

# Semantic Web-based E-Procurement

## The GoodRelations Vocabulary

<http://purl.org/goodrelations/>

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# Division of Labor and Specialization Gains



Adam Smith:  
*The Wealth of Nations*, 1776

# Where are we heading to?

## Germany, 2020

# Growth in Specificity!

## Reason # 1: Division of Labor

# Growth in Specificity!

## Reason # 2: Technical Advancement and Innovation

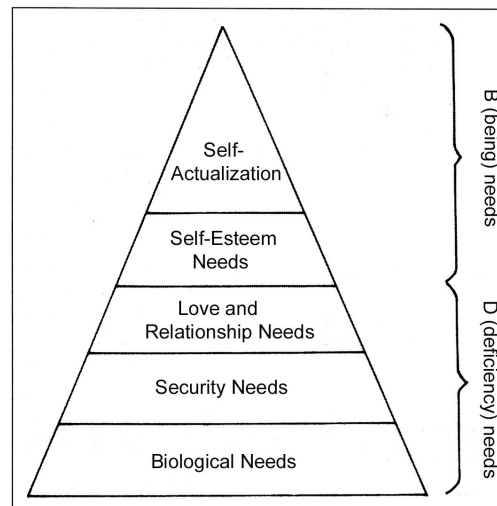
# Growth in Specificity!

Reason # 3: Logistics

Temporal Constraints etc.

# Growth in Specificity!

## Reason # 4: Wealth



Abraham H. Maslow (1908-1970)  
*A Theory of Human Motivation* (1943)



# Examples



02.04.2009



# Examples



# Examples





# MERCK'S WARENLEXIKON

## für Handel, Industrie und Gewerbe

Beschreibung der im Handel vorkommenden Natur- und Kunst-  
erzeugnisse unter besonderer Berücksichtigung der chemisch-  
technischen und anderer Fabrikate, der Drogen- und Farbwaren, der  
Kolonialwaren, der Landesprodukte, der Material- und Mineralwaren

herausgegeben von

Prof. Dr. A. Beythien, und Ernst Dreßler,  
Direktor des chemischen Untersuchungsamtes Drogist und gerichtlicher Sachverständiger  
der Stadt Dresden für das Landgericht u. Amtsgericht Dresden

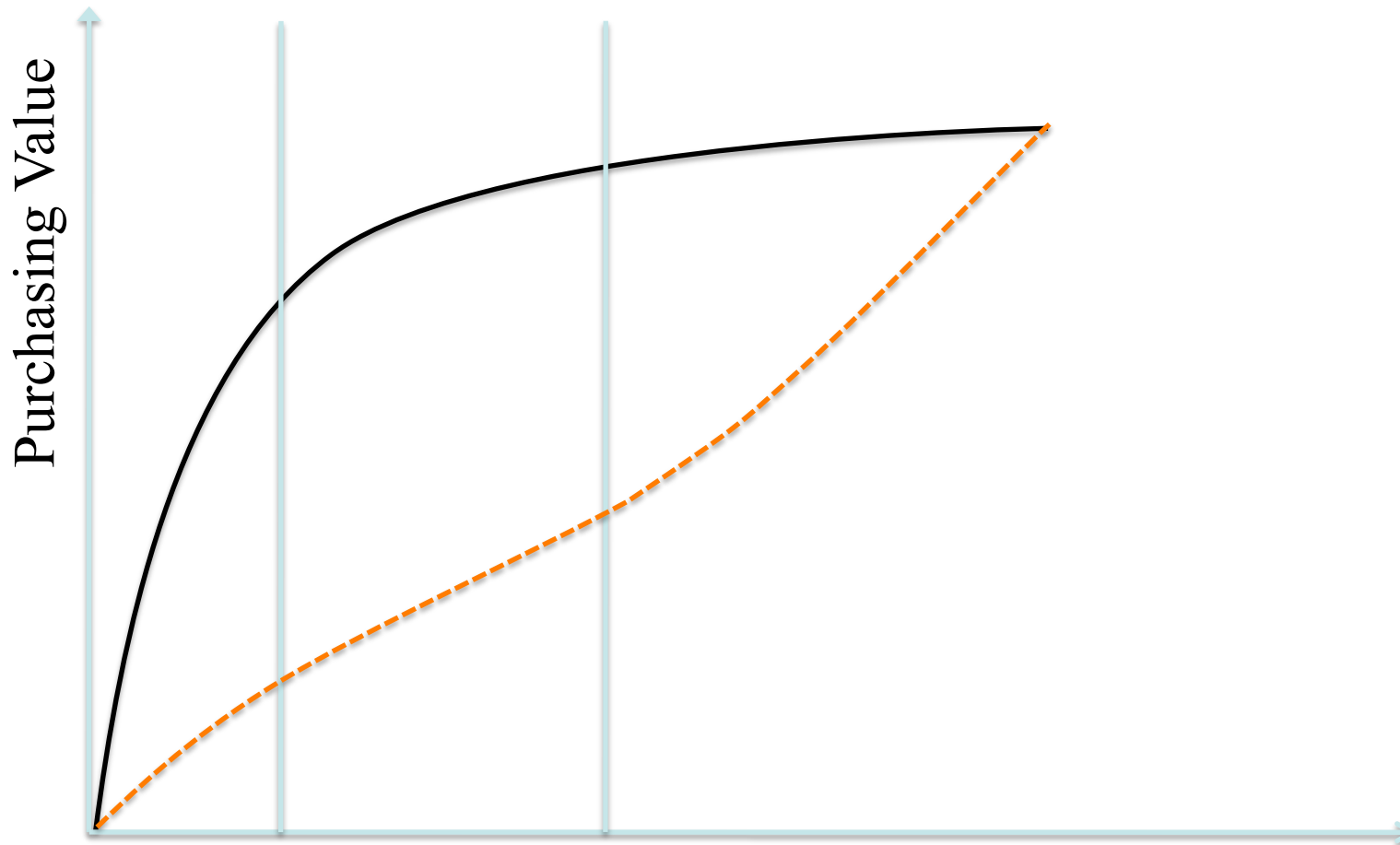
unter Mitwirkung von

Max Arnold, Verbandstoff-Fabrik-Chemnitz, Privatdozent Dr. Paul Bohrisch-Dresden,  
Heinrich Ernemann A.-G.-Dresden, Dr. Hans Hempel, Stellvertreter des Direktors am  
Städtischen Untersuchungsamt-Dresden, Photochemiker und Fabrikbesitzer Richard Jahr-  
Dresden, Schimmel & Co., Fabrik ätherischer Öle und Essenzen-Mütlitz b. Leipzig, Vereinigte  
Fabriken photographischer Papiere-Dresden

