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## Business Information Systems Unit 8 Content Integration and Electronic Procurement


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## What *is* e-Procurement?

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- 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?




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- 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



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- BME Global Sourcing Portal
  - [www.supply-markets.com](http://www.supply-markets.com)
- Europe leading in supplier integration



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## Promising e-Procurement Tasks



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

(Mertens 2000, pp. 78-111)



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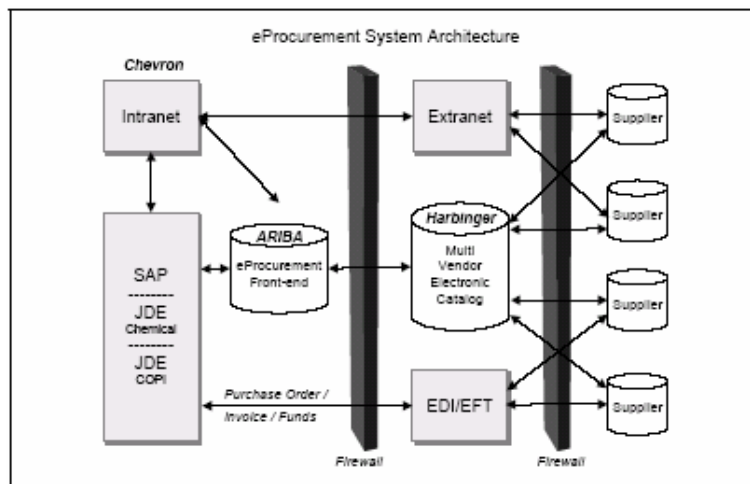


## e-Procurement System Architecture



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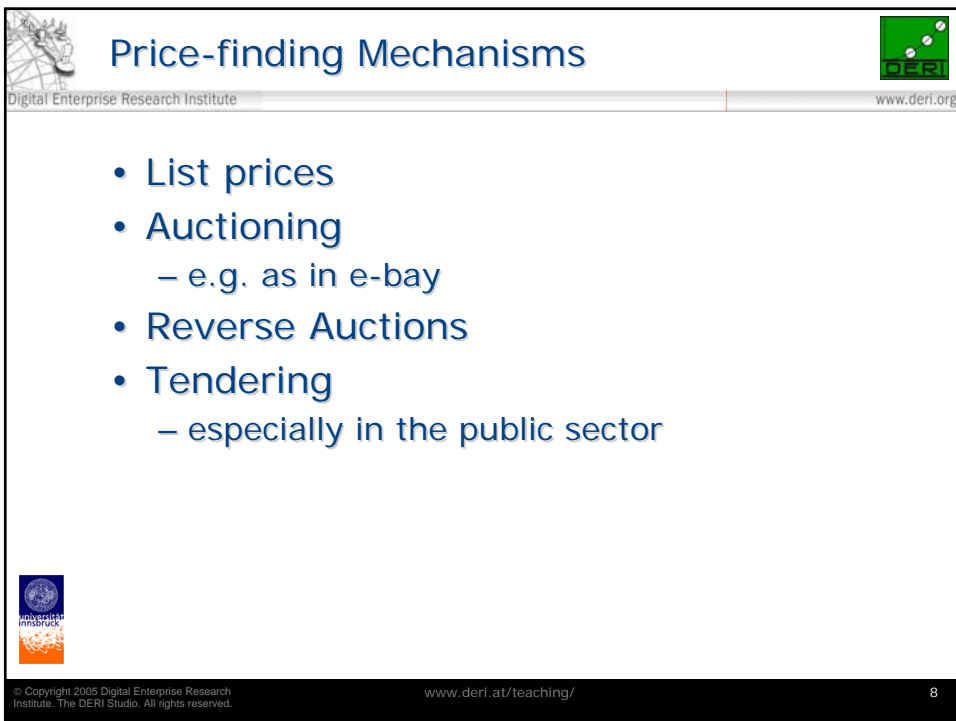
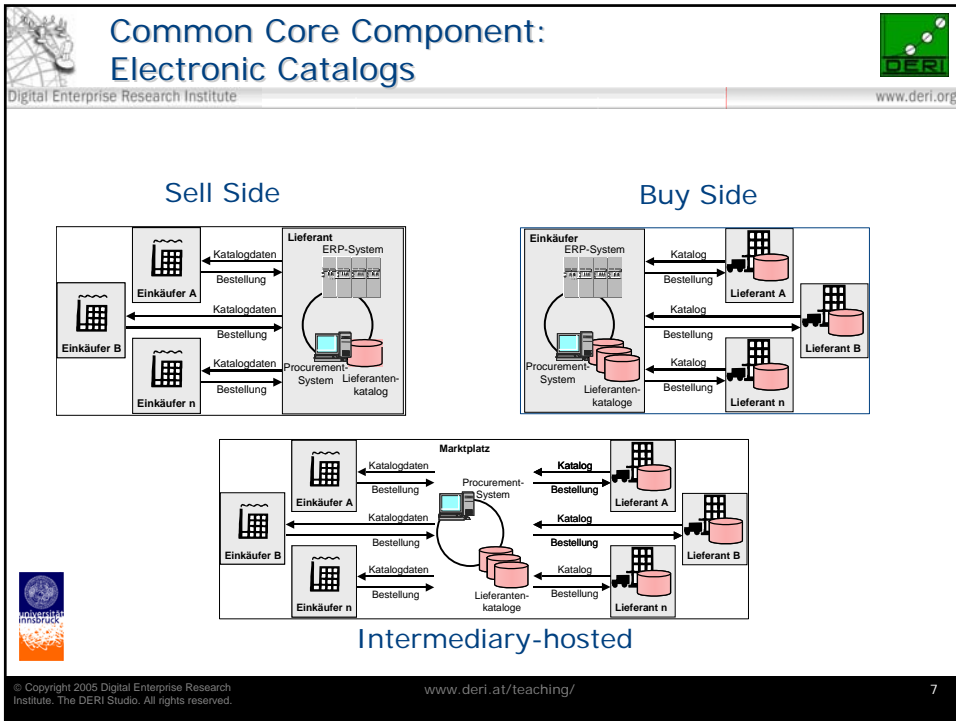
cf. Mertens 2000, p. 101

