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Business Information Systems Unit 6 Content Integration and Electronic Procurement

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What *is* e-Procurement?

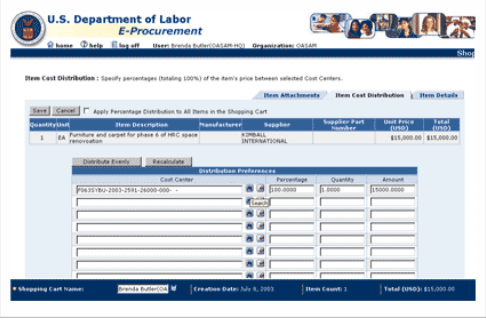
- The business-to-business purchase and sale of supplies and services through the Internet as well as other information and networking systems, such as electronic data interchange (EDI) and Enterprise Resource Planning (ERP). An important part of many B2B sites, e-procurement is also sometimes referred 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

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e-Procurement System: Screenshot




The screenshot shows the 'U.S. Department of Labor E-Procurement' interface. It displays a 'Item Cost Distribution' table with columns for 'Supplier Part Number', 'Unit Price', and 'Total'. Below it, there is a 'Distribution Preferences' table with columns for 'Cost Center', 'Percentage', 'Quantity', and 'Amount'. The interface includes various navigation buttons like 'Apply Percentage Distribution to All Items in the Shopping Cart' and 'Calculate'.

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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

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e-Procurement: Status Quo

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

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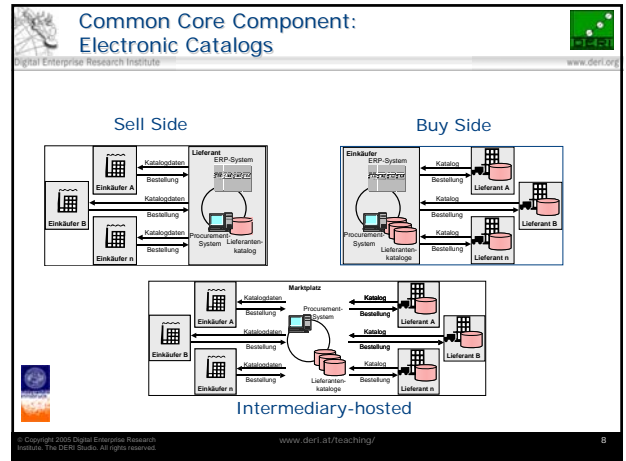
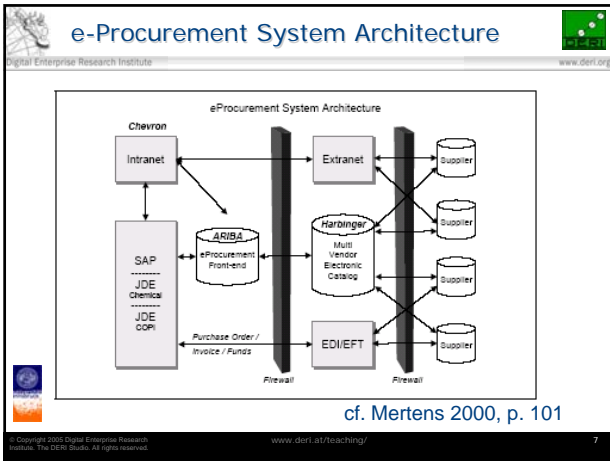
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Promising e-Procurement Tasks

