# Applied Principles of Terminology Work

#### **Terminology Summer School - Cologne** 11 - 15 July 2011



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### Content

- Definitions, short historical overview
- Terminology working methods
- Terminology projects
- Special issues of terminology work (term, definition, context, documentation, maintenance)
- Terminology standardization (companies, TC37)
- Terminology workflow

### **Terminology work**

### terminology work

work concerned with the systematic collection, description, processing and presentation of **concepts** and their **designations** 

terminography terminology management
 part of terminology work concerned with the recording and presentation of terminological data
 NOTE: Terminological data may be presented in the form of term banks, glossaries, thesauri or other publications.

# Short history: first approaches

- In Central Europe, the first approaches to elaborate and order the terminology of a specific domain started several centuries ago:
  - DÜRER (1471-1528) Mathematics
  - VESALIUS (1514-1564) Anatomy
  - LAVOISIER (1743-1793) Chemistry
  - BERTHOLLET (1748-1822) Chemistry
  - von LINNE (1707-1778) Botany und Zoology
- Some of the developed nomenclatures are still valid and used today (e.g. Vesalius, Linne)

Below: a page from a German–Latin school book, *Teutsch lateinisches Wörter-Büchlein* Printed around 1722, it contains about 6,000 words, each of which is illustrated.



K.-D. Schmitz, IIM, FH Köln

# **Early terminological dictionaries**

- Alfred Schlomann, a German engineer, elaborated and published systematically arranged technical dictionaries with illustrations
- Each dictionary covers (all) the concepts of a specific domain
  - Between 1906 and 1928, 16 volumes of his "illustrated technical dictionaries in 6 languages" ("Illustrierte Technische Wörterbücher in 6 Sprachen") were elaborated
  - Each volume contains between 400 and 2000 pages

### HEBEMASCHINEN UND TRANSPORTVORRICHTUNGEN

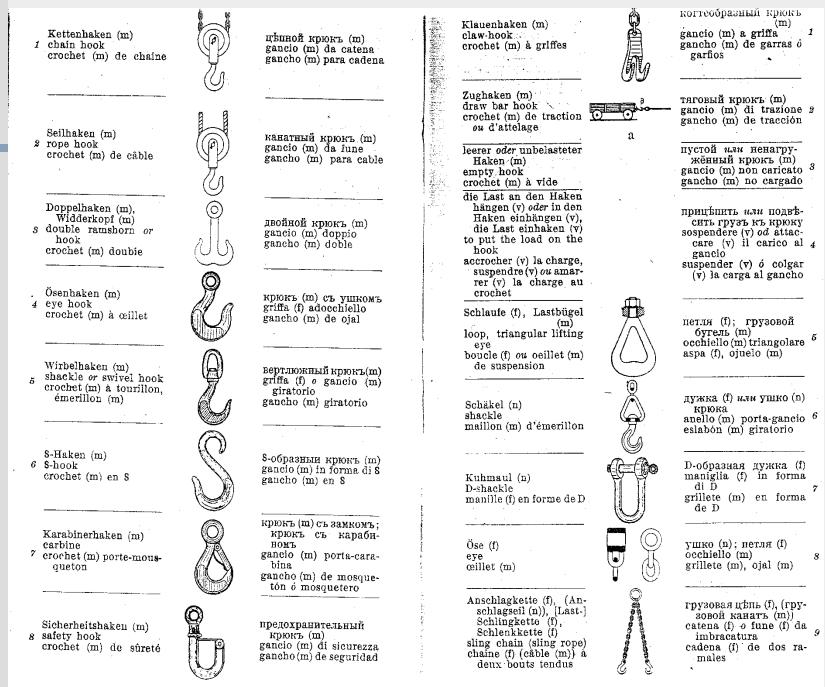
In sechs Sprachen:

Deutsch, Englisch, Französisch, Russisch, Italienisch, Spanisch

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#### INHALTSÜBERSICHT.

I. Last und Lastbewegung	. 1
II. Grundbegriffe der Dynamik	. 18
<ul> <li>III. Elemente der Hebezenge</li> <li>a) Huborgane</li> <li>b) Übersetzungsorgane</li> <li>c) Transmissionsorgane</li> <li>d) Haltorgane</li> <li>e) Befestigungsorgane</li> </ul>	24 24 61 75 92 113
IV. Statik und Eisenkonstruktionen	. 127
V. Konstruktionsmaterial und Materialfestigkei	<b>t</b> , 163 .
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<ul> <li>IX. Winden</li></ul>	266 280 326 331 358
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- 1906 the International Electrotechnical Commission (IEC) was founded in London. The working programme already contains the task to elaborate an international dictionary
- 1938 the first issue of the dictionary was published with about 2000 concepts in 14 sub-domains
- The dictionary contained terms in English, French, Italian, Spanish(, German) and Esperanto with definitions in English and French

#### Beginning of page 43 of the IEC dictionary:

Section 10-15. - Moteurs - Motors.

