

Business Information Systems
Unit 8
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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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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Promising e-Procurement Tasks

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

(Mertens 2000, pp. 78-111)

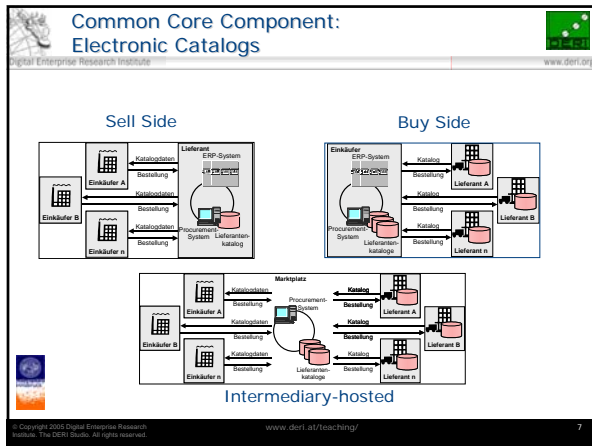
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e-Procurement System Architecture

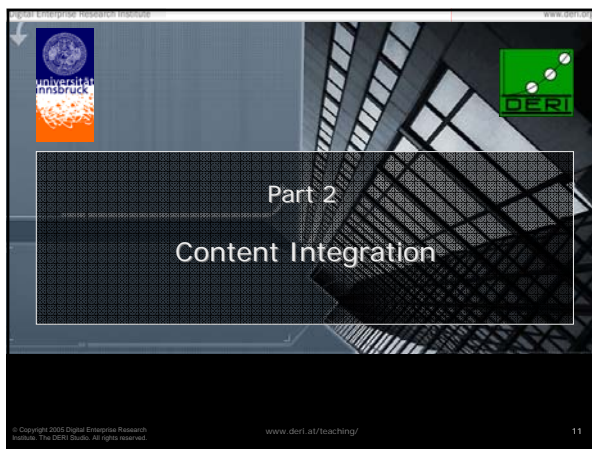
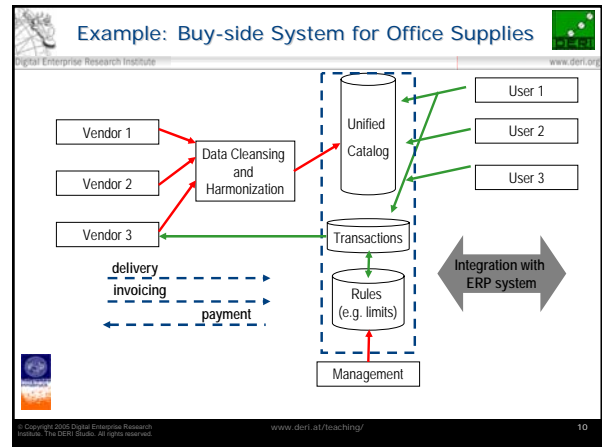
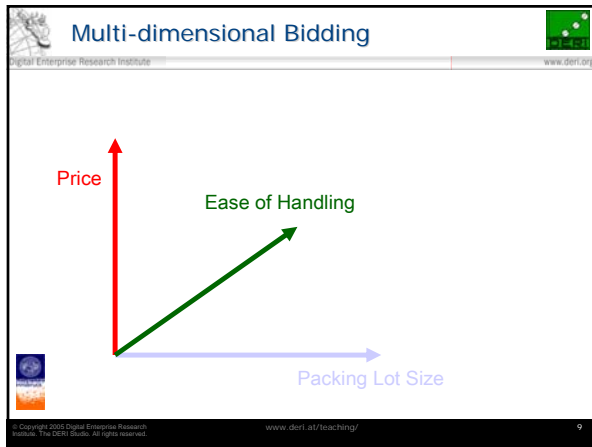
The diagram illustrates the e-Procurement System Architecture. It shows an Intranet on the left and an Extranet on the right, both separated from the external world by firewalls. The Intranet contains SAP (JDE Chemical, JDE O&PI) and ARIBA (eProcurement Frontend). The Extranet contains Haringer (Multi Vendor Electronic Catalog) and EDI/EFT. Suppliers are connected to the Extranet. Data flows include Purchase Order / Invoice / Funds from EDI/EFT to SAP, and various data exchanges between ARIBA, Haringer, and EDI/EFT.

cf. Mertens 2000, p. 101

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- ### Price-finding Mechanisms
- List prices
 - Auctioning
 - e.g. as in e-bay
 - Reverse Auctions
 - Tendering
 - especially in the public sector
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- ### 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 (6)
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)	
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)		

etc.

<http://www.xml.org/xml/registry.jsp>

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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...