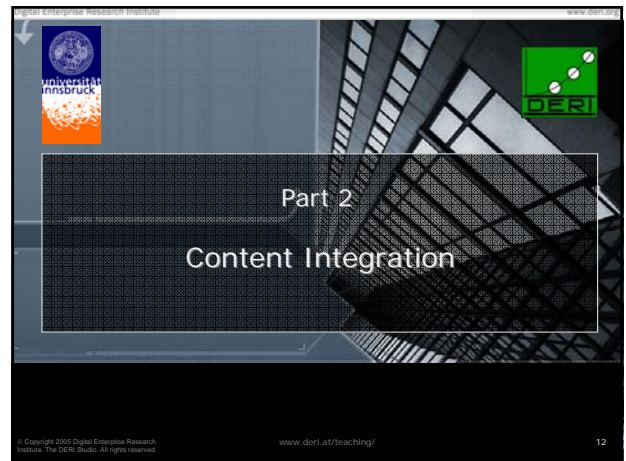
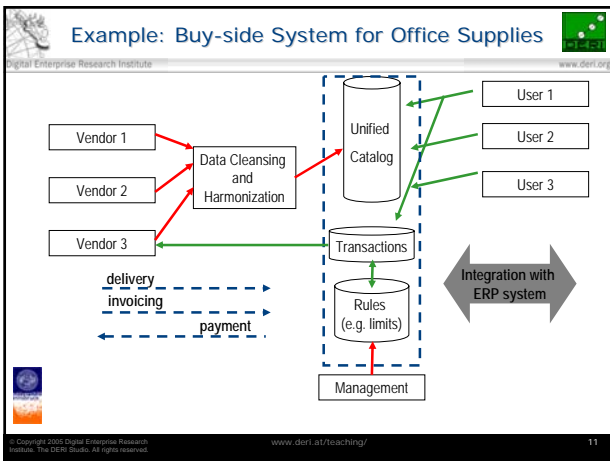
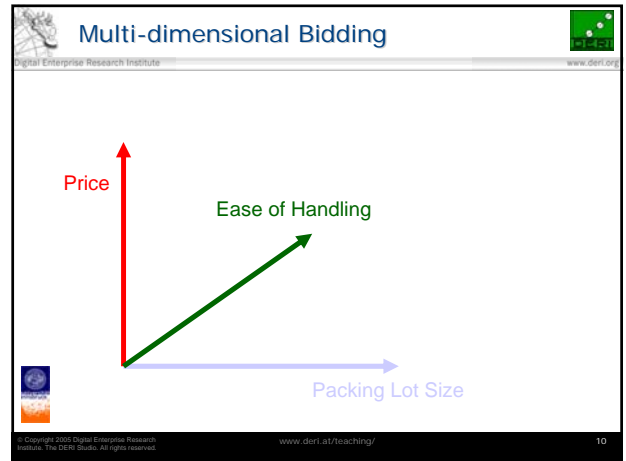
- Search for suppliers
- Vendor selection
- Order planning
- Purchasing rules
- Customs handling

(Mertens 2000, pp. 78-111)

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



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

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Data Exchange with XML

```

    graph LR
      A[Application A] --> B[XML Document]
      B --> C[Application B]
  
```

Good foundation for **common** and **lasting** exchange formats!

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Using XML Grammars as Interface Specifications

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

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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>

