CMP0394

e-Logistics Systems

Instructor: Timothy Kf Au

Email: timothykfau@yahoo.com

URL: http://www.geocities.com/timothykfau/ cmp0394

Chapter 3
Benefits and Practicalities of e-Logistics

- Benefits and Practicalities of e-Logistics
  - Communication in Real Time and Integrated Data
  - Determination of Stock Availability and On-Time Delivery
  - Inventory Pipeline Visibility
  - Sophisticated Planning and Scheduling Systems
  - Overcoming Administrative Problems Associated with Large Numbers of Individual Orders

Communication in Real Time and Integrated Data

- Communication in Real Time and Integrated Data
  - Communication is in real time and integrated data with logistics systems reduces a lot of paperwork.
  - Using the web and the eliminating of papers speed up **response time** and improve **communications** with those in different time zones or who work outside normal office.
  - Reduce in the transcription errors associated with activities such as re-keying data, receiving orders by telephone calls and hand written faxes.

Communication in Real Time and Integrated Data

- From the information technology perspective
  - Electronic Data Interchange
    - such as UN/EDIFACT, XML, ebXML
  - Bar Coding and scanning
    - such as EAN.UCC
  - Auto-ID such as RFID
  - VAN, LAN, WAN, EMAN

Communication in Real Time and Integrated Data

- From the information system management perspective
  - SCM
    - e-Supply Chain
    - e-Procurement
    - e-Fulfillment
    - e-Selling Chain
  - ERP
  - MRP/DRP
  - CRM

E-commerce is changing transportation and logistics

- E-commerce is changing transportation and logistics
  - E-commerce is forcing a fundamental shift in the structure of services of transportations and logistics businesses – structural transformation.
  - On-line purchasing systems are becoming integral part of the e-business customers' value chain.
  - Allow trading partners – customer, warehouse, suppliers, carriers, … efficient interaction with the supply chain.

E-commerce is changing transportation and logistics

- E-commerce is changing transportation and logistics
  - Information technology provides the data links as well as the logistics data collection and analysis platform.
  - The use of information technology and e-Business to improve supply chain management is accelerating and this is impacting on all logistics parties involved.

E-commerce is changing transportation and logistics

- E-commerce is changing transportation and logistics
  - Higher volume of e-business shipment are one of the reasons.
  - Supply Chain Management wants package carriers to be participate in their just-in-time processes and built-to-order processes.
  - Manufacturers are able to fill the orders swiftly as possible and minimize the inventory level to a bare minimum.
  - Carrier’s system must be interwinded with all the

