

# Logistics-related information exchange– International efforts and Finnish developments

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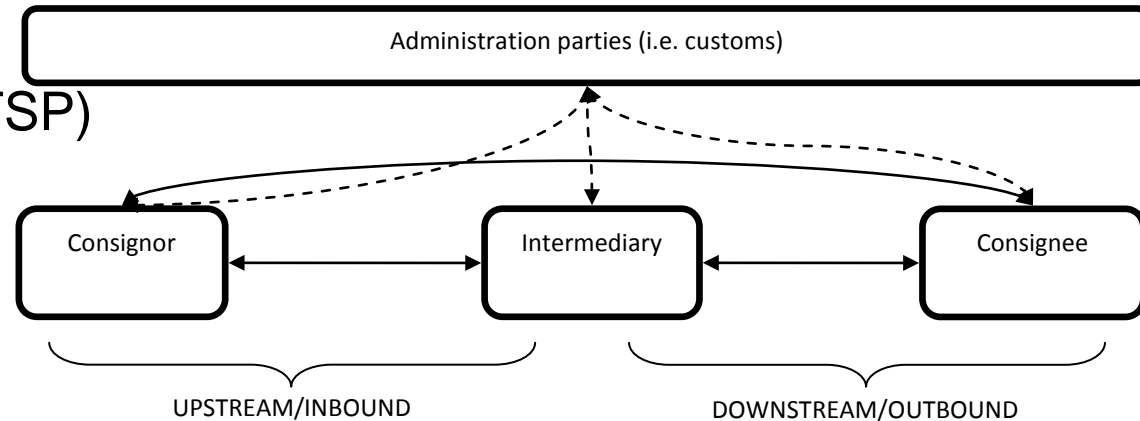
## Introduction

- Logistics
  - Part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information
  - From the supplier of raw materials to the point of final consumption (including reverse logistics)
  - Goal is to meet customers' requirements as cost-efficiently as possible
- Modern logistics networks are complex systems
  - High degree of interactions and interdependencies between actors
  - The need to manage multi-dimensional data and information flows
- Research based partly on previous work in SKEMA and SUPPORT that has been updated and expanded upon in e-Freight

## Flow of information in supply chain

- A simplified supply chain consists of four main parties

1. Consignor
2. Intermediary (LSP/TSP)
3. Consignee
4. Authorities



- Business processes in which logistics-related information is exchanged
  - Ordering
  - Transport
  - Receiving

## Electronic Data Interchange

- Computer-to-computer transmission of information related to business transactions employing specific sets of standards:
  - UN/EDIFACT (international)
  - X12 (North America)
  - Industry-specific standards (e.g. ODETTE)
- Still widely adopted (e.g. in Finland over 60% of large trading companies, 50% of large manufacturing companies used in 2008)
- Benefits:
  - Improved coordination and customer service
  - Better access to information with increased speed and accuracy
  - Enables optimization and re-engineering of processes
- Benefits create cost savings; e.g. Chrysler saved 100\$ per vehicle

## Significance of information exchange

- Improved information exchange:
  - Increases the speed and accuracy of supply chain activities
  - Improves service responsiveness and customers' experience
- By sharing the relevant data, actors may:
  - Improve the time-to-market of products, reduce costs, and better manage their processes
  - Reduce total costs and inventories
  - Employ improved SCM concepts (e.g. VMI, CD) and counter bullwhip effect
- Empirical example of the impact of open information sharing:
  - Supply chain costs down by 2.2%
  - Lead times cut into half, generating 21% cost savings

## Emerging technologies

- Cloud computing
  - Computing provided on a service basis
  - Dynamic allocation of resources
  - SaaS, PaaS, IaaS
  - Supply Chain as a Service – SCaaS
    - Framework for service-oriented supply chain management
- Web services
  - Distributed system to discover freight forwarding services based on specific criteria
  - Time savings for service users

## Industry-specific standards - RosettaNet

- Subsidiary of GS1 US
- Used by 500+ companies in electrical and electronics industry
- Consists of Partner Interface Processes (PIPs), implementation framework (RNIF), and business and technical dictionaries.
- PIPs are classified in seven segments, of which transport and distribution segment PIPs (15) are related to logistics processes.
- Benefits:
  - XML-based messages are more flexible than other standards
  - Interoperability of EDI standards between different business segments is more limited than that of RosettaNet.
  - Improves cost-efficiency of solutions
- Seems only to benefit large companies due to the high implementation costs (one PIP can cost as much as \$20,000)

## Industry-specific standards - PapiNet

- A unified, international, XML-based e-business standard for the paper and forest industry
- Usually utilised by manufacturing mills and big customers, while smaller customers are using web services, if any.
- Covers 45 standards, of which 14 are logistics-related
- Advantages:
  - Enables the transfer of all paper reel and pallet information without strictly defining the contents of the message
  - Supports RFID implementation and web browser interface
  - Reduces costs and waste, and lowers material handling costs
  - Improved shipping accuracy and simplified supply chain systems, with other benefits of adopting EDI
- Major impediment is the limited number of transactions standardized



## Generic standards - Networker

- Networker service by TIEKE (the Finnish Information Society Development Centre)
  - Web-based service of logistics-related electronic data interchange, based on UN/CEFACT recommendations
  - Contains standard messages and procedures for structured data communication.
  - Includes implementation guidelines and introduction for XML, UBL and EDIFACT standard messages and development tools.
  - All messages are designated for logistics processes, while general business processes are not covered.

## Generic standards - Networker

Acknowledgment	Order Status
Availability	Ordering
Booking	Shipping advising
ETA Status	Shipping Instructions
Forwarding Instruction	Transport Invoice
Forwarding Invoice	Transport Status
Order Confirmation	Waybill

## Conclusions

- The significance of seamless information exchange grows as supply chains become more complex
- Smooth information flow increases speed and accuracy in the supply chain while reducing costs and needed inventories
- Industry-specific standards are promoted by large actors and are more sophisticated
- The costs of implementing major industry-specific standards can be prohibitive for SMEs
- Generic standard, on the other hand, was aimed specifically at SMEs

## Conclusions

- All examined standards were based on UN/EDIFACT
  - Compatibility and extendability
- In logistics-related information exchange, the standards follow a common outline
  - Could be used in several industries
- Consolidation of standards between different industries has begun
- The existence of strong and widely-adopted industry-specific standards makes the development of a general-level supply chain standard not feasible
- Services like the Networker could provide a starting point for SMEs that want to implement supply chain wide information exchange



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