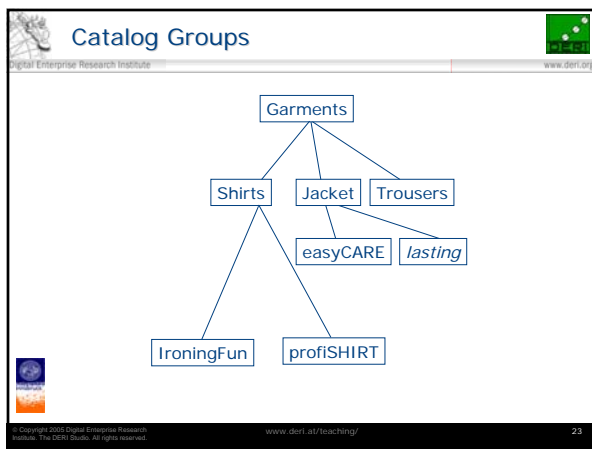
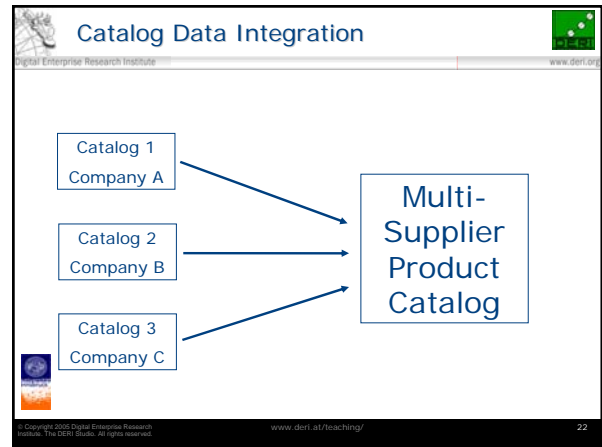
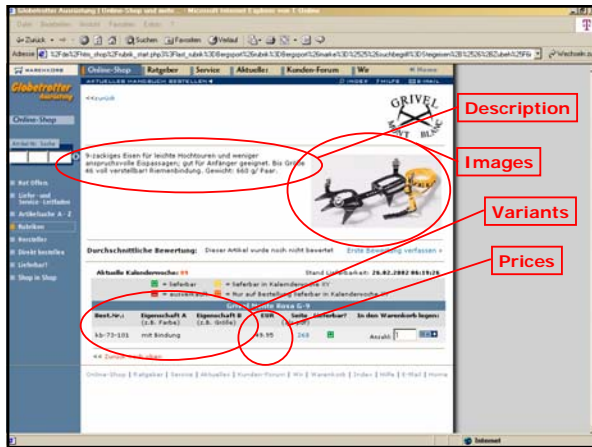
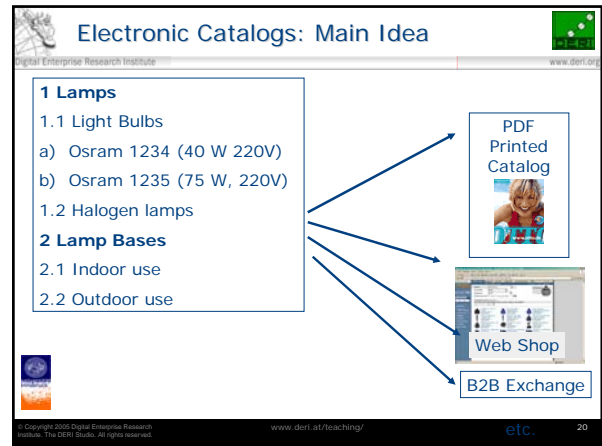
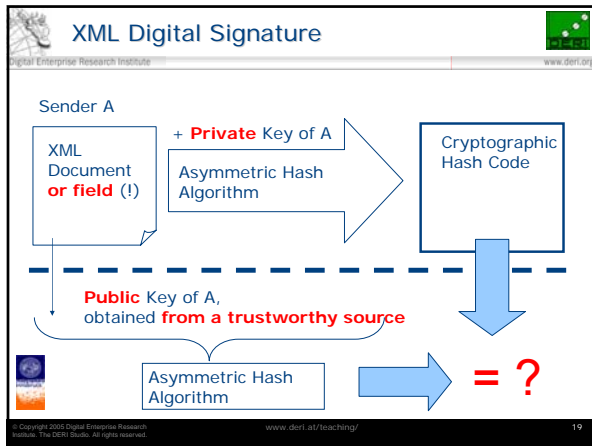
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XML Encryption

```

    graph TD
      subgraph Sender_A [Sender A]
        A[XML Document] -- "+ Key" --> B[Encryption]
        B --> C[Encrypted File]
      end
      subgraph Recipient_B [Recipient B]
        D[Encrypted File] -- "+ Key" --> E[Decryption]
        E --> F[XML Document]
      end
  
```

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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

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 --> lead
  
```

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UNSPSC

www.unspsc.org

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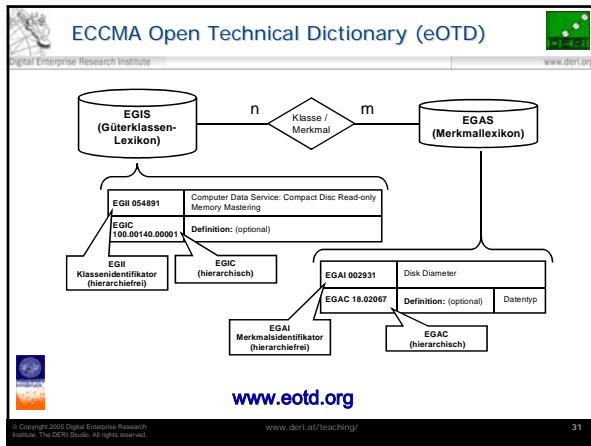
eCl@ss

Kennung	Merkmale
AAA001	Hersteller
AAA002	Produkt Typ
AAA009	Hersteller-Artikelnummer
DD0018	Farbe
AAA171	Lieferant
DA0024	Material
GBB018	Gewicht
GBA133	Ausstattungsart/Kennung
GBA102	Produktbeschreibung
AAA889	EAN Code

usw.

www.ecl@ss.de

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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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