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Countless XML Initiatives

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

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

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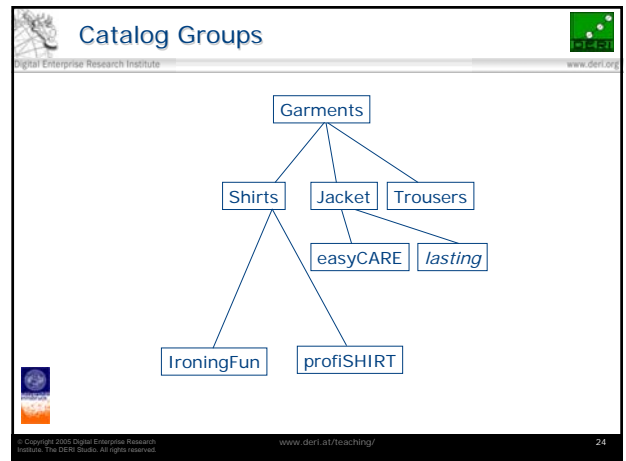
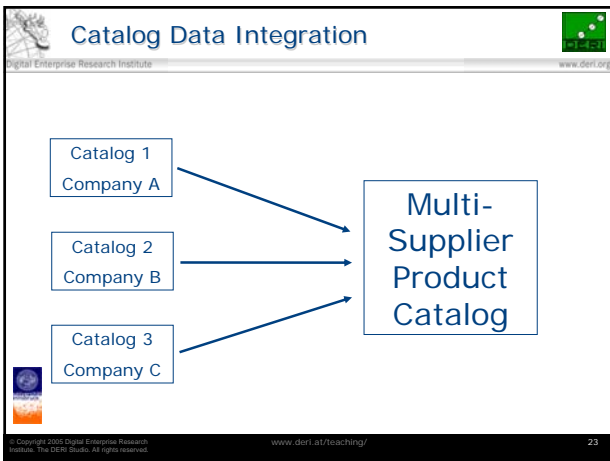
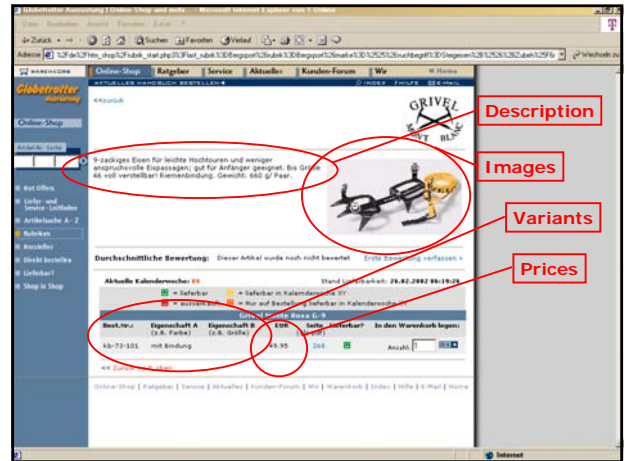
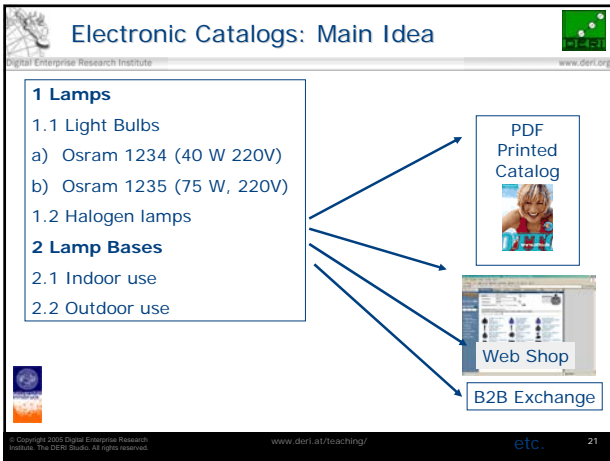
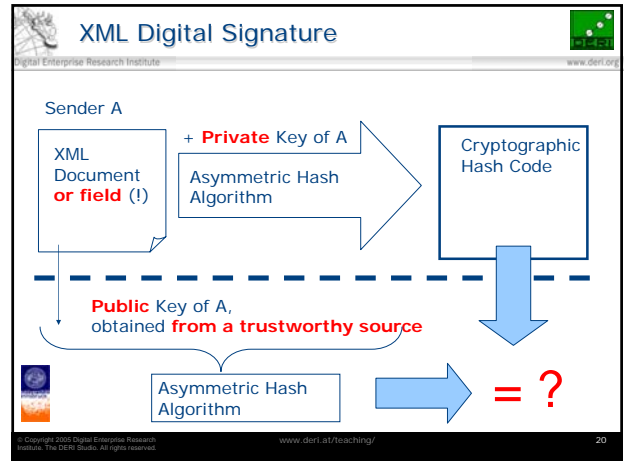
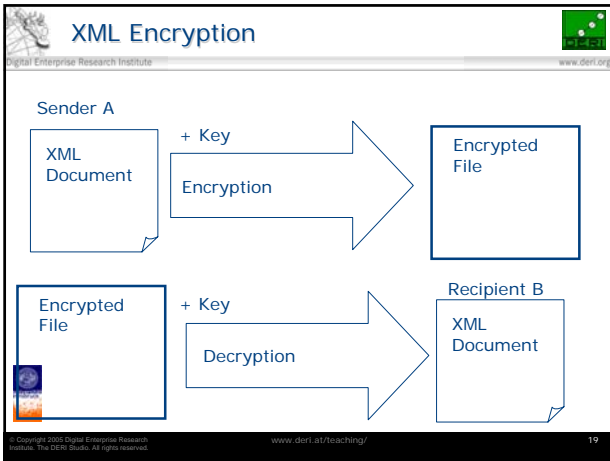
XML Data Transmission

```

    graph LR
      A[XML Document] -- "e-mail, FTP, floppy disk, CD-ROM, ..." --> B[Destination]
  