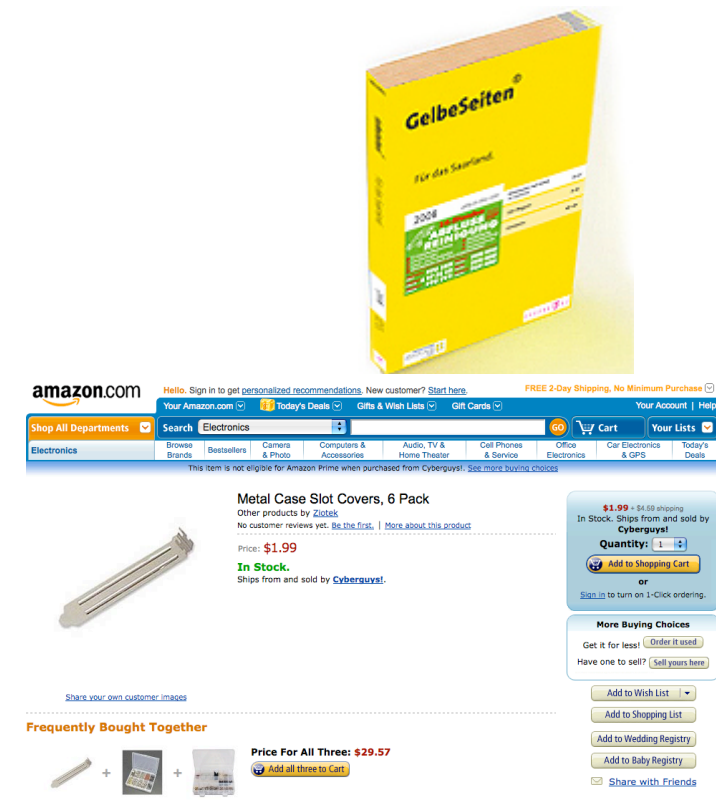
# 1920: ca. 5,000 Types of Goods



# ABC Analysis and Search Costs

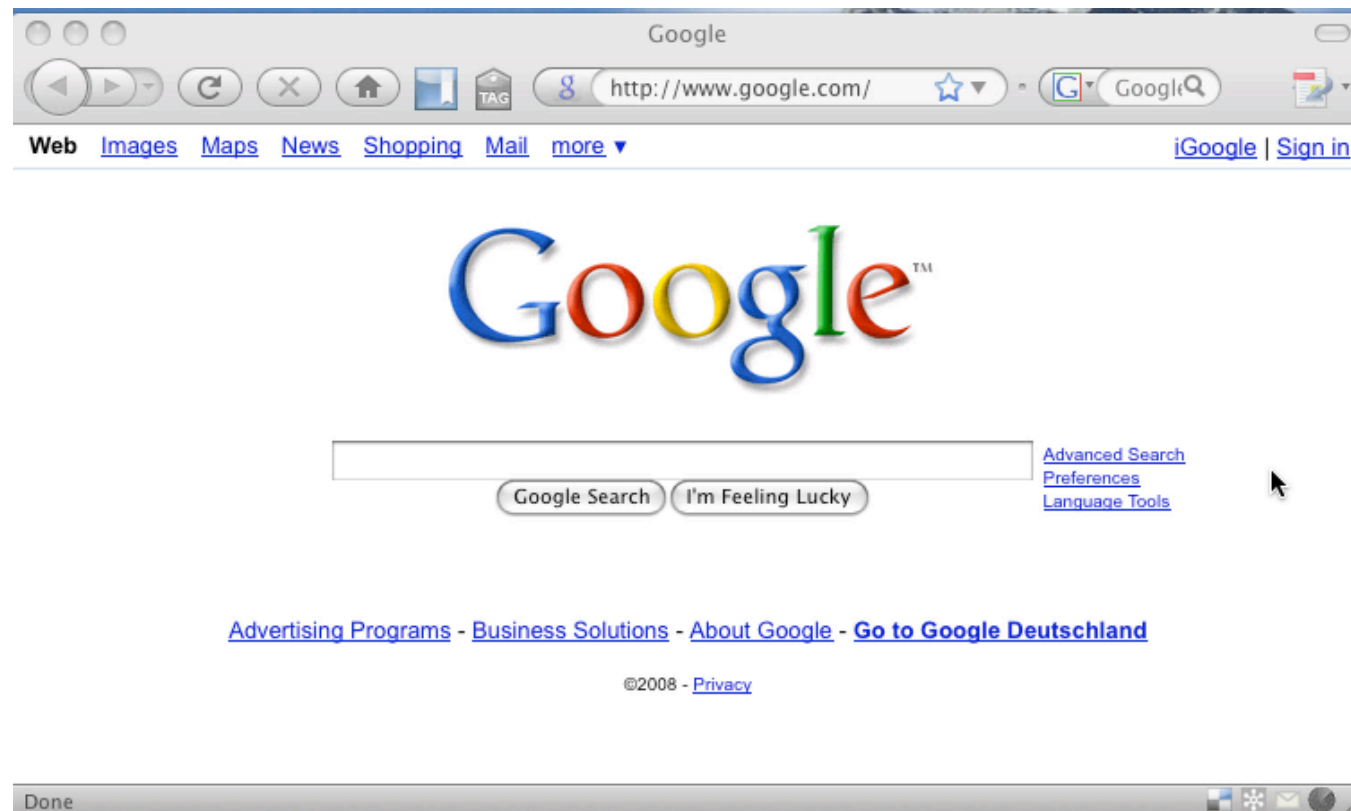


# Search for Suppliers, ca. 