Business Information Systems
Unit 6
Content Integration and Electronic Procurement

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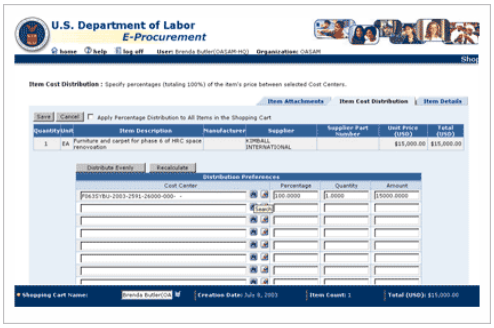
What *is* e-Procurement?

- The business-to-business purchase and sale of supplies and services through the Internet as well as other information and networking systems, such as electronic data interchange (EDI) and Enterprise Resource Planning (ERP). An important part of many B2B sites, e-procurement is also sometimes referred to by other terms, such as supplier exchange.
- Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify prices or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers.
- E-procurement software may make it possible to **automate** some buying and selling. Companies participating expect to be able to control parts inventories more effectively, reduce purchasing agent overhead, and improve manufacturing cycles.

cf: Wikipedia

e-Procurement System: Screenshot



Why e-Procurement?

- Centralizes purchasing:
  - High overhead per item
  - Slow
- Decentralized Purchasing (Maverick-Purchasing)
  - Loss of bargaining power and economies of scale

Combine the best of both worlds

e-Procurement: Status Quo

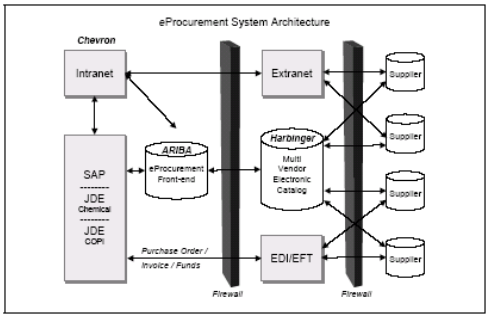
- BME Global Sourcing Portal
  - www.supply-markets.com
- Europe leading in supplier integration

Promising e-Procurement Tasks

- Search for suppliers
- Vendor selection
- Order planning
- Purchasing rules
- Customs handling

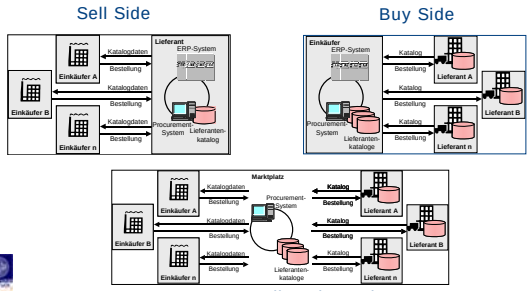
(Mertens 2000, pp. 78-111)

e-Procurement System Architecture



cf. Mertens 2000, p. 101

Common Core Component: Electronic Catalogs



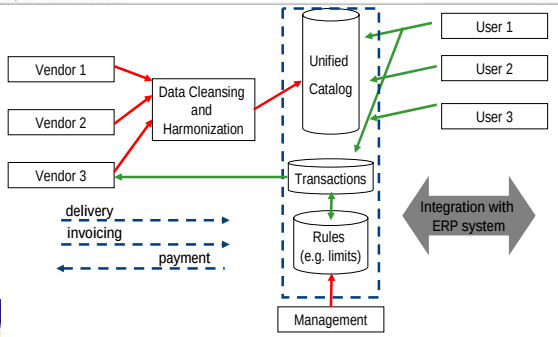
Intermediary-hosted

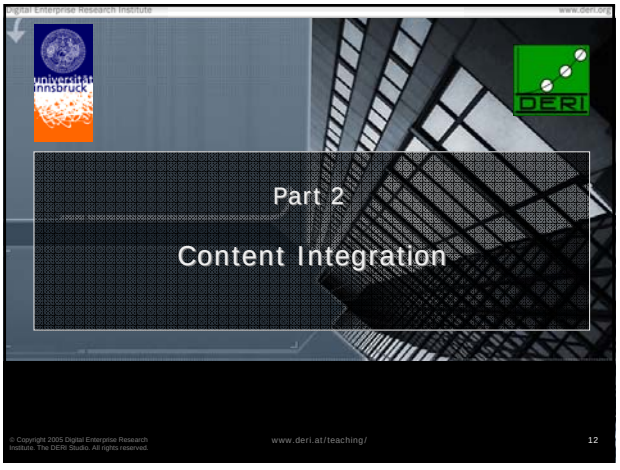
Price-finding Mechanisms

- List prices
- Auctioning
  - e.g. as in e-bay
- Reverse Auctions
- Tendering
  - especially in the public sector

Multi-dimensional Bidding

Example: Buy-side System for Office Supplies





Content Integration

- The task of integrating data from multiple sources into a consistent target data collection.
- Examples
  - Catalog data integration
  - spend analysis
- Characteristics
  - highly operational
  - many sources, many targets
  - heterogeneity in structure and semantics very frequent
- Two approaches
  - Standardization
  - Integration

Data Exchange with XML

Good foundation for common and lasting exchange formats!