10-15-005	produit de l'énergie mécanique par	Electric motor : A machine which produces mechanical energy by the transformation of electrical energy.	Elektromotor Motore elettrico Motor eléctrico Elektromotoro
10-15-010	Moteur à courant continu : Moteur électrique destiné à fonctionner avec du courant continu.	Direct-current motor : An electric motor working with direct current.	Gleichstrommotor Motore a corrente conti- nua Motor de corriente conti- nua Motoro por kontinua fluo

- 1917 the technical committees of the German Standards Association (DNA = Deutscher Normenausschuss, later called DIN = Deutsches Institut f
  ür Normung) established specific sub-committees for terminology
- 1926 the same happens on international level in ISA (International Standards Association, later called ISO)
- Also other national standards bodies established terminological sub-committees

Example of a terminology standard: (British Standard 206 (1943) containing concepts and terms in the field of electrical engineering)

SUB-SECTION 26 : PARTS AND TYPES OF WINDINGS

No.	Term	Definition
2601	Drum winding	A winding formed of coils arranged wholly inside or outside a cylindrical core and situated either on the surface or in the slots.
2602	<b>Ring winding</b> TOROIDAL WINDING GRAMME WINDING	A winding formed of coils wound round a magnetic core of annular form, in such a manner that one side of each coil is looped through the ring.

### Eugen Wüster

- 1931 Dissertation "Internationale Sprachnormung in der Technik, besonders in der Elektrotechnik"
- 1936 foundation of a technical committee dealing with terminological principles (ISA/TC37, later ISO/TC37)
- To improve the basic principles of terminology for the creation of a standard, Wüster elaborated the systematic dictionary "The Machine Tool" (1967/1968)

### The Machine Tool An Interlingual Dictionary of Basic Concepts

comprising

An Alphabetical Dictionary and A Classified Vocabulary with Definitions and Illustrations

#### **English-French Master Volume**

Prepared under the auspices of The United Nations Economic Commission for Europe and under the direction of

#### **Eugen Wüster**



TECHNICAL PRESS LONDON

# Grundbegriffe bei Werkzeugmaschinen

Deutscher Ergänzungsband zu dem Grundwerk The Machine Tool: An Interlingual Dictionary of Basic Concepts Dictionnaire Multilingue de la Machine-Outil: Notions fondamentales

(Mehrsprachiges Wörterbuch in Sach- und Abc-Folge, mit Begriffsbestimmungen und Abbildungen)

Ausgearbeitet auf Veranlassung der Europäischen Wirtschaftskommission der Vereinten Nationen unter Leitung von Eugen Wüster



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Vocabulary Vocabulaire

UDC 531.2/.4 STATICS AND DYNAMICS CDU 531.2/.4 STATIQUE ET DYNAMIQUE

#### 34

UDC 531.211

mechanical force IEC; force BS, ISO; power<sup>3</sup>: Any physical cause capable of modifying the condition of movement or of rest of a body, or of deforming it iec.

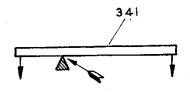
force mécanique IEC, NF; force IEC, ISO, NF: Toute cause physique capable de modifier les conditions de mouvement ou de repos d'un corps, ou d'y produire une déformation IEC, NF.

#### 35

UDC 531.211

fulcrum; pivot<sup>I</sup> (point): The point of support of a lever (341).

point d'appui (d'un levier); centre de résistance; centre de rotation (d'un levier); point de levier: Point supportant un levier (341).



36

UDC 531.223

compressive force; pushing force; pressure<sup>1</sup>; total pressure BS: Any force (34) tending to compress a body.

force de (com)pression; pression<sup>1</sup>: Force (34) qui tend à comprimer un corps.



37

UDC 531.223

pressure<sup>2</sup> iso (external); intensity of pressure BS: The force (34) per unit area exerted upon the surface of a body.

pression spécifique; pression<sup>2</sup> ISO, NF (extérieure): Rapport de la rforce (34) exercée sur une partie de la surface d'un corps à la superficie de celle-ci.