E-commerce is changing transportation and logistics

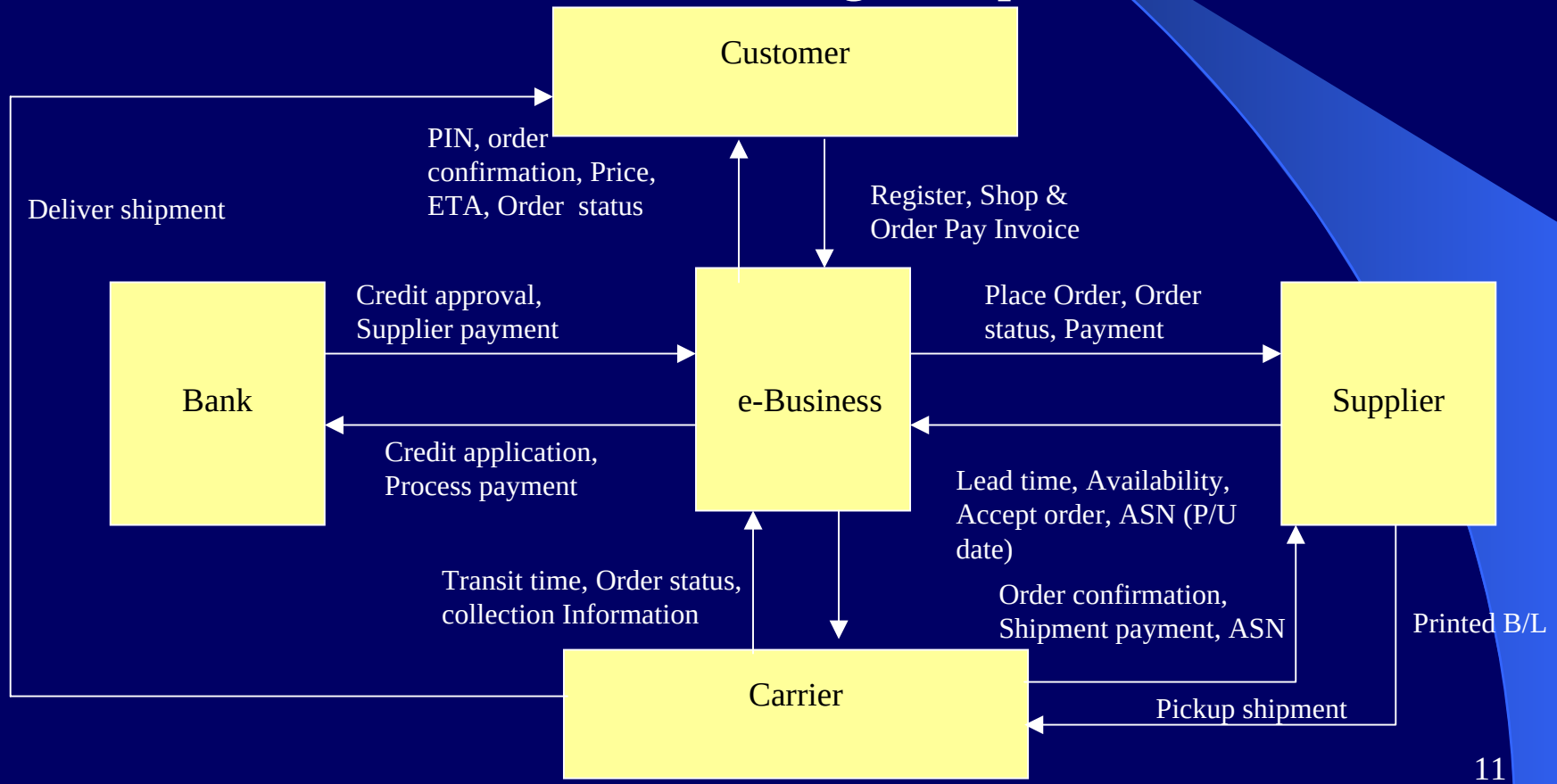
- Customer expectations
  - Customer expectations continue to evolve.
  - Faster delivery times, greater customisation and increased service levels are in demand supported by immediate real-time access to information on consignment status.
  - Will customer pay for these extra benefits? Indeed customers tend to expect price reduction!
  - Traditional approaches to managing the supply chain simply cannot meet such customer expectations.

E-commerce is changing transportation and logistics

- Data network becomes an integrated part with the e-business
  - Companies having computer-system and EDI connecting their suppliers, distributors, carriers are able to meet the demand.
  - The high setup cost of hardware, software, rigid protocol and limited user friendliness of traditional EDI.
  - Web-based systems are simpler and cheaper.
  - Not solely the large companies but also SMEs. Many of those who were not able to trade ‘electronically’ or did so with sophisticated customers can now able to do in a cost effective manner.
  - Need an “open system” communication between customers and suppliers – a hardware and software independent platform .