1992



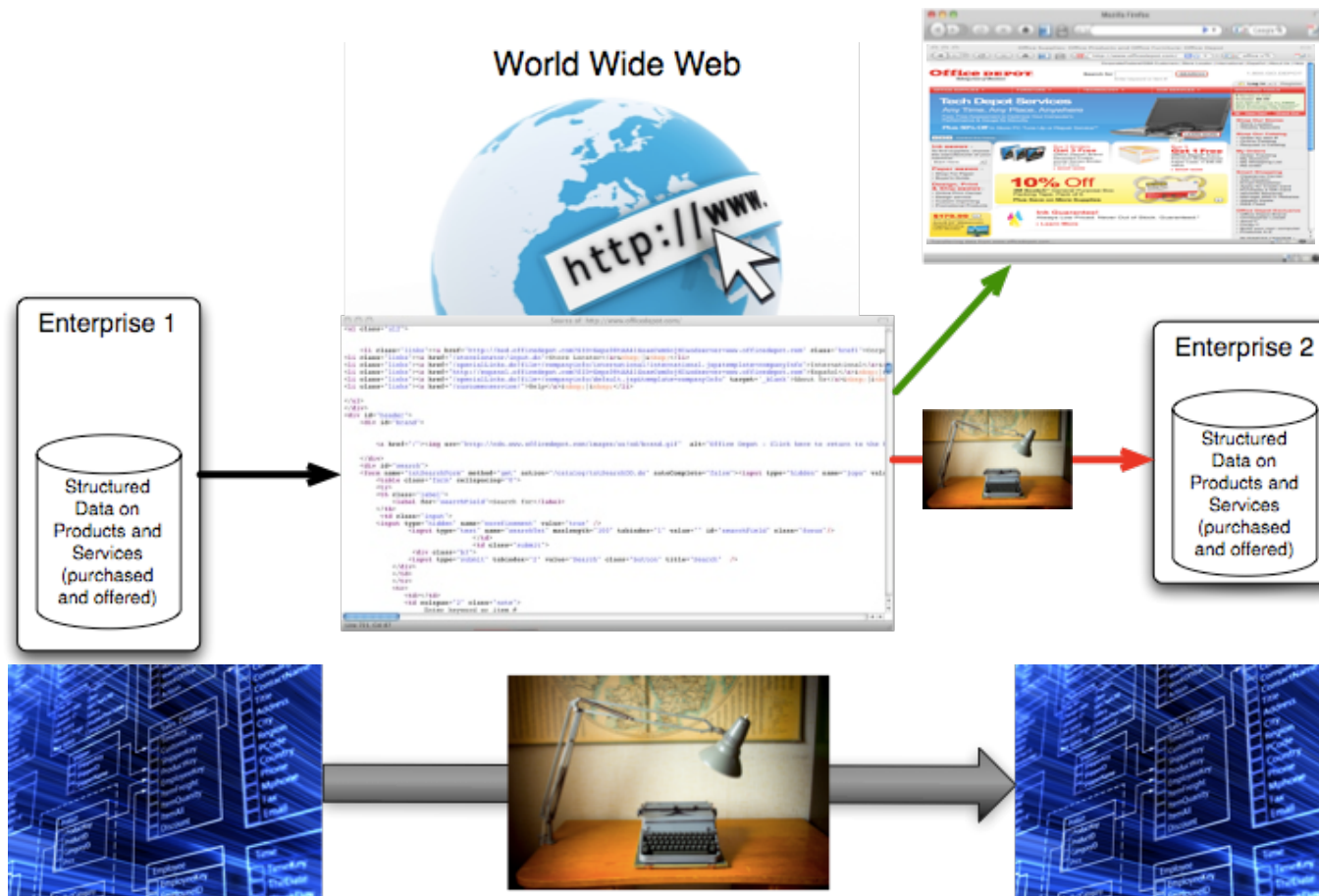
02.04.2009

# Search for Suppliers, 2009





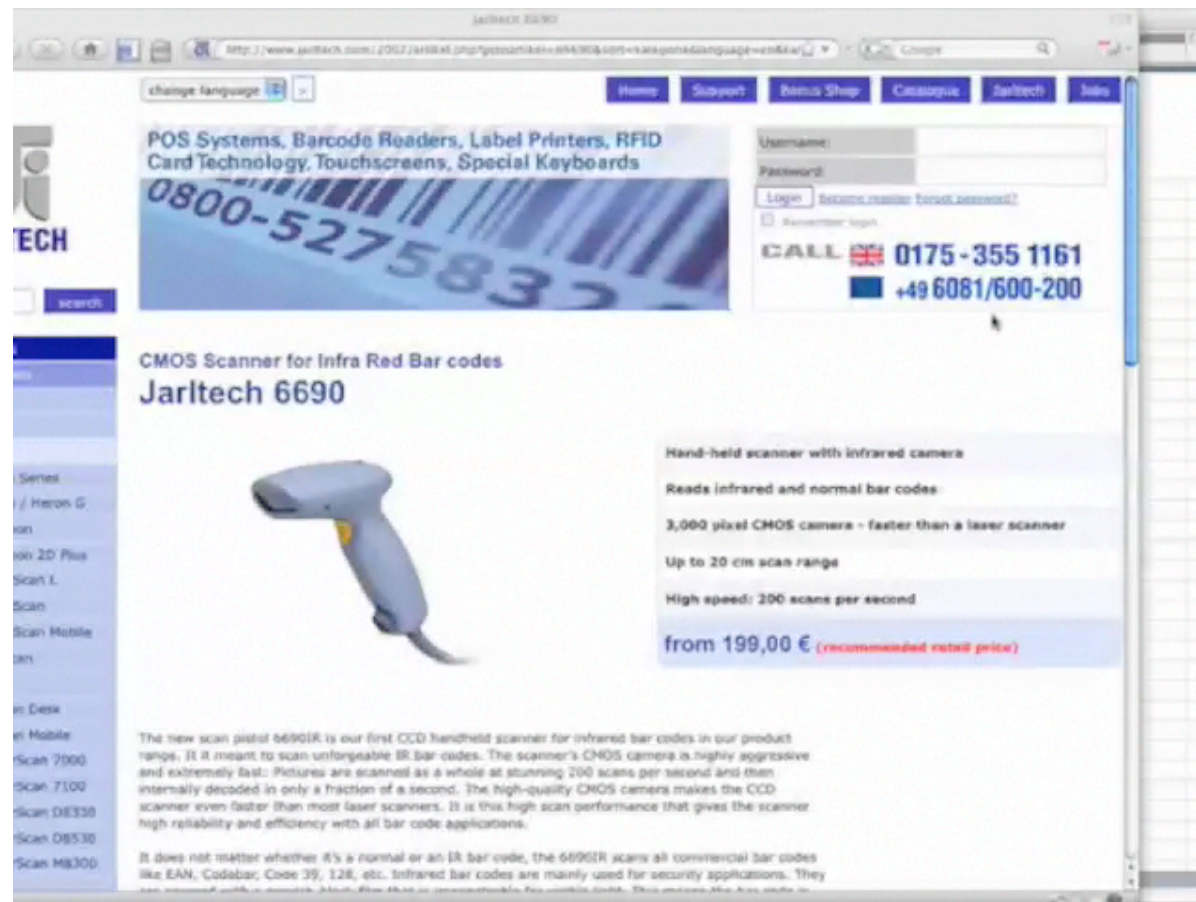
# E-Commerce on the Web



# The Web as a Bottleneck