38

HDC 531.223

thrust: thrust load ISO: Any compressive force (36) acting on a body in the direction of its axis.

poussée raxiale [longitudinale]; charge axiale 180; < force raxiale **Ilongitudinale:** Force de pression (36) agissant sur un corps dans la direction de son axe.

#### [10.30]

forming<sup>1</sup> /forming<sup>11</sup>, or cutting with stock removal/ - cross forming 1170 forming<sup>II</sup> /forming<sup>III</sup>, moulding or assembling/ 1384 - <sup>I</sup>metal forming<sup>I</sup> < 1384 forming without stock removal 1384 forming<sup>III</sup> /cutting without stock removal, or plastic deformation/ 1385 - <sup>II</sup>metal forming<sup>II</sup> BS <1385 --- metal forming machine tool <1388 forming attachment 1163 forward forward movement 1117 forward stroke 1117 four-arm spider 1088 four bar linkage 322 four-jaw chuck 989 four jaw independent chuck /with holes and slots/ 993 four jaw independent lathe chuck /with holes and slots/ 993 four jaw plate 993 four pin driven collar nut — circular four pin driven collar nut 707 frame - box frame 862 - box-section frame 862 --- C-shaped frame 866 - gap frame 866 - horizontal frame 860 - lattice frame 865 --- machine frame BS 844 - portal-type frame 868 - ribbed frame 864 - stirrup frame 868 --- tumbler gear frame 482 frame /machine frame/ 844 frame of triangular bridge-type construction 865 free - load-free speed 839 frequency - operating frequency /of a mechanism/ 1055 - rotational frequency IEC, ISO 28 frequency of operations 1055 friction -- cone friction brake 1200 - rolling friction 92

#### Index of English Terms

friction--cont. - sliding friction 91 frictional contact drive 214 friction clutch BS 312 - multi-plate friction clutch 314 friction coupling 312 friction drive 557 friction gear(ing) 557 friction wheel drive 557 fro - to-and-fro movement 25 fulcrum 35 fulcrum slide 545 full fully adjustable speed drive 366 full load IEC /of an electrical machine/ 830 fully motorized drive 1322 G GACO oil seal /GB/ <1297 gage ASA 64 - depth gage 60 --- limit gage ASA 72 - reference gage ASA 196 - plug gage 68 - thread ring gage ASA 71

- working gage ASA 195

gage block 47

gap frame 866

gash 403

gasket

gate

gauge

gap gauge BS 67

garter spring 1035

gasket material 1286

gas thread 629

--- valve gate 127 gate BS /valve gate/ 137

gate valve bs 138

- air gap gauge 49

- block gauge BS 47

- <sup>1</sup>cal(l)iper gauge<sup>1</sup> /with

hinge, i.e. caliper/

— air gap gauge 49

- (depth of) gap 818

Garlock oil seal /USA/ <1297

gasket ASA (for joints) 1288

- acceptance gauge ISA 197

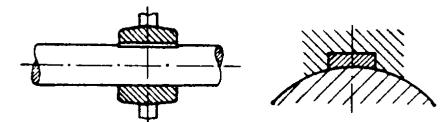
- plain bar type gauge BS 69

gap

— — internal caliper gauge 59 ---- caliper gauge /outside/ 58 öln ECE VT 1. 782

#### UDC 621.886.6 f3

- =2 hollow saddle key BS: A taper key (775) fitting a keyway (771) in the hub (221), the bottom of the key being formed to fit the cylindrical surface of the shaft (268) BS. (BS 46:Part 1:1929 no.9 / idem)
- =4 <u>clavette inclinée creuse sans talon NBN, clavette creuse à serrage VSM: Clavette inclinée (775)</u> qui s'introduit sans une rainure (voir 771) du moyeu, la face inférieure de la clavette étant formée creuse pour s'ajuster sur la surface cylindrique de l'arbre (268) =BS. - (NBN 66, 1951 p.1; VSM 15 110a F.1, 1939 / i=2)



NBN

7. 5. 52 Wil/Kom +

(NBN 66, 1951 p1)



### Before 1965: traditional file cards and glossaries

NBN

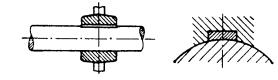
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#### ECE VT 1. 782