Using XML Grammars as Interface Specifications

- For requirements specifications,
- Service-level agreements,
- Legal documents,
- etc.

XML and CAD

- DesignXML
  - www.designxml.org
  - Autodesk Initiative
  - supported by AutoCAD 2002, but not yet widely in use.
- aecXML
  - International Alliance for Interoperability (IAI)
  - http://www.iai-na.org/aecxml/mission.php

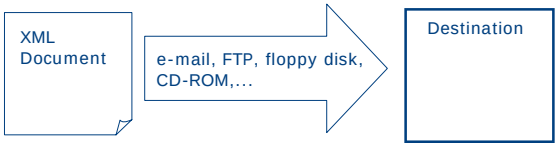
Countless XML Initiatives

Accounting (11)
Advertising (6)
Aerospace (24)
Agriculture (3)
Arts/Entertainment (25)
Astronomy (14)
Automotive (12)
Banking (11)
Biology (4)
Business Services (3)
Catalogs (9)
Chemistry (3)
Computer (8)
Construction (10)
Consulting (17)
Customer Relation (6)
Customs (2)
Databases (8)
E-Commerce (56)
EDI (18)
ERP (4) Economics (2)
Education (43)
Energy/Utilities (23)
Environmental (1)
Healthcare (15)
Human Resources (23)
Industrial Control (3)
Insurance (6)
Internet/Web (25)
Legal (10)
Literature (14)
Manufacturing (4)
Marketing/PR
Math/Data (1)
Mining (10)
Multimedia (24)
News (10)
Public Service (3)
Publishing/Print (28)
Real Estate (15)
Religion
Retail (6)
Robotics/AI (5)
Science (59)
Security (1)
Software (82)
Supply Chain (23)
Telecommunications (24)
Translation (7)
Transportation (8)
Travel (3)
Waste Management
Weather (6)
Wholesale

etc.

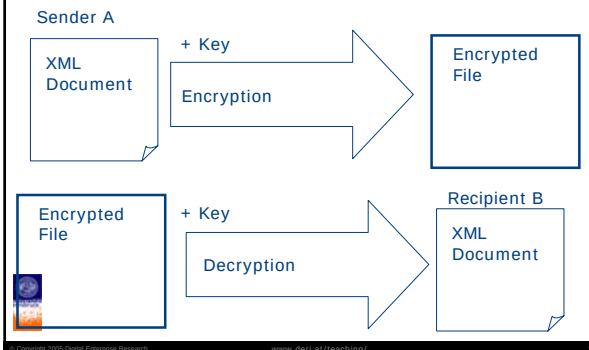
http://xml.coverpages.org/xmlApplications.html

XML Data Transmission

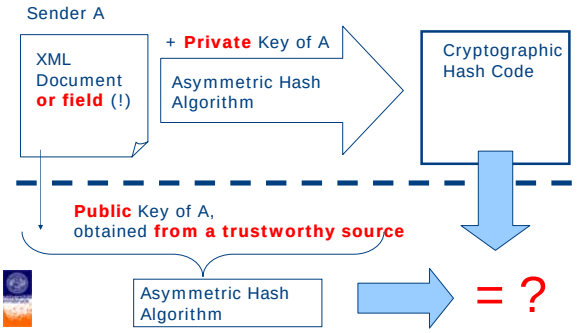


XML documents are just files...