for Product Search

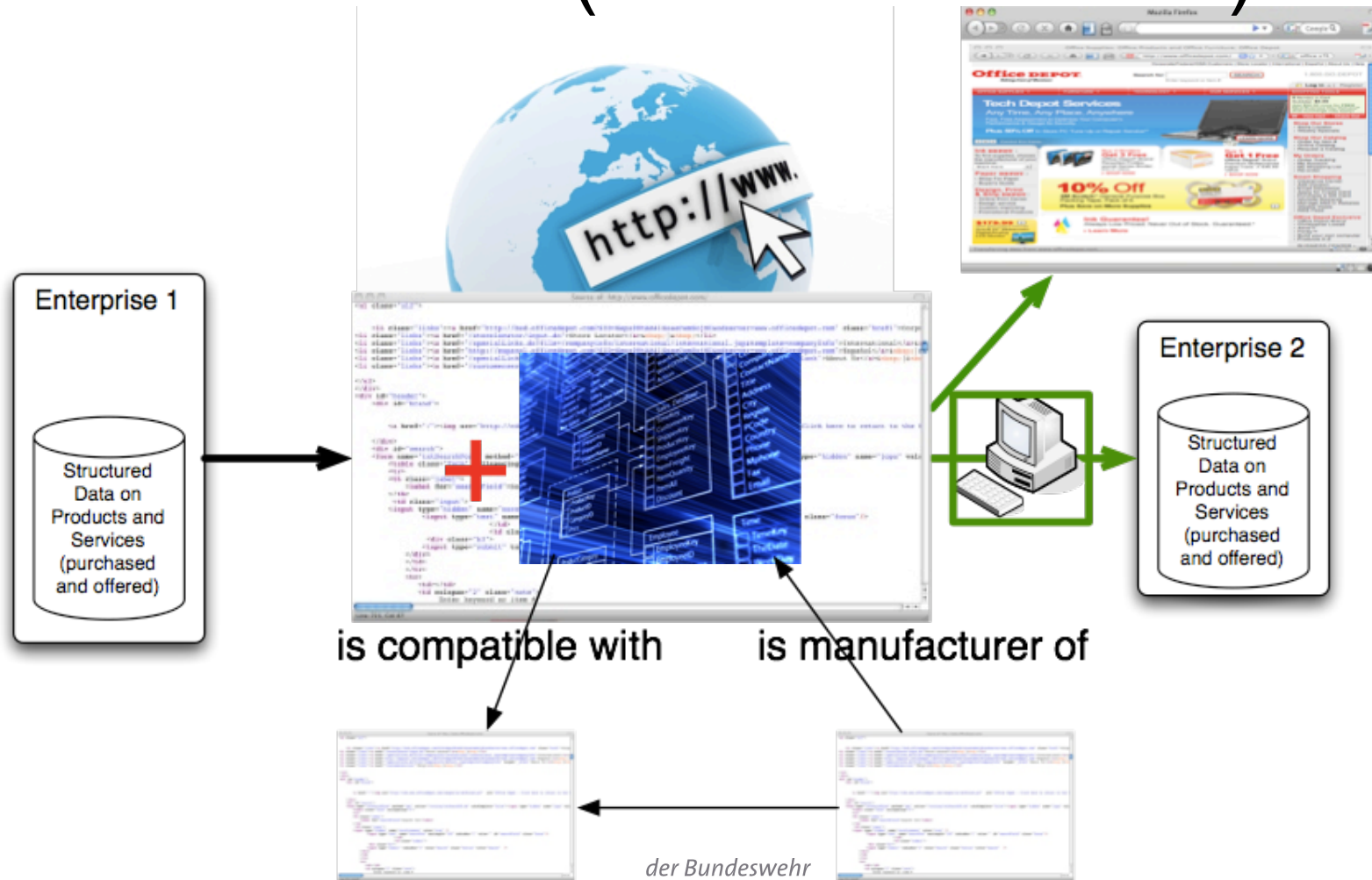
- Who sells solar panels with at least 12 A output?
- Who can repair my Sony TV set?
- Who sells Volkswagen cars?
- etc.