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7. 5.52 Wil/Kom t

Fachgebiet(e)			Sprache
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(Kurzformen, A	bkürzungen, orthogra	phische Varianten)	Grammatische Angaben
Definition(en)			Quelle(n)
Kontext(e)			Quelle(n)
Bemerkungen			
Synonyme (falls nicht als separater Eintrag, dann mit Angabe der Quelle)			Quelle(n)
Erfasser – Datun	n Bearbeiter - Datum		Eintragsklasse



### 1965-1975: main frame terminology data banks (Team, Termium, Eurodicautom, ...)



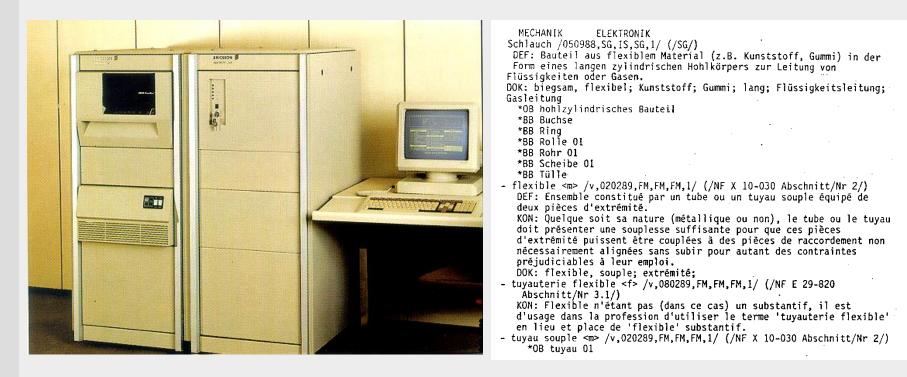


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	F L'UNITA PRINCIPALE DI UN SISTEMA DI ELABORAZIONE.CONTE-MENTE
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EN V	
	E A FUNDERTAINAL UNIT THAT CONFLETE OF ONE OF MODE DDD OFFICIADD

- DF A FUNCTIONAL UNIT THAT CONSISTS OF ONE OR MORE PRO-CESSORS AND THEIR INTERNAL STORAGES.
- RF DF,NT1:ISO/DIS/I;NT2:SIPPL:CDH



### 1975-1985: mini-computer based terminology data bases (Ericsson Cat, Danterm, ...)



### 1985-1995: **PC-oriented simple terminology** management systems for single users

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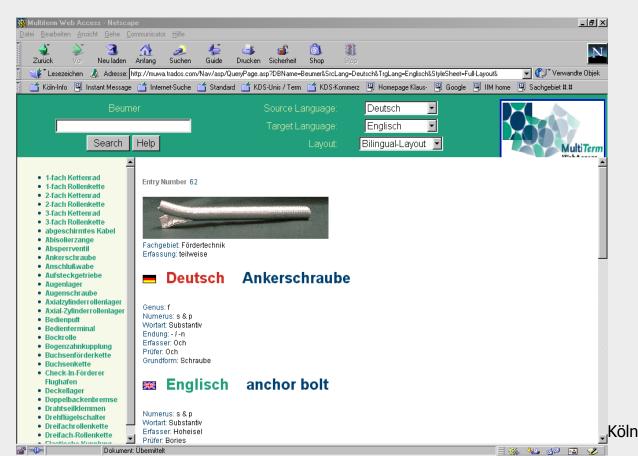


### 1995-2000: sophisticated TMS for PC-networks and web-interfaces for TMS

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### 1995-2000: sophisticated TMS for PC-networks and web-interfaces for TMS



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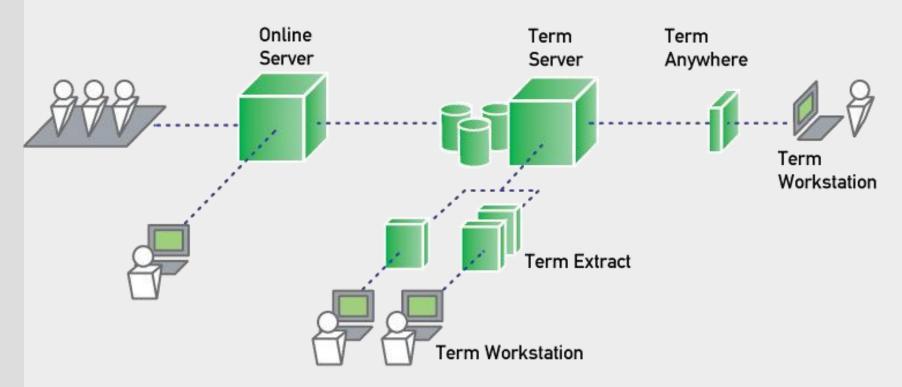
### 2000-today: web-based client-server TMS