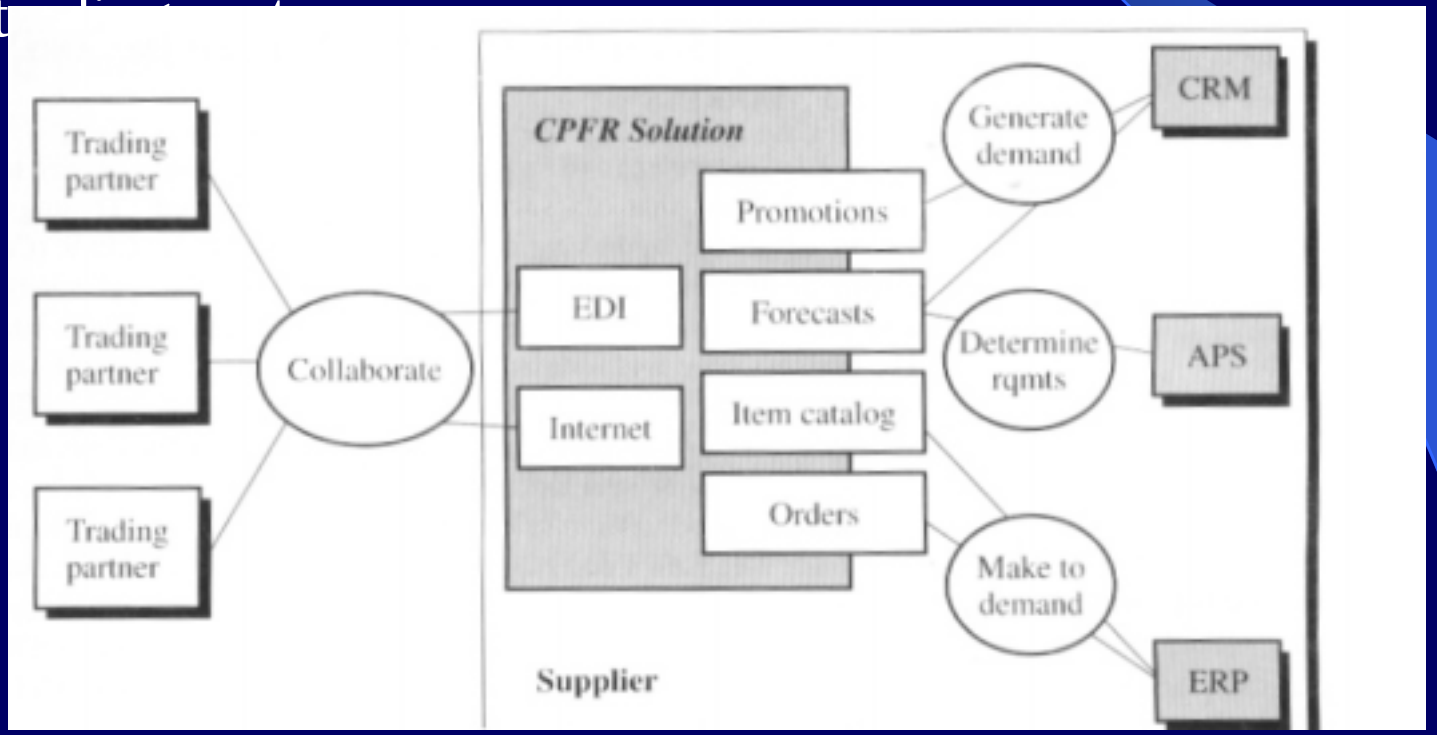
E-commerce is changing transportation and logistics

