Information Systems research group
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Part VI: eDistribution
• What are the components of a distribution system?
• What are the characteristics of the online distribution?
• What are hybrid forms of distribution?
• How does a model for electronic software distribution look like?
The distribution of a digital product or a digital service with the use of a communications network (e.g. Internet) is called Online Distribution.

The Online Distribution should support the ubiquity of the economy. Digital products and services can be offered and distributed anywhere. The distribution is independent from time and place if the customer possesses mobile devices (cell phones with Internet access, palmtops, notebooks, ...).
The Components of a Distribution System

Distribution System

Distribution Channel
- direct
  - Shop
  - Tele-shop
  - Broker
  - Vending machine
- indirect
  - Wholesaler
  - Retailer
  - Franchising
  - Intermediary

Distribution Logistics
- Storage System
  - Digital libraries
  - Warehouse
- Transport Network
  - Streets
  - Waterways
  - Comm. networks
- Services
  - Delivery service
  - Remote diagnostics
  - Remote reparation
Direct Distribution Channel

Manufacturer  Communication Network  Customer
Indirect Distribution Channel

Manufacturer

Intermediary

Storage & Transport

Point of Delivery

Customer

Customer
**Assets**

- The customer can satisfy his wants immediately and at any time
- The manufacturer or seller has direct contact to his customers
- No bottlenecks during the reproduction of digital products and short delivery times, if the computer system of the manufacturer and the communication network have a high capacity
- Better price and costs management because of lower production, storage and distribution costs
- Niche products in little number can be sold in a more efficient and economic way

**Drawbacks**

- The customer has to pay all the distribution costs in most of the cases
- No social contacts during the selling and delivery process via online channels
- Lower quality of digital products if they are compressed for distribution and low capacity networks
- Illegal reproduction and distribution of digital products is common because a protection management is adapted just in some cases
- Not all customers have access to the communication system or their access is technically insufficient or insecure
- The data and the behavior of the customers is stored in databases
Online vs. Offline Distribution or Hybrid forms?

- Temperature
- Place and number
- Occupied space
- Time factor
- Optimizing the ways
- Delivery or pick up by the customer
- At which time
Assets and Drawbacks: Offline Distribution of Digital Products

**Assets**

- No time is needed to download a large amount of data
- The quality of digital graphics, audio or video files can be kept on a high level
- The protection of the copyright is ensured in a better way
- An enormous amount of data can be stored on new storage media (plasma and nano technology)

**Drawbacks**

- If some of the information is corrupted it cannot be restored by a download. Most of the time the storage media must be sent back to the manufacturer
- The collection of the physical data media gets complex and must be reorganized by the customer
- Different formats and technical innovations reduce the compatibility of the existing infrastructure
- The distribution of the digital products in no more independent form time and place
Model for an Electronic Software Distribution (ESD)

- Software Manufacturer
- Packer Software
- Box of Bits (BOB) Farm
- Financial Institution
- Clearing House
- Online Broker
- Online Customer
- Digital Signature
- Digital Licence
Architecture of an ESD System for Online Brokers

ESD Functions

ESD Services

Product Catalogue

Online Shop Shopping Cart

Enterpr. Resource Planning (ERP)

Logon

License

Download

Electronic Invoice

Certification Centre

Data Storage

BOB Farm

Payment

Financial Service Provider

License Clearing House
Standard Components of Software Shopping System

• The **product catalogue** contains information about the software packages, the prices and the payment modalities.

• The **access control system** identifies the customers, verifies them by a password (authenticity) and authorizes their access to the shopping system.

• The **shopping cart** provides the choosing and ordering process for each software product and customer.

• The **ERP system** controls the account management and the invoice process.
Supply Chain Management: Local Optimising
[Hässig 2000]
Electronic Commerce
“business-to-business”
(Extranet, EDI)
Supplier

Electronic Commerce
“business-to-consumer”
(Internet)
Customer

Manufacturer
(Intranet)
Infrastructure for Web-based Supply Chain Management

Supply Chain Network

Partners
- Software Development
- Process Support
- EDI
- Decision Support
- Database Support
- Telecommunications
- LANs
- Computer Hardware
- Network Interface

System Integration
- Process Co-ord.

Firm
- Software Development
- Process Support
- EDI
- Decision Support
- Database Support
- Telecommunications
- LANs
- Computer Hardware
- Network Interface

Supply Chain Data
- Design Data
- Marketing Data
- Financial Data
- Manufacturing Data
- Distribution Data
- Legal Data

External Data

Customers
- Order Fulfilment
- Customer Service
## Traditional SCM vs. SCM using Web Technology

<table>
<thead>
<tr>
<th>SCM Process</th>
<th>Traditional SCM Issues</th>
<th>Web Technology Enhancements</th>
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| Demand                    | • Cyclical demand pattern  
• Complex product mix                                                                                                                               | • Facilitates demand information sharing  
• More accurate demand forecast                                                               |
| Product Design            | • Highly customisable product                                                                                                                          | • Facilitates mass customisation trough postponement strategy  
• Product has both customisable and commodity parts                                                                                              |
| Order fulfilment and distribution | • Global organisation  
• Global sourcing  
• Large dealer network                                                                                                                               | • Facilitates coordination and resource sharing  
• Facilitates communication between suppliers, dealers and customers                                                                           |
| Enterprise Resource Planning | • Hybrid SCM for commodities as well as specialised components  
• Build-to-order production strategy  
• Supplier management for both long-term and short-term supplier relationships                                                                  | • Better inventory management through JIT and CRP strategies  
• Online bidding enables flexible short transactions  
• Support both cost-efficient and market responsive SCM                                                                                         |
| Customer Service          | • Improved product info dissemination to dealers  
• Available-to-promise guarantee for customer orders                                                                                              | • One-to-one customer service  
• Guidance for product selection  
• Customer-scheduled ordering                                                                                                                       |
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