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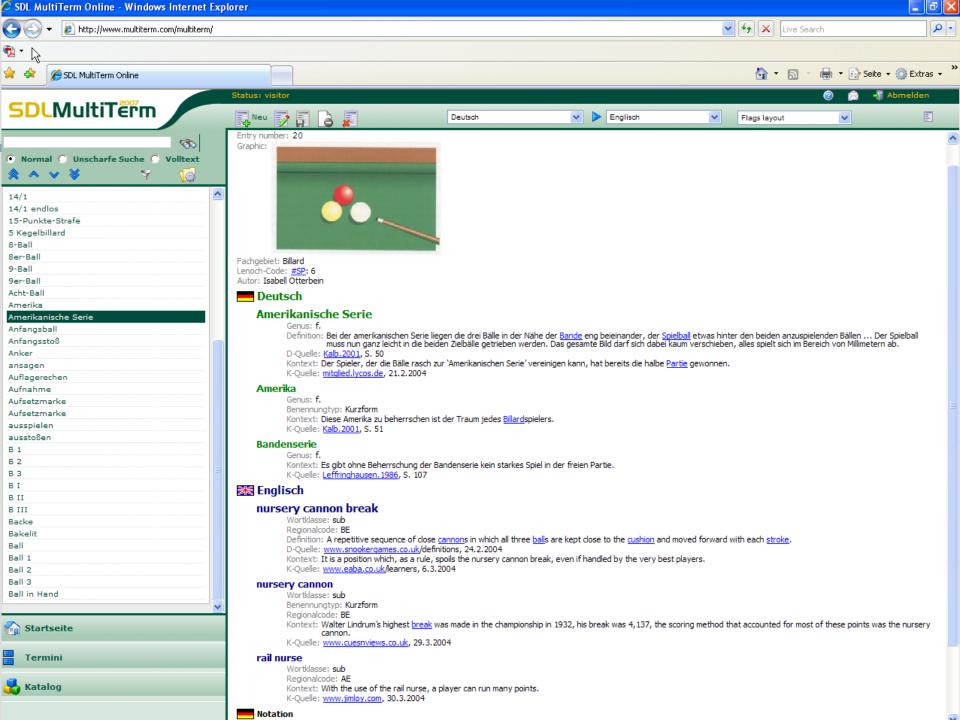
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2000-today: web-based client-server TMS



Reference: Trados 2003



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## **Terminology working methods I**

### ad hoc terminology work solving a current terminological problem

(research for unknown terms, equivalents, synonyms)

### text-oriented terminology work preparatory terminology research for a given text (solve all terminological problems before you translate)

 domain-oriented terminology work terminology research for all concepts of a given subject field (elaborate a complete terminology with concept relations)

## **Terminology working methods II**

### descriptive terminology work determine and describe the (current) usage of concepts, terms and definitions (typical for freelance translators, interpreters, techwriters)

prescriptive (normative) terminology work lay down and define concepts, terms and equivalents, classify them as preferred, admitted and deprecated (typical for standards bodies, but also for companies etc.)

# **Terminology working methods**

### Factors that influence terminology work:

- Objectives and user groups of terminology work
- Amount of concepts and languages to be elaborated
- Structure and information fields of termbase
- available persons involved
- intended time frame
- available and accessible information / documentation
- existing technical infrastructure
- economic factors will often lead to compromises that do not follow the basic and established principles ! K-D, Schmitz, IIM, FH Köln

### **Terminology projects**

- Planning and calculating the project
- Getting into the subject field (literature, experts)
- Limiting and structuring the subject field
- Accessing and analyzing the documentation material
- Searching for existing terminology resources
- Collecting terms; creating a monolingual term list; defining of concepts to be elaborated and documented
- Collecting further information (terms in other languages, definitions, context examples etc.) ⇒

## **Terminology projects**

- Processing the material; terminological analysis:
  - Checking of equivalences
  - Clarifying of synonyms, abbreviations etc.
  - (Specifying of preferred, admitted, deprecated terms)
  - Coining of new terms (if terms do not exist)
  - Documenting the terms (grammar, usage, etc.)
  - Selecting (writing) definitions; selecting context examples
  - If useful, selecting graphical representations, figures etc.
  - Writing notes for (problems with) synonymy, equivalence, usage
- (Creating concept systems and concept relations)
- Quality control (by experts) and final check
- Making terminology available for user groups