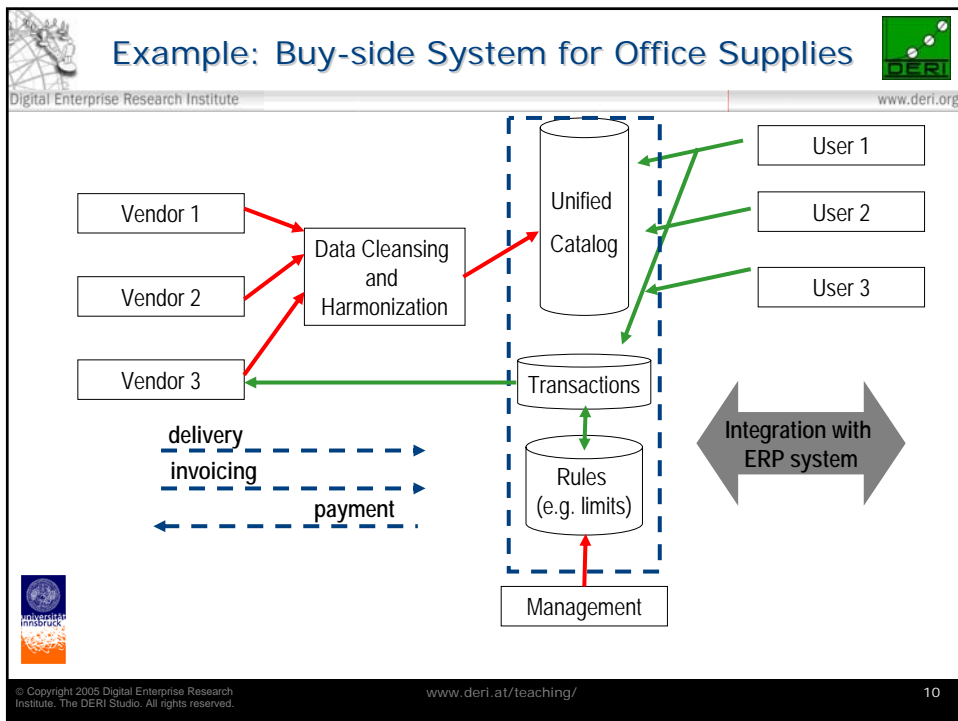
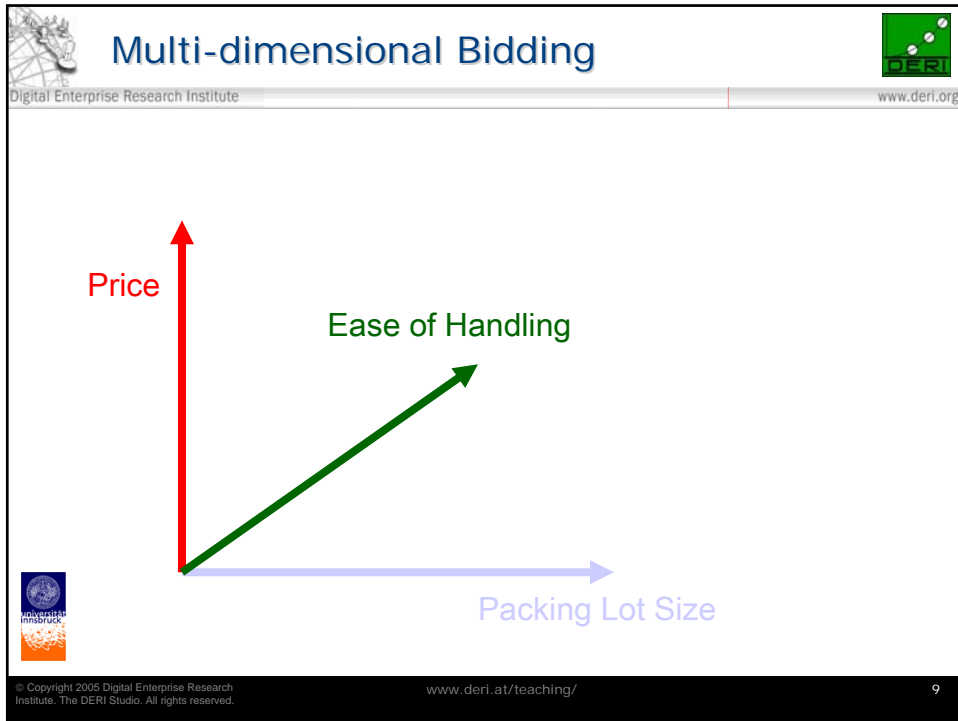