- Data network becomes an integrated part with the e-business

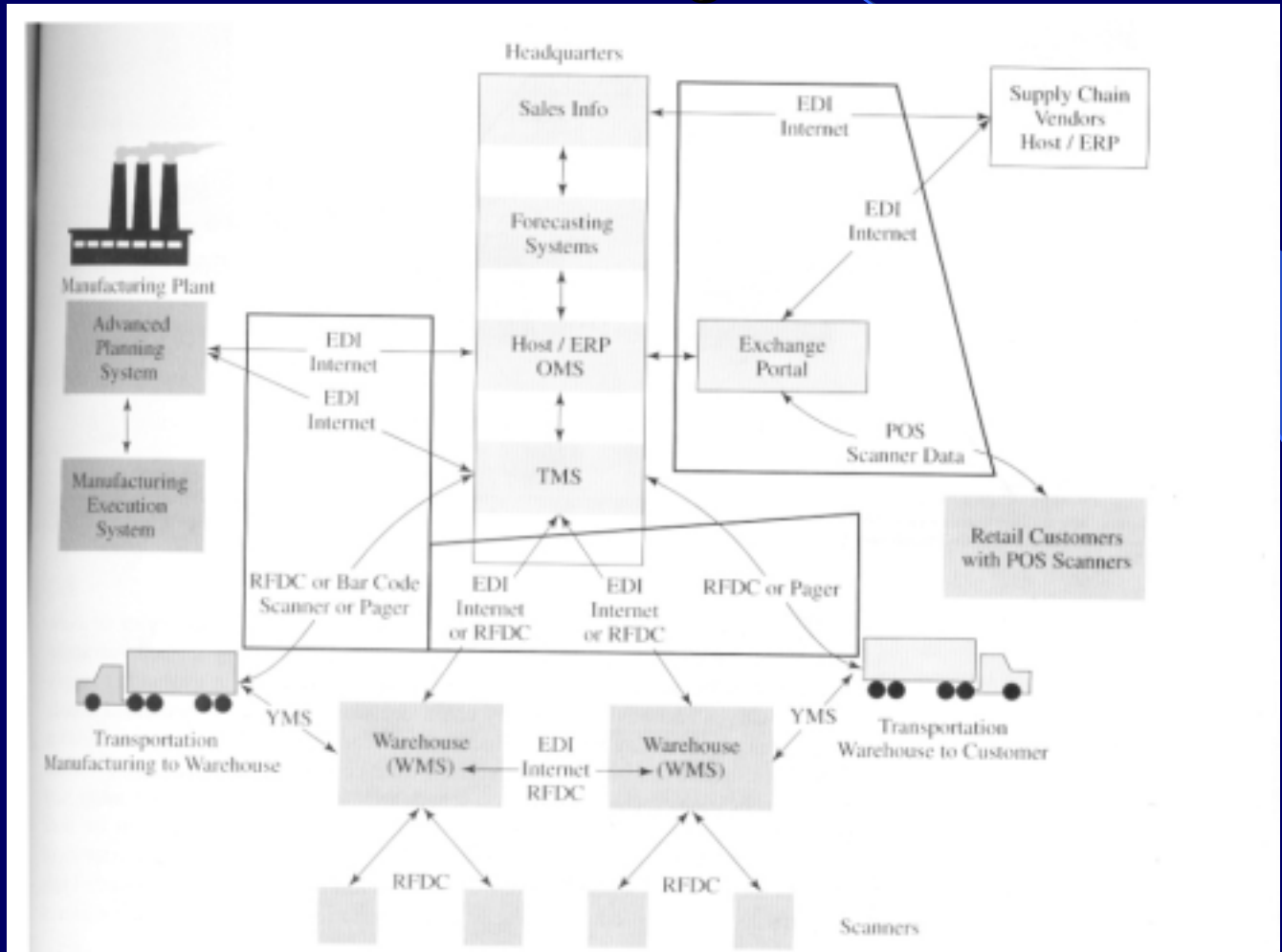


E-commerce is changing transportation and logistics

- Possible data communications among supplier and its t



E-commerce is changing transportation and logistics



Source: Adapted from Cahner's Publishing, "The Information Flow Across an Integrated Supply Chain," *Logistics Online* (www.manufacturing.net/scl/yearbook/). Used with permission.

E-commerce is changing transportation and logistics

- The Internet
  - Offers an information highway for electronic data to be transmitted over the boundariless network.
  - Significant cost saving and leverage the business with the application of the e-Logistics systems.
  - e-Logistics B2C beyond the trading on-line ‘old economy’.
  - B2B customers are moving towards in the direction of communicating in real-time and integrated data.
  - e-Business to improve the supply chain.