# The Web as a Bottleneck for Sharing Product Data

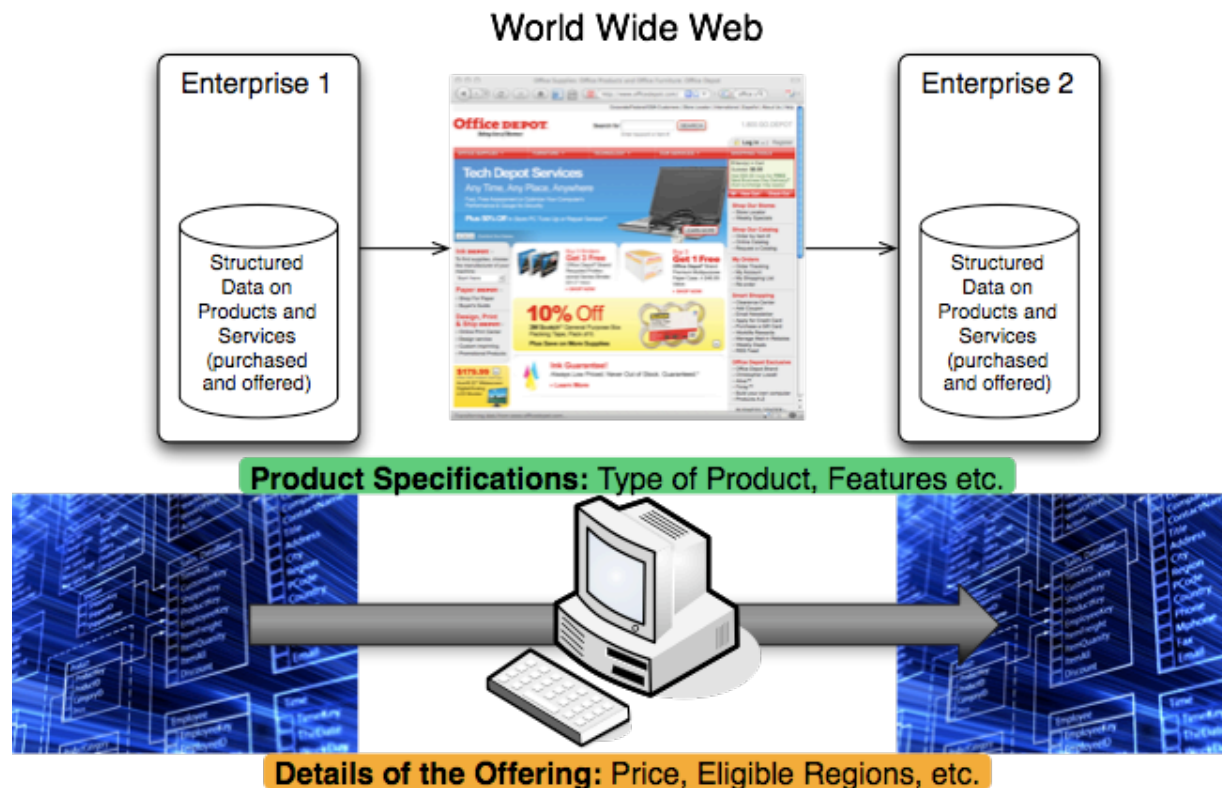




# Web of Data (“**Semantic** Web”)



# E-Commerce on the Web of Data ("Semantic Web")



## Why Should I Bother?

- **Web Shops:** Better visibility in latest generation of search engines (e.g. Yahoo)
  - **Same holds for any business that has a Web page,** from A as in Amusement Park to Z as in Zoo.
- **Manufacturers:** Allow your retailers to reuse product feature data with minimal overhead at both ends.
- **Software Developers:** Help your customers to use and generate Semantic Web data. It's easy!



# Others Do Care: Pick-up in Industry

- Smart Information Systems
- ebSemantics
- Yahoo! SearchMonkey
- Virtuose Sponger Catridges for Amazon, eBay, and others expected
- Major German mail order companies
- etc.

smart *information* systems



**YAHOO!**



SearchMonkey

# The Web of Data for E-Commerce and E-Procurement

# The GoodRelations Vocabulary

- A universal and **free Web vocabulary for** adding **product and offering data** to your Web pages.
- Compatible with all relevant W3C standards and recommendations
  - RDF
  - OWL



<http://purl.org/goodrelations/>

# The GoodRelations Vocabulary

- **Permanent,  
royalty-free access**  
for commercial and  
non-commercial use.