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## Part 2 Content Integration

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## Content Integration



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- 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

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

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

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# Using XML Grammars as Interface Specifications

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- 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>



# 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)              |                         |
| Customer Relation (6)   | Public Service (3)     | <b>etc.</b>             |
| Customs (2)             | Publishing/Print (28)  |                         |
| Databases (8)           | Real Estate (15)       |                         |
| E-Commerce (56)         |                        |                         |
| EDI (18)                |                        |                         |
| ERP (4)                 |                        |                         |
| Economics (2)           |                        |                         |
| Education (43)          |                        |                         |

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



# XML Data Transmission

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The diagram illustrates the transmission of an XML document. On the left, a document icon labeled "XML Document" is shown. A large arrow points to the right, labeled with "e-mail, FTP, floppy disk, CD-ROM, ...". On the right, a box labeled "Destination" represents the recipient. Below the diagram, the text "XML documents are just files..." is written in red.

XML Document → e-mail, FTP, floppy disk, CD-ROM, ... → Destination

XML documents are just files...

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# XML Encryption

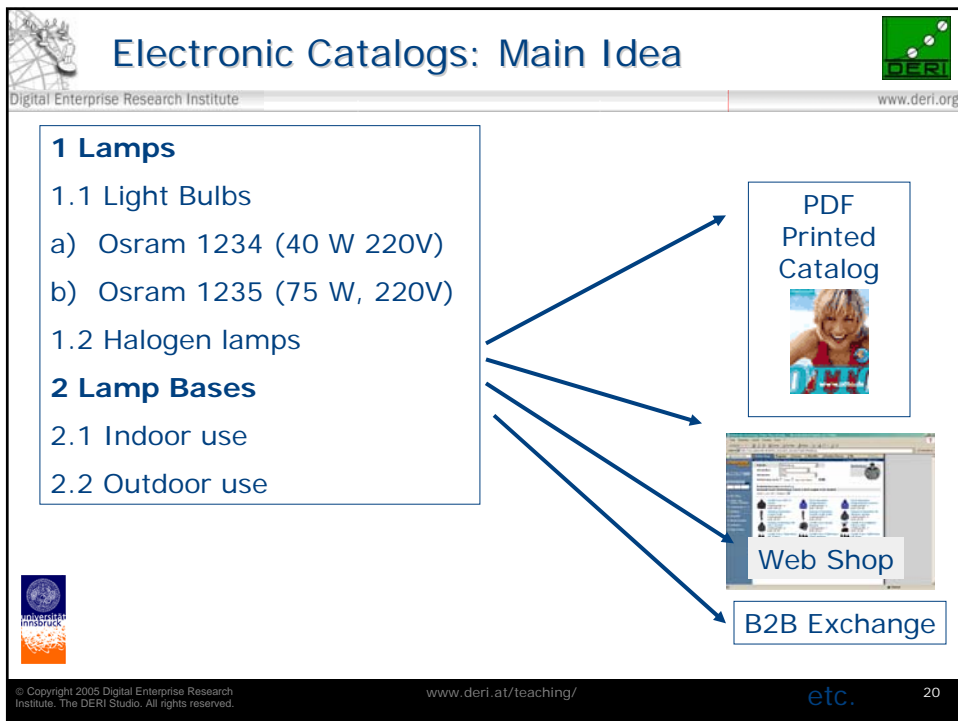
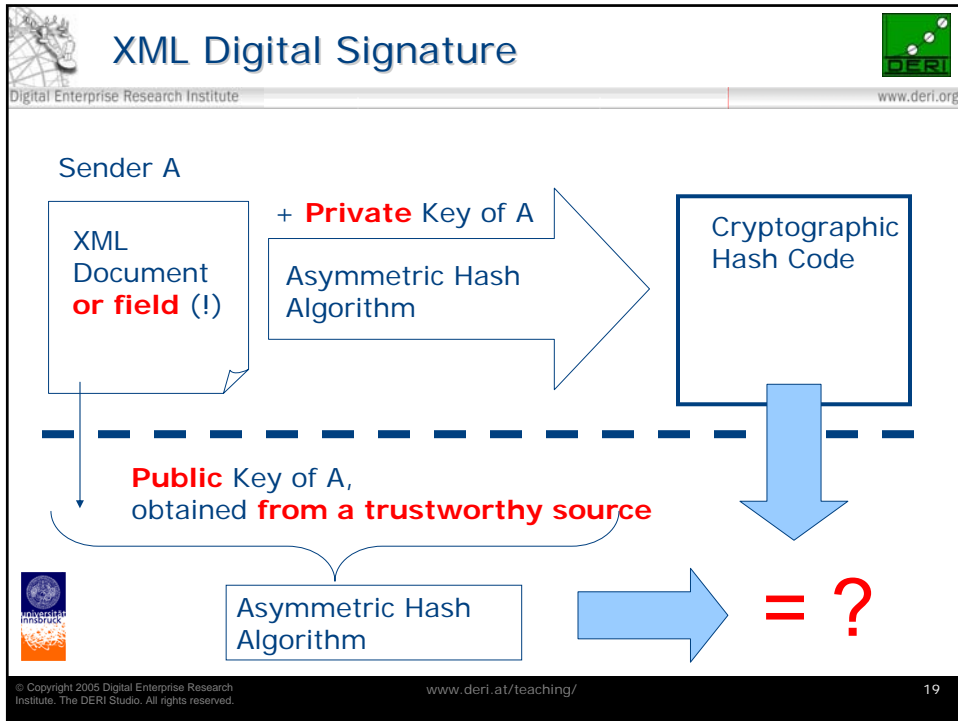
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The diagram illustrates the process of XML encryption and decryption. It is divided into two parts. The top part shows "Sender A" on the left with an "XML Document" icon. An arrow labeled "+ Key" and "Encryption" points to an "Encrypted File" box on the right. The bottom part shows the "Encrypted File" box on the left. An arrow labeled "+ Key" and "Decryption" points to "Recipient B" on the right, who receives an "XML Document" icon.