E-commerce is changing transportation and logistics

- Beyond the B2B
  - e-logistics is a natural outgrowth of the e-commerce revolution, ultimately providing “earlier access to true, rather than forecasted supply and demand information, by having information sooner, companies can produce logistics services less expensively, and take advantage of surplus capacity generated by other shippers.”
  - Nistevo's Lynch.

Determination of Stock Availability and On-Time Delivery

- Determination of Stock Availability and On-Time Delivery
  - Web technology and accessibility of the Internet are the e-logistics enabler to logistics players that improves:
    - e-Procurement
    - e-Fulfillment
  - particularly in terms of stock availability and on-time delivery.

Inventory Pipeline Visibility

- No matter in a e-commerce environment or in a e-logistics systems, every player needs to know is the problem of ‘visibility’.
  - Simply speaking, it is becoming one of the major requirement in the e-logistics is to provide order visibility for all the logistics and transportation parties at all time throughout the process of moving the goods from source to destination.
  - ‘Visibility’ was a ‘goal’ in the evolution of supply chain management; however, the institutional barrier – proprietary shipping and tracking systems; integration of such systems among carriers and shippers are overwhelmed by the complexity of incompatible hardware and software – and can’t fully automated.

Inventory Pipeline Visibility

- Inventory Pipeline Visibility throughout the entire supply chain must be completely transparent
  - to achieve full customer satisfaction
  - to leverage the full benefits of e-Logistics

Inventory Pipeline Visibility

- Inventory Pipeline Visibility – the new economy
  - This is achieved through the movement of information ties together with goods and services.
  - Customers have complete real-time consignment status information – via the Internet:
    - While shippers, suppliers, vendors, distributors and consolidators can promptly answer the status query
    - Previously have to be done by the staff time devoted to answering queries on order status.
    - This is an essential difference between ‘old economy’ and ‘new economy’ logistics.

Inventory Pipeline Visibility

- Inventory Pipeline Visibility – Collaboration
  - Inventory Pipeline Visibility does not only address technical issue of the e-logistics system.
  - This also bring in the opportunities of building up partnerships and alliances between the logistics players in the supply chain.
  - Ultimately, collaboration is necessary to become successful in supply chain forecasting, planning, operation and execution.

Inventory Pipeline Visibility

- Inventory Pipeline Visibility – from the logistics warehouse and distribution perspectives
  - Warehouse and distribution facilities must be able to provide precisely and timely inventory information via inventory management and strategy at shipment level and at item level.
  - They must be flexible enough to meet the diverse requirements of different customers. Such flexibility and adaptability is driven by new forms of competition among supply chains and globalisation.
  - Inventory pipeline visibility and information transparency in the e-Logistics system are the keys to success.

Sophisticated Planning and Scheduling Systems

- Sophisticated Planning and Scheduling Systems
  - e-Logistics has been improve the delivery of goods and services
  - at reduced costs
  - through the data management and communication technology
  - and sophisticated planning and scheduling systems

Sophisticated Planning and Scheduling Systems

- Rationale for Sophisticated Planning and Scheduling Systems
  - historically, the logistics in supply chain planning processes were completed sequentially and independently
  - Each of the supply chain process developed short-term and long-term plans based on their independent assumption and constraints
  - The result is inconsistent sourcing, production, inventory, warehousing and transportation plans

Sophisticated Planning and Scheduling Systems

- Rationale for Sophisticated Planning and Scheduling Systems
  - Enhanced performance requires increased planning integration across logistics processes and ultimately the supply chain processes
  - Sophisticated Planning and Scheduling Systems is initiated to integrate the information and coordinating the logistics and supply chain while maintaining the dynamic between the functions and processes.