# **Terminology projects in companies**

- 1. Raise awareness (decision makers, terminology creators+users)
- 2. Train the people involved in terminology work
- 3. Analyze the workflow and specify the processes
- 4. Analyze existing terminology collections and relevant textual material (if possible, use term extraction tools)
- 5. Specify the basic terminology (domain- and company-specific)
- 6. Design the terminology database (model, datCats etc.)
- 7. Analyze the tool market and select (develop, adjust) the appropriate terminology management software
- 8. Enter a test set of terminological entries and evaluate the processes, the termbase design and the tool
- 9. Adjust and use

### **Term-related issues**

Terms should be entered in canonical form:

- normally in lowercase (but: *Drucker, Microsoft*)
- nouns normally in singular (pl: trousers, Leute)
- verbs normally in infinite form
- multi-word terms in spoken/written order
- nouns not with articles (*der, le*)
- verbs not with infinite particles (*to, à, zu*)
- spelled correctly

### **Term-related issues**

If you have to create new terms (e.g. for new concepts), follow the principles of term formation

- Transparency (torque wrench vs. monkey wrench)
- Consistency (nylon, orlon, dracon, ... -on)
- Appropriateness (nuclear energy vs. atomic energy)
- Linguistic economy (term bank vs. terminological data bank)
- Derivability (herb vs. medicinal plant)
- Linguistic correctness
- Preference for native language
- Uniqueness (don't create homonyms in one domain !)

### **Definition-related issues**

- Try to provide just one good definition (see 704) (Multiple definitions can be confusing)
- Try to find and enter existing definitions (with the source); shortenings and extensions are sometimes necessary and helpful
- Definitions should be as short as possible and as long as necessary
- Stating a synonym is not a definition!
   *e.g. diaphragm spring* = *Belleville spring*

### **Definition-related issues**

- Use terms for referenced concepts and characteristics consistently
- If the term is mentioned in the definition, try to use it in singular form
- Definitions do not exist for ever: concepts are changing; therefore check and update
- In database: maintain only one definition in one field / data category

#### **Definition-related issues**

#### If you have to write you own definition:

- state what kind of thing your concept represents (usually the broader concept) and mention what differentiates your concept from other closely related concepts
- let a domain expert check the definition
- do not use finite verbs like *is, refers to, is called*
- do not mention the term in the definition (DE !)
- punctuation, capitalization, article usage: provide styleguides

#### **Definition-related issues**

• Examples:

Term: *terminography* Term: terminology management **Def:** part of terminology work concerned with the recording and presentation of terminological data **Ref:** *ISO 1087-1:2000* **Note:** *Terminological data may be* presented in the form of term banks, glossaries, thesauri or other publications. K.-D. Schmitz, IIM, FH Köln

#### **Context-related issues**

- The Context field contains a text chunk, which includes the term in question
- Context contains a manageable amount of textual information (e.g. a sentence)
- The context shows that and how the term is really used (linguistic and situational environment)
- Therefore, find and enter existing contexts (with source)

#### **Context-related issues**

Different types of context can be differentiated:

- **defining context** ("incomplete definition with term")
- explanatory context ("bad explanation with term")
- associative context (associates concept to domain)
- **<u>linguistic context</u>** (function of term in discourse)

#### **Documentation issues**

- Sources of text-related information have to be appropriately cited (e.g. definitions, contexts, notes, graphics, terms) if quoted
- Sources of terms only if required (e.g. if no context can be found for a synonym)
- Use Source-IDs (Codes) that refer to full bibliographical information of the source (to be efficient and consistent in coding)
- For web resources, use URL and date
- Follow advises in literature for evaluating the quality of the source (esp. for web<sub>k</sub>sources), FH Köln

#### **Maintenance issues**

- Terminological data collections, whose content is not maintained, become outdated, obsolete, incorrect, incomplete, and will no longer be used.
- Besides the maintenance of the content, a formal maintenance and checking of the data is necessary (called data validation)
- Data validation: process used to determine whether data are formally accurate, consistent, correct, complete and plausible (ISO 1087-2:2000)