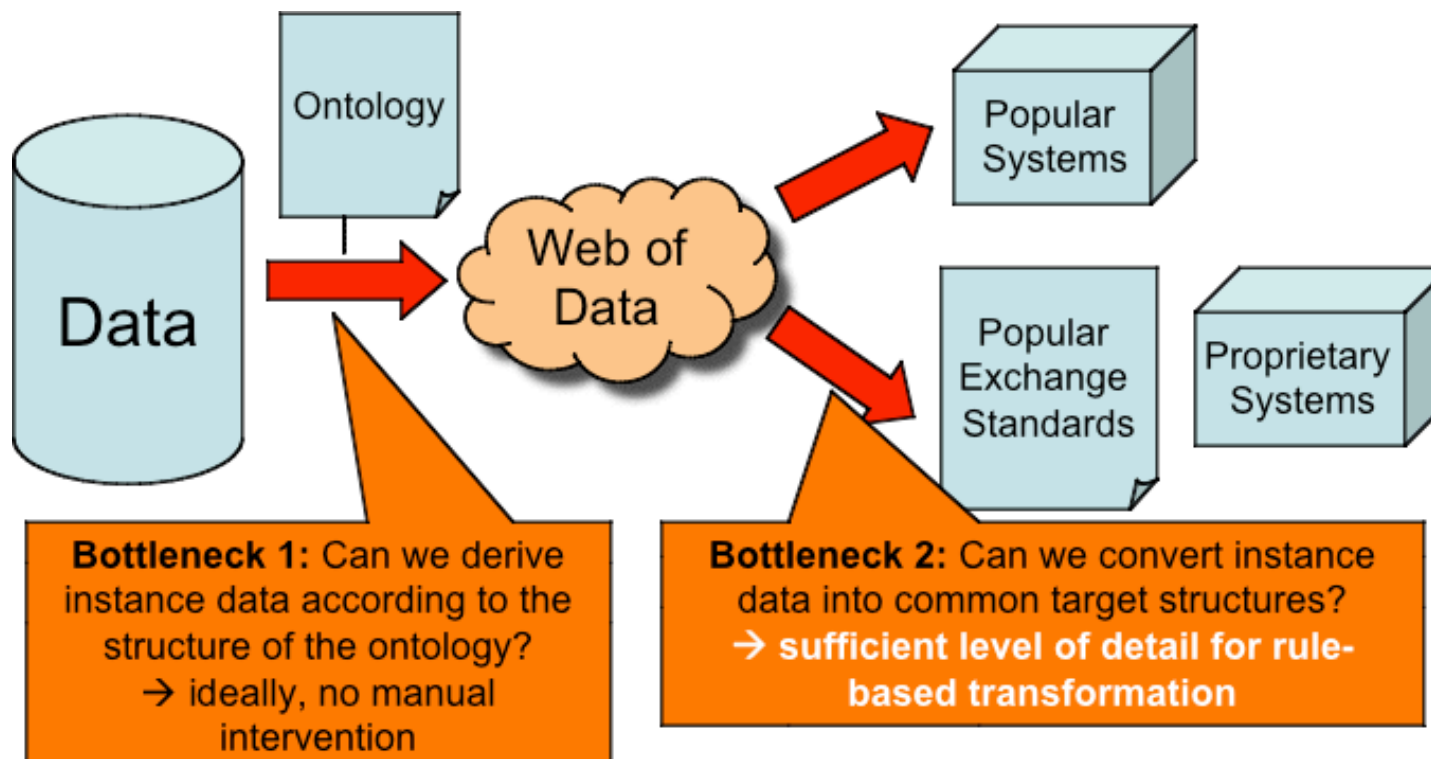
<http://purl.org/goodrelations/>

# Required Vocabularies

- An vocabulary for **product types and features**
  - by function, usage, or nature
- An vocabulary **for offer specifications**
- An offer is basically a relation between
  - an agent,
  - a set of objects,
  - a set of property rights,
  - an audience, and
  - a set of terms and conditions.