Sophisticated Planning and Scheduling Systems

- There are four main factors driving development and implementation of Sophisticated Planning and Scheduling Systems:
  - Planning horizon recognition
  - Supply chain visibility
  - Simultaneous resource consideration
  - Resource utilization

Sophisticated Planning and Scheduling Systems

- Planning horizon recognition
  - The movement to a shorter and shorter planning horizon for operation decisions
    - In the old days, supply chain activities were planned months in advance with limited flexibility for changes within current month and typically no changes for changes within current week.
    - This lock-in time often refers to the production ‘freeze period’.
    - The reduced flexibility and the ‘freeze period’ results in poor customer satisfaction and slow response to market changes.
  - Managerial focus on reducing inventory and increases the attention to just-in-time (JIT) processes to decrease to ‘freeze period’.

Sophisticated Planning and Scheduling Systems

- Planning horizon recognition
  - The ability to accommodate changes means shorter planning cycles that must be re-evaluated weekly or even shorter.
  - Shorter planning cycles needs complex dynamics between supply chain processes and sophisticated planning and scheduling systems.

Sophisticated Planning and Scheduling Systems

- Supply chain visibility
  - The need for ‘visibility’ regarding location and status of supply chain inventory and resources is another factor for sophisticated planning and scheduling systems.
  - Visibility does not mean only to keep track supply chain inventory and resources BUT also the information regarding the available resources that can be managed effectively and efficiently.
  - Simply being able to identify the shipment and inventory is not sufficient; supply chain visibility requires the management to highlight the needs of resources and activity plan to minimize potential crisis.

Sophisticated Planning and Scheduling Systems

- Supply chain visibility
  - ERP can provide the resource visibility internally within the enterprise; external visibility or interenterprise visibility plus effective management requires more sophisticated planning and scheduling systems.

Sophisticated Planning and Scheduling Systems

- Simultaneous resource consideration
  - The need to develop a plan that includes combined supply chain demand, capacity, material requirements and constraints.
  - Supply chain requirement reflect customer demand for product quantity, timing, and location. The constraints to meeting customer requirements are materials, production, storage and transportation capacity. These requirements represent the physical limitation of processes and facilities.
  - To achieve integrated supply chain performance, requires simultaneous consideration of related supply chain capacity constraints to identify the TRADE-OFF various production factors.

Sophisticated Planning and Scheduling Systems

- Resource utilization
  - Logistics and supply chain management decision have important influences on enterprise resources including production, distribution facilities and equipment, transportation and inventory.
  - These are all costs to logistics management.
  - It is needed to implement an integrated planning approach to minimize the supply chain resources and to consider resource utilization for sophisticated planning and scheduling systems.

Overcoming Administrative Problems Associated with Large Numbers of Individual Orders

- Overcoming Administrative Problems Associated with Large Numbers of Individual Orders
  - Information technology makes it possible to overcome the administrative problems associated with building large numbers of individual orders on a JIT basis.
  - This will facilitate a move towards the system, epitomized by Dell, of building products to order, in a high volume plant, and shipping them direct to the end user.

Overcoming Administrative Problems Associated with Large Numbers of Individual Orders

- Overcoming Administrative Problems: Objectives
  - Reduce transaction costs
  - Self-service
  - e-Fulfillment
  - e-Procurement

The logistics revolution

- The beginning of the logistics revolutions:
  - Within many years, shippers, vendor, supplier, carriers, warehouses and distributors will be setting out less dispute or at a less frequency on logistical problems.
  - Customers and shippers will enjoy the benefits as the “buy-it” button becomes better integrated with the “ship-it” button.
  - Logistics service providers will see that behind the apparent ease of use, there will be an elaborate and sophisticated set of solutions changing the way transportation and logistics companies operate.

The logistics revolution

- Among the many changes that will gradually and then rapidly migrate across e-logistics:
  - More inventory pipeline visibility;
  - Collaboration leading to more precise forecasting and resource planning demanded;
  - Quicker transit time to accommodate Build-to-order model;
  - New thinking of e-Logistics management from traditional logistics players such as warehouses, distributors, freight forwarder or consolidator; 3PLs, Lead 3PL and 4PL become new members.
  - A new kink of ASPs that make the small companies look big look like the ‘big’ and e-logistics systems allows big companies look small (and flexible).