Sender A: XML Document → (+ Key, Encryption) → Encrypted File


Encrypted File → (+ Key, Decryption) → Recipient B: XML Document

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# Catalog Groups




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```
graph TD; Garments --> Shirts; Garments --> Jacket; Garments --> Trousers; Shirts --> IroningFun; Shirts --> profiSHIRT; Jacket --> easyCARE; Jacket --> lasting;
```




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# BMEcat: Catalog Data Interchange Specification




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- 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](http://www.bmecat.de)



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## BMEcat: Three Transactions




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- 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



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



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## BMEcat: Basic Message Structure



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



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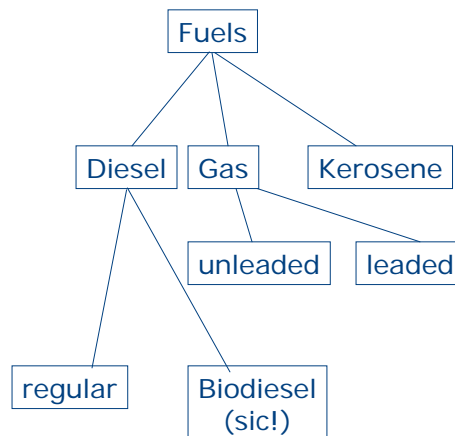


## Classification Schemes for Products and Services



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**UNSPSC**

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Allgemeine Beschreibung der einzelnen Stufen

**Nummernsystem**

43 → Segment (Stufe 1)

43-17 → Familie (Stufe 2)

43-17-22 → Klasse (Stufe 3)

43-17-22-05 → Waren (Stufe 4)

---

Die ersten vier Stufen charakterisieren die vollständige Güterklassifikation

---

43-17-22-05-02 → Geschäftsbeziehung (Stufe 5)

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

[www.unspsc.org](http://www.unspsc.org)

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**eCl@ss**

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Benennung und Ordnungsmerkmale

**Nummernsystem**

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.

---

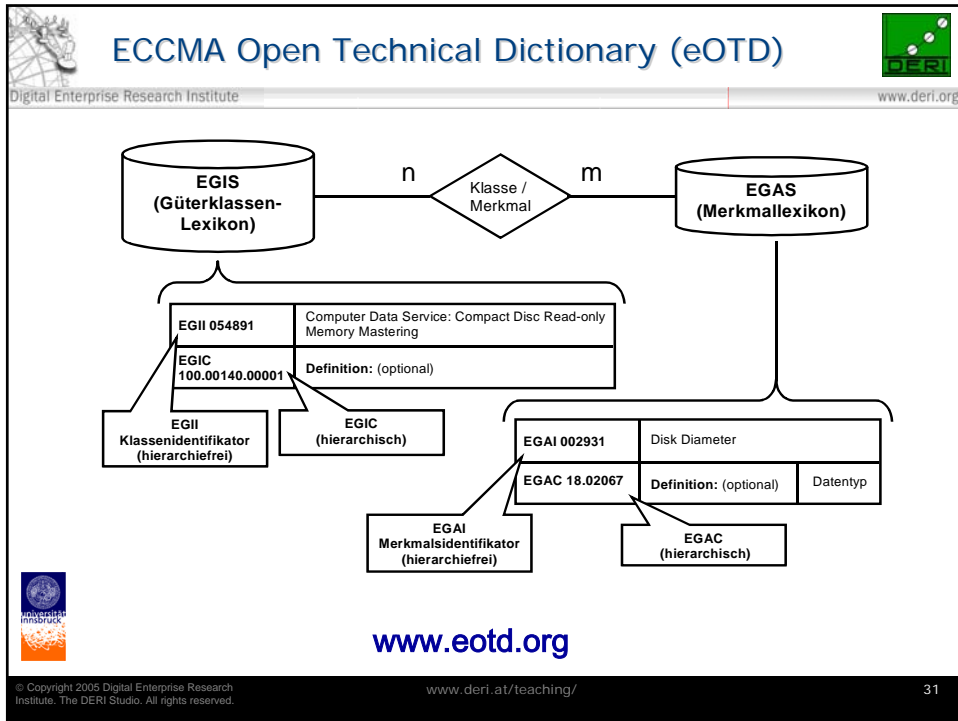
Kennung	Merkmale
AAA001	Hersteller
AAA002	Produkt Typ
AAA252	Hersteller-Artikelnnummer
DDA018	Farbe
AAA171	Lieferant
DAA024	Bauart
CBB018	Gewicht
CBA133	Ausführungsart/Kennung
CBA102	Produktbezeichnung
AAA889	EAN Code

usw.

} Standard-Merkmalleiste

[www.eclass.de](http://www.eclass.de)

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## openTRANS

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- BMEcat-compatible set of business documents
- [www.opentrans.de](http://www.opentrans.de)

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Thank you!

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