#### **Maintenance issues**

#### **Data validation procedures:**

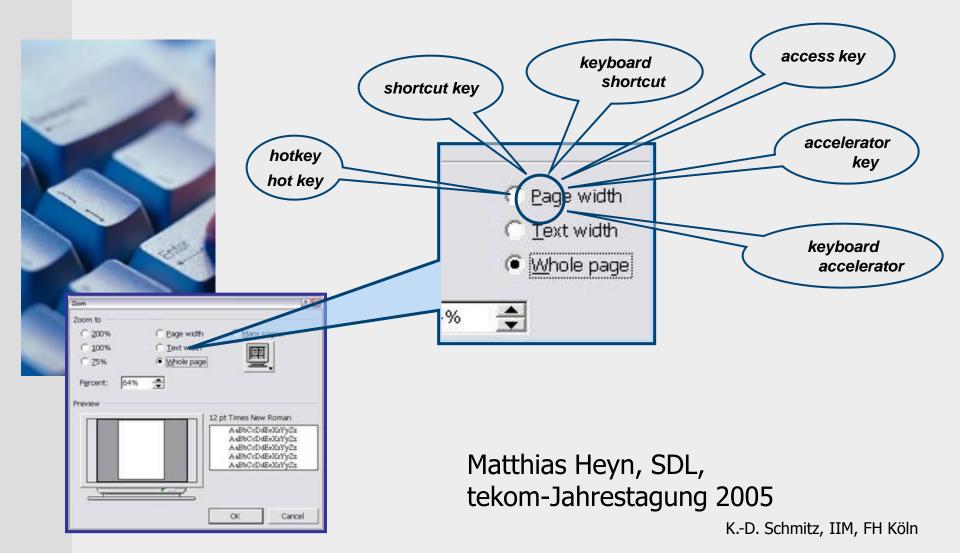
- double-entry check (real homonyms vs. double entries)
- consistency check (e.g. cross-references)
- spelling check
- completeness check (mandatory information)
- format check (e.g. date format)
- plausibility check (is content conforming to spec.)
- Can be done during data input or periodically by specific validation routines !

#### **Standardization of terminology**

- Standardized terminologies shall reflect a coherent terminological system, shall be precise and lead to increased clarity in communication.
- One primary function of a standardized terminology shall be to indicate preferred, admitted and deprecated terms.
- Standardizing terminology is a task of technical committees in standards organizations, but also in companies, organizations, professional associations etc.

terminology should be defined and used consistently: - within a document

- within a product
- within a company
- only one term for a given concept (no synonyms!)
- only one concept behind a given term (no homonyms!)





Reference: Susanne Göpferich, DAISY-Projekt, DTT-Symposion 2004

K.-D. Schmitz, IIM, FH Köln

Rec. No. Record No. Rec.-No. Rec # Rec No. Rec. No.: Rec. Number Rec. Number:



## **Terminology / information workflow**

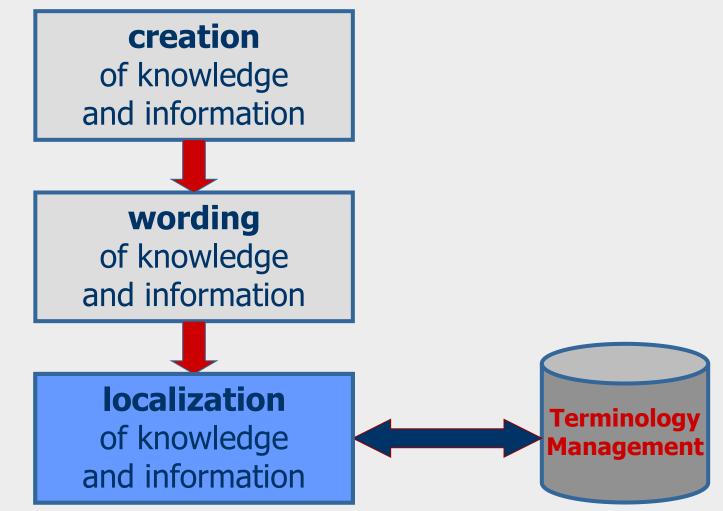
Terminology workflow: the translation viewpoint

- Documents to be translated:
  - manuals, handbook, guidelines, tutorials
  - technical specifications
  - scientific books, articles
  - patents, standards
  - contracts, offers, tenders
  - software user interfaces
  - etc.