Some Major Logistics SCM Software

The following is a list of some well-known worldwide Logistics/SCM software

- i2
- Microsoft Axapta Navison
- Manugistics
- Descrates
- SAP

Some Local Logistics SCM Software

Many logistics service providers and software vendors offer SCM software/services/solutions, here are a few of them:

- ***e-jing Supply Chain Management™ System (www.e-jing.net)***
- ***CAFFS, ICTS, LogisTactics, CHS, CGMS, CCSS* by FFCA (www.ffca.com.hk)***
- ***D-LOG (www.digilogistics.com)***
- ***IN.LOG, AFOM / OFOM, CFS, CTS, RTOM, CY, AR/AP, eAMS (www.itistech.com)***
- ***eCL LMS (Logistics Management System) (www.eclAsia.com)***
- ***ELMS (eLogistics Management System) (www.powerlogistics.com.hk)***

Major Logistics And Transportation Organizations

- Hong Kong Logistics Council (LOGSCOUNCIL) (http://www.logisticshk.gov.hk)
- Hong Kong Port Development Council (www.pdc.gov.hk)
- Hong Kong Maritime Industry Council (www.mic.gov.hk)
- Chartered Institute of Logistics & Transport in Hong Kong (www.cilt.org.hk)
- Hong Kong Logistics Association (HKLA) (www.hkla.org.hk)
- The Hong Kong Shippers' Council (www.hkshippers.org.hk)
- Hong Kong Association of Freight Forwarding And Logistics Ltd. (HAFFA) (www.haffa.com.hk)
- Hong Kong Container Terminal Operators Association Limited (www.hkctoa.com)
- Hong Kong Exporters' Association (www.exporters.org.hk)
- Hong Kong Packaging Institute (www.hkpi.org.hk)
- Hong Kong Shipowners Association (www.hksoa.org)
- Institute of Purchasing and Supply of Hong Kong (www.ipshk.org)
- Internet Professionals Association (www.iproa.org)
- Logistics Cargo Supervisors Association (www.logisticscargo.org.hk)
- International Air Transport Association (IATA) (www.iata.org)

Coursework

- Coursework for 58CMP0394A to be confirmed by HKBU SCE
- Assessment

  30% Coursework

  70% Final Examination
- To be submitted on the 10th Lecture 10.January.2005

Coursework

- Part A
  - Discuss the importance of the customer satisfaction towards the logistics trend;
  - Describe how marketing-driven affect the logistics design and how does logistics contribute to the customers' value chain.

  (20 marks)

Coursework

- Part B
  - From your standpoint of view (you could be supplier, customer, vendor, consolidator, freight forwarder, distributor, or carrier, ..), briefly suggest the relevant e-logistics components meaningful to you; and how do they work together for form towards an integrated e-logistics chain:
  - Elaborate the applications of e-logistics in terms of:
    - a management approach – management information system perspective and;
    - an information infrastructure (technical view) – the underlying information technologies

(20 Marks)

Coursework

- Part C
  - Based on your role of the logistics players in Part B, design your e-logistics hub architecture:
    - Explain how your design is technical feasible.
    - What are the competitive advantages your system will bring?
    - How is your design strategically useful to the SCM?

  (40 marks)

Coursework

- Part D.
  - What is 3PL, Lead 3PL and 4PL?
  - What is Collaboration and how it contributes to e-logistics system?
  - What is meant by disintermediation? What do you think the trend of disintermediation among logistics players in the logistics chain?
  - (20 marks)

Thank you!
Any Question?

Instructor: Timothy Kf Au
Email: timothykfau@yahoo.com
URL: http://www.geocities.com/timothykfau/ cmp0394