```

XML documents are just files...

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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

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BMEcat: Three Transactions

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

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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

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BMEcat: Basic Message Structure

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

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Classification Schemes for Products and Services

```

graph TD
    Fuels --> Diesel
    Fuels --> Gas
    Fuels --> Kerosene
    Diesel --> regular
    Diesel --> Biodiesel["Biodiesel (sic!)"]
    Gas --> unleaded
    Gas --> leadet
  
```

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UNSPSC

Nummernsystem

Allgemeine Beschreibung der einzelnen Stufen

- 43 → Segment (Stufe 1)
- 43-17 → Familie (Stufe 2)
- 43-17-22 → Klasse (Stufe 3)
- 43-17-22-05 → Waren (Stufe 4)
- 43-17-22-05-02 → Geschäftsbeziehung (Stufe 5)

Die ersten vier Stufen charakterisieren die vollständige Güterklassifikation

Anhang einer weiteren ein- oder zweistelligen Nummer (optional bzw. wahlweise)

www.unspsc.org

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eCl@ss

Nummernsystem Benennung und Ordnungsmerkmale

24 Kommunikationstechnik, Bürotechnik Sachgebiet (Stufe 1)

24-01 Hardware (Informationstechnik) Hauptgruppe (Stufe 2)

24-01-03 Personalcomputer (Hardware) Gruppe (Stufe 3)

24-01-03-05 Computer-Mäuse Untergruppe (Stufe 4)

Die ersten vier Stufen charakterisieren die Güterklassifikation, weitere Merkmale können optional hinzugefügt werden.

Kennung Merkmale

AAA001	Hersteller
AAA002	Produkt Typ
AAA020	Hersteller-Artikelnummer
DDA018	Farbe
AAA171	Lieferant
DA004	Stauraum
CBB018	Gewicht
CBA130	Außendimensionen/Kennmaß
CBA102	Produktbezeichnung
AAA889	EAN Code

usw.

Standard-Merkmaliste

www.eclass.de

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ECCMA Open Technical Dictionary (eOTD)

EGIS (Güterklassen-Lexikon) n Klasse / Merkmal m EGAS (Merkmallexikon)

EGII 054891 Computer Data Service: Compact Disc Read-only Memory Mastering

EGIC 100.00140.00001 Definition: (optional)

EGII Klassenspezifischer (hierarchisch) EGIC (hierarchisch)

EGAI 002931 Disk Diameter

EGAC 18.02067 Definition: (optional) Datentyp

EGAI Merkmalspezifischer (hierarchisch) EGAC (hierarchisch)

www.eotd.org

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openTRANS

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

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Thank you!

The slides will be available on the internet at <http://www.heppnetz.de/teaching/bis>

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