# Data, Standards, Ontologies





# eClassOWL and GoodRelations

eClass<sup>OWL</sup>

The Products and Services Ontology

- eClassOWL

foo:myTVSet instanceOf eclassowl:TVSet



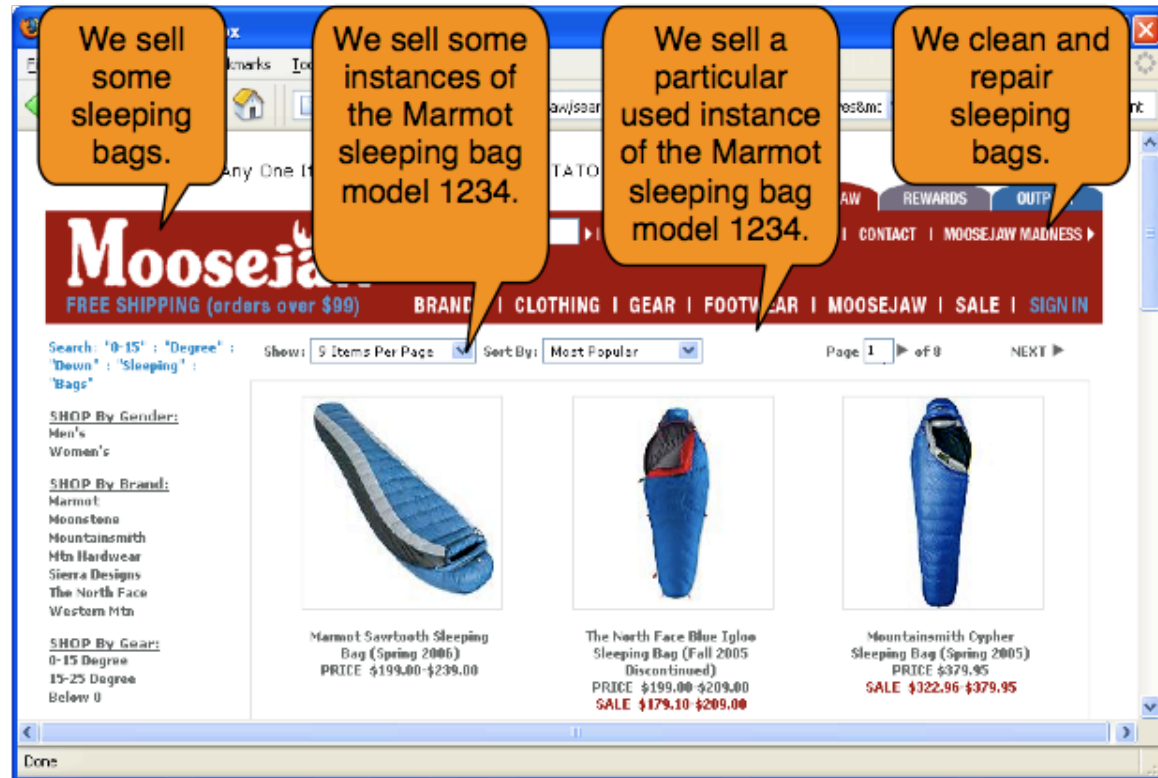
- GoodRelations

foo: MillerInc goodrelations:offersToSell

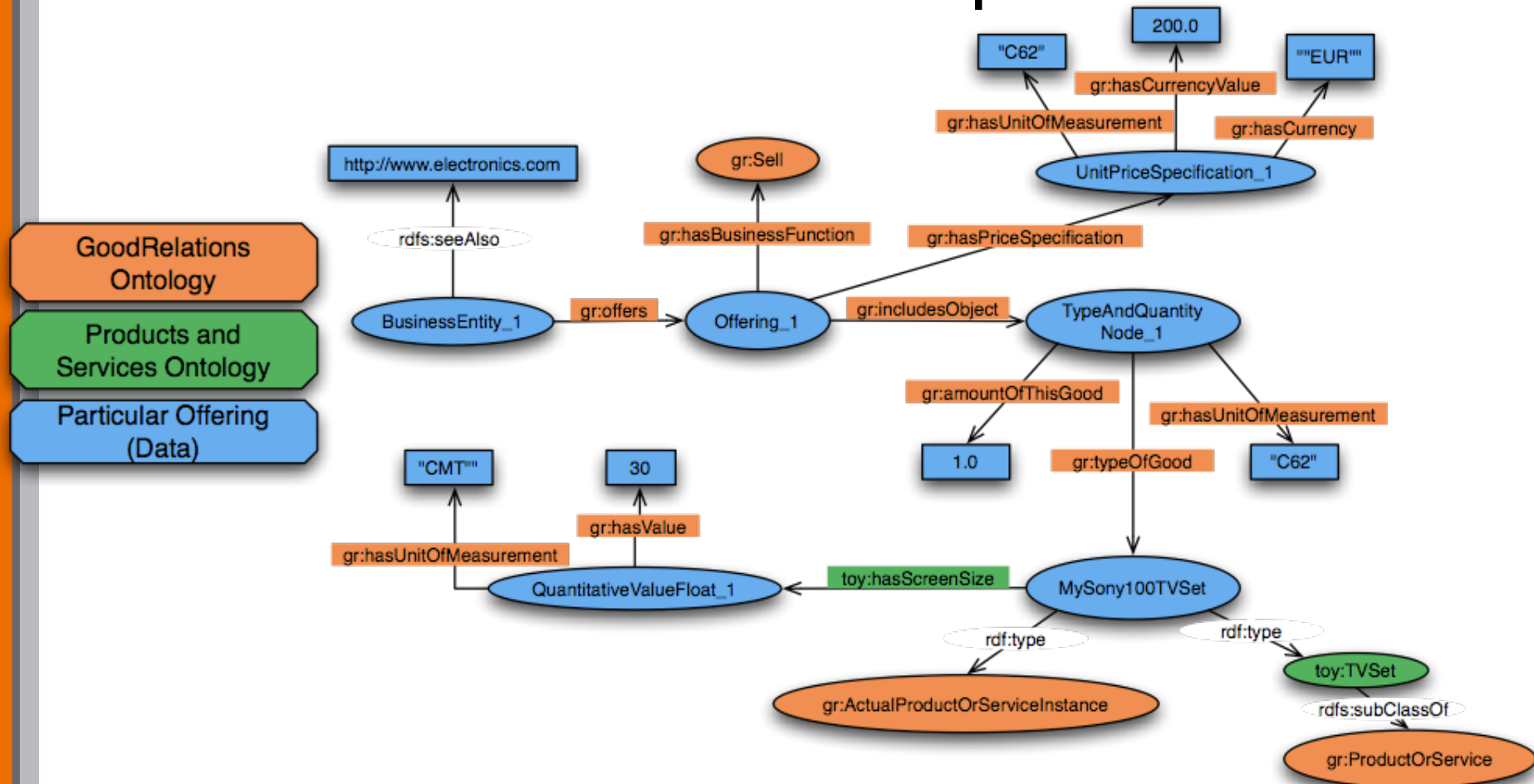
foo:myTVSet

# Use Cases

- Commodity offers
- Services offers
- Product model data interchange



# Minimal Example




# What Should I Do?

- **Web Shops:** Create a GoodRelations data dump of your range of offers (rather simple)
- **Vendors of Web Shop Software:** Create GoodRelations import and export interfaces (we can help you with that)
- **Every Business:** Ask your webmaster to create at least a basic description of your range of products or services
- **Entrepreneurs:** Invent new business models based on GoodRelations data

# GoodRelations Annotator

GoodRelations Annotator



**GoodRelations Annotator: Describe your business on the Web of Data**

With this on-line service, you can create a machine-readable description of your business and your range of products using the [GoodRelations vocabulary for e-commerce](#). Such meta-data will be considered by leading-edge search engines and recommender systems.

### Step 1: Describe your business

#### Step 1a: Describe your company

URI of the main Web page:	<input type="text" value="http://"/>	mandatory
Legal name of your business:	<input type="text"/>	mandatory
Street Address:	<input type="text"/>	mandatory
Post code:	<input type="text"/>	mandatory
City:	<input type="text"/>	mandatory
Country:	<input type="text" value="Germany"/>	
Phone Number:	<input type="text"/>	mandatory
Sales e-mail:	<input type="text"/>	
Technical contact e-mail:	<input type="text"/>	mandatory

**Important:** This will not be included in the public dataset but is useful for us to contact you in case of problems with your description.

#### Step 1b: Describe your shop or point of sale

☐ The contact details of our point of sale are the same as above.

