one)  Concentrate on "core competency"	3PL still involves lots of manual labor despite having advanced IT systems: "Mountain of unsorted clothing... we have 30-40 people sort it out with a barcode system." Need to accommodate all different formats from customers, legal responsibilities for inventory sometimes unclear, underestimate difficulty of getting different systems to "talk" to one another on a system-to-system basis, customers stubborn, politics (fear of job loss), resistance to change, all customers have very different needs from cold storage for orange juice to handling chemical stuff. IT knowledge has to be diffused throughout organization not just concentrated in IT department, more tightly linked to business understanding
Flexibility, Efficiency	Ability to add new customers to system quickly [new reporting scheme, new RF scanning scheme, etc.], make adjustments to billing system more efficiently, cost reductions (devote more resources to sales and marketing, less needed on operational part)	Need good project management skills to install new IT systems, clearly defined milestones, costs are often byproduct of market structure (cartel, collusion), areas where IT can do little. Mistakes inputting data into system are still made
CEPA	No longer require JV for license in China, big for customers of logistics companies like manufacturers so expect increase in business demand for logistics services	Increase in road traffic so physical connectivity projects have to keep pace (HK-Guangdong bridge project), manual labor in China still so cheap that IT isn't really needed, more of an impact in banking and legal sectors?

## Concluding Remarks

Below are some questions to be discussed at the TIF forum 19<sup>th</sup> October 2004.

On the government's side

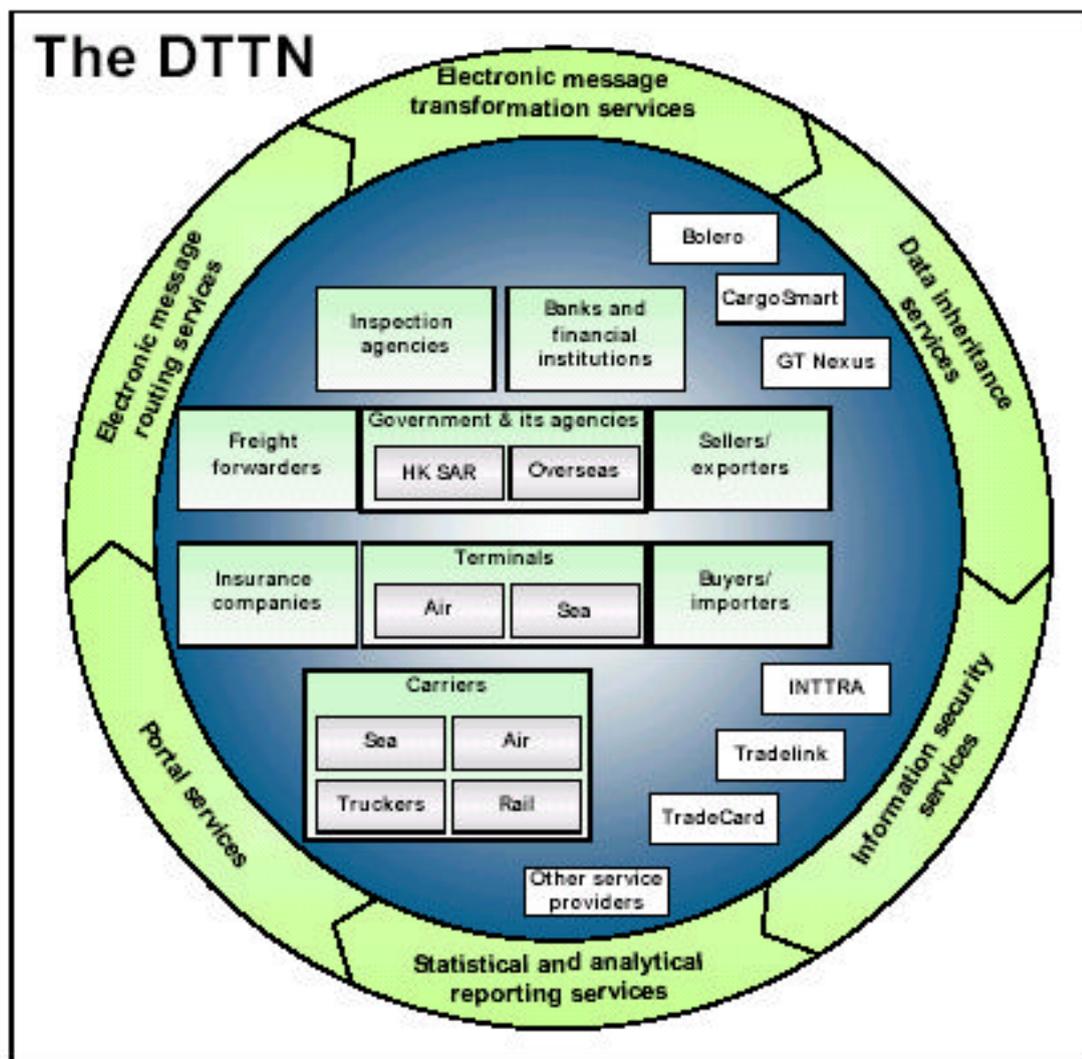
- What progress is being made on cross-border coordination online?
- What is the relationship between HK Customs and HK logistics companies in so far as adoption of new technologies like RFID is concerned?

On the industry's side

- What can large players realistically offer to SMEs in terms of making the case for greater use of IT?
- How far can the Logistics Council (and organizations like the HK Article Numbering Federation, the Hong Kong Association of Freight Forwarding and Logistics, the Hong Kong Logistics Association, the Chartered Institute of Logistics and Transport in Hong Kong, the Hong Kong Sea Transport and Logistics Association, the Hong Kong Shippers' Council, and the Institute of Purchasing and Supply of HK) get the entire industry to move in the same direction?

## APPENDIX

**Functional Blueprint of DTTN**, DTTN Final Report, Port, Maritime and Logistics Development Unit, Economic Development and Labor Bureau, HK SAR, November 2002



See [http://www.edlb.gov.hk/edb/eng/papers/ue\\_panel/com\\_upload/E72/DTTN-Annex%20A.pdf](http://www.edlb.gov.hk/edb/eng/papers/ue_panel/com_upload/E72/DTTN-Annex%20A.pdf)