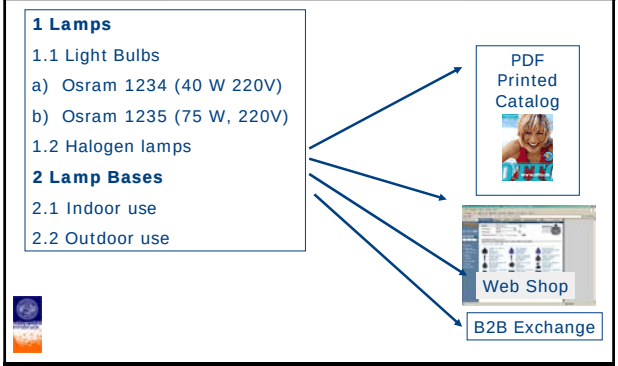
XML Encryption

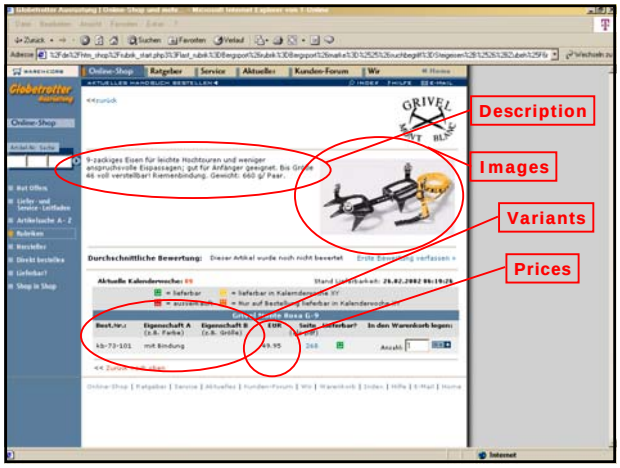


XML Digital Signature

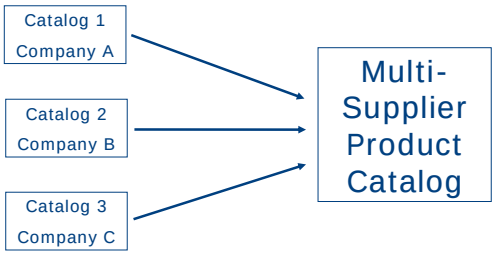


Electronic Catalogs: Main Idea

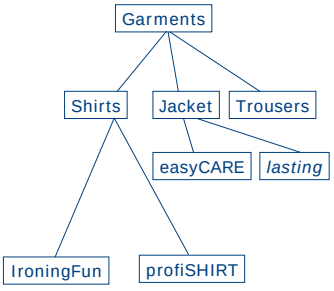




Catalog Data Integration



Catalog Groups



BMEcat: Catalog Data Interchange Specification

- more than 11 000 users
- massive support from German corporations
  - Alcatel, American Express, Audi, Bayer, BMW, DaimlerChrysler, Deutsche Bahn, Deutsche Telekom, Lufthansa, Mannesmann, Siemens,...
- www.bmecat.de

BMEcat: Three Transactions

- Complete Catalog (T_NEW_CATALOG),
- Update single products (T_UPDATE_PRODUCTS) and
- Update prices (T_UPDATE_PRICES).

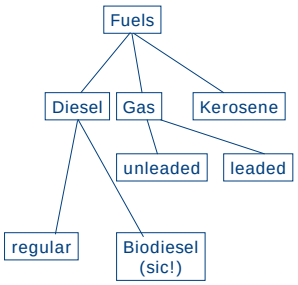
BMEcat and Catalog Data Management with SAP

- SAP Exchange Infrastructure (SAP XI)
- Success study (no endorsement ☺)
  - http://www.all-for-e.de/projekte/mennekes_success.htm

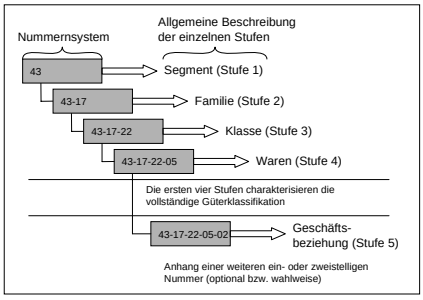
BMEcat: Basic Message Structure

- **Header:** Control data, supplier, customer, relevant framework agreement
- **Transaction Data:** Product descriptions (identifier, properties, prices,...)

Classification Schemes for Products and Services

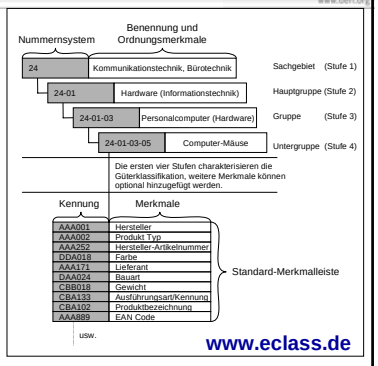


UNSPSC



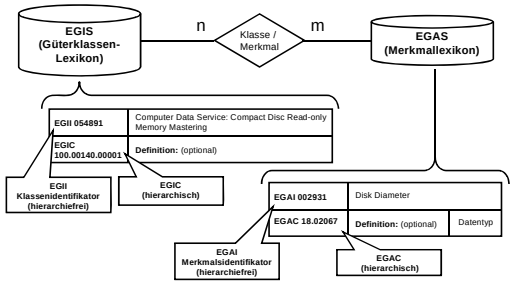
www.unspsc.org

eCl@ss



www.eclass.de

ECCMA Open Technical Dictionary (eOTD)



www.eotd.org

openTRANS

- BMEcat-compatible set of business documents
- www.opentrans.de