Name of your branch or office:	<input type="text"/>	(Example: Miller Electronics NYC)
Street Address:	<input type="text"/>	(Example: 1234 GoodRelations Avenue)
Post code:	<input type="text"/>	(Example: A-6020)
City:	<input type="text"/>	(Example: Innsbruck)
Country:	<input type="text" value="Germany"/>	
Phone Number:	<input type="text"/>	(Example: +43-512-507-6365) <b>include international phone prefix!</b>



# Search Engine

The screenshot shows the eCl@ss search engine interface. The header includes the eCl@ss logo and the text 'INTERNATIONALER STANDARD ZUR KLASSIFIZIERUNG UND BESCHREIBUNG VON PRODUKTEN UND DIENSTLEISTUNGEN'. The navigation bar contains links: Home, Was ist eCl@ss?, eCl@ss für den Mittelstand, Dienstleistungen, eCl@ss-Praxis, Info-Material, and Organisation. The left sidebar has a 'Direktzugriff' section with links to 'Suche in eCl@ss', 'DownloadPortal', 'ServicePortal', 'Mitglieder', 'Veranstaltungen', and 'Forum'. Below this is a 'Navigator' section with icons and a 'Deutsch' language selector. The main content area shows a search result for '19 Informations-, Kommunikations-, und Medientechnik' with a sub-result '19-01 Computersystem' and '19-01-02 Notebook'. A search bar at the top right shows 'eCl@ss 6.0.1' and 'Klassifikation'. A table on the right lists search results with details like 'Klassifikation: 19-01-02-90 [ ACL457001 ]', 'Bevorzugte Benennung: Notebook (nicht klassifiziert)', and 'Definition:'. A list of features (Merkmale) is also shown, including 'BAE156001 - Abmessungen', 'BAE830001 - Anzeigeformat', etc. An orange button with the text 'Click here for suppliers' is overlaid on the search results.

**Home » Suche in eCl@ss**  
**Suche nach Klassen, Merkmalen und Werten**

eCl@ss 6.0.1 Deutsch

**Treffer: 1**

Klassifikation:	19-01-02-90 [ ACL457001 ]
Bevorzugte Benennung:	Notebook (nicht klassifiziert)
Definition:	
Schlagnote:	Laptop, Mini Notebook, Sub-/Ultra-Portable-Notebooks, Sub-Notebook, Subnotebook

**Merkmale:**

- [BAE156001](#) - Abmessungen
- [BAE830001](#) - Anzeigeformat
- [BAF502002](#) - Art der Datenübertragung
- [BAF458001](#) - Art der integrierten Peripheriegeräte
- [BAE711001](#) - Art des Anschlusses
- [BAF141001](#) - Art des Eingabeperipheriegerätes
- [BAF580001](#) - Art des Leistungsmerkmals
- [BAE636001](#) - Art des Prozessors
- [BAA261001](#) - Art des Supports
- [BAA316003](#) - Artikelbezeichnung
- [BAE862002](#) - Audioausgang vorhanden
- [BAE864002](#) - Audioeingang vorhanden
- [BAE604002](#) - Betriebssystem vorhanden
- [BAF046002](#) - CD und DVD vorhanden
- [BAE688001](#) - Datenübertragungsmerkmale

**Click here for suppliers**

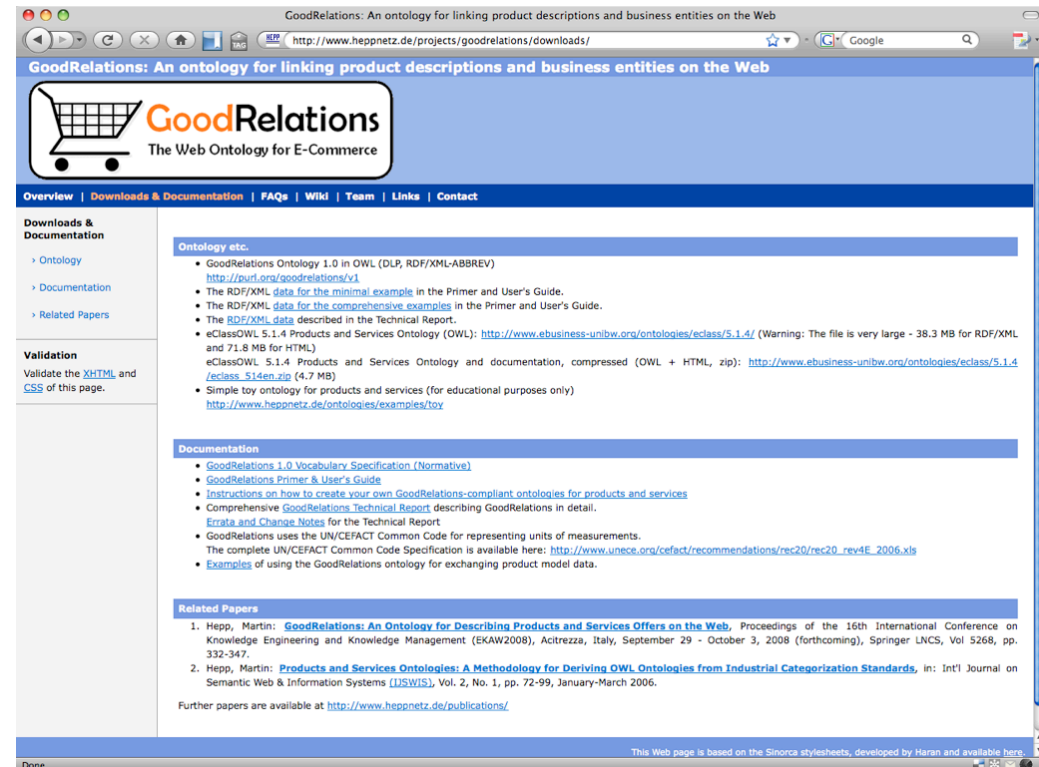


# Upcoming Data Sets

- Product Model Data:
  - 1,572,083 products, 532,364 data-sheets, 3,389 brands
  - 1,000,000 additional commodity master data items (EAN/UPC codes, labels, suppliers)
- Vendor and Business Location Data
- Large Vocabularies
  - eClassOWL: 30 k Classes, 5 k Attributes
  - unspscOWL
  - Construction Industry
- Offering Data from Shops and Shop Software

# Additional Information

- Web Page
  - Ontology
  - Language Reference
  - Primer
  - Recipes
  - Wiki



<http://purl.org/goodrelations/>

# Contact us!

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