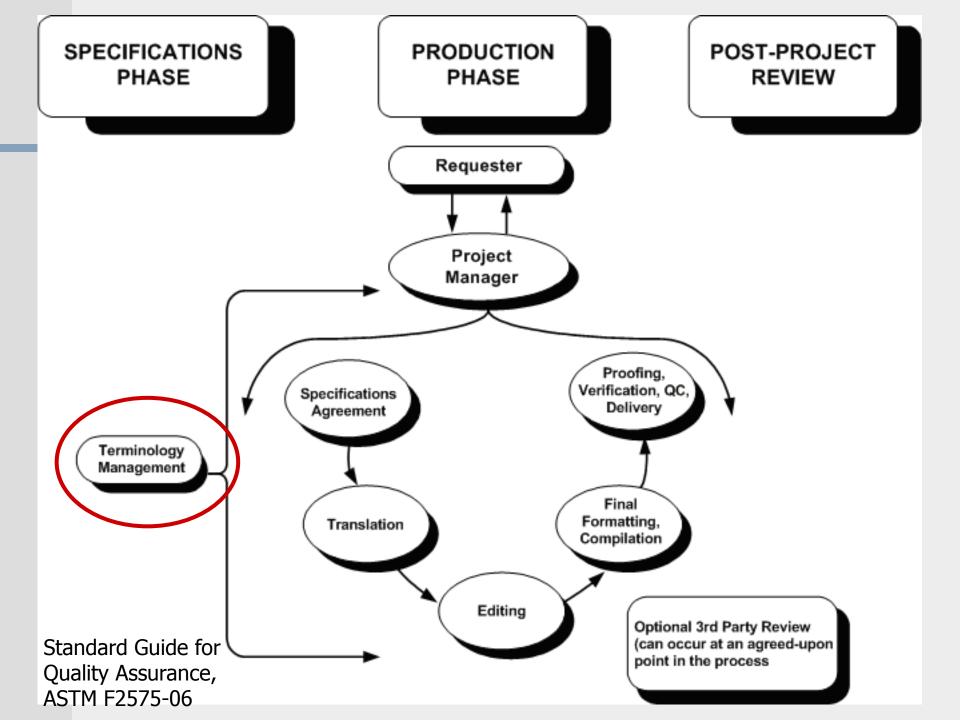
less often fiction and general language texts

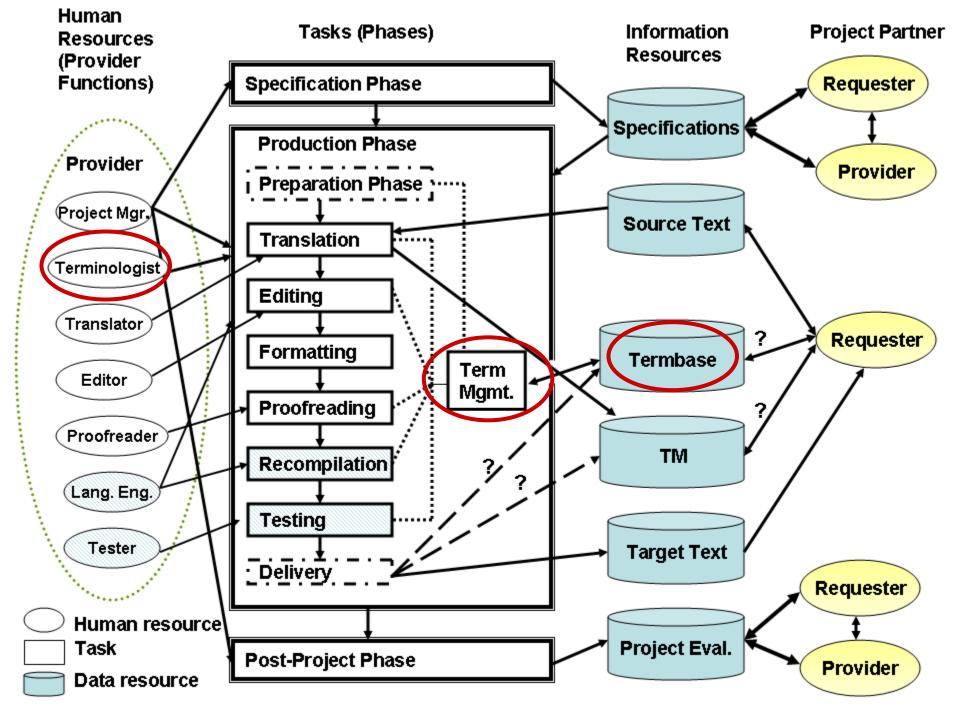
## ⇒ high frequency of "technical" terms ! K.-D. Schmitz, IIM, FH Köln

#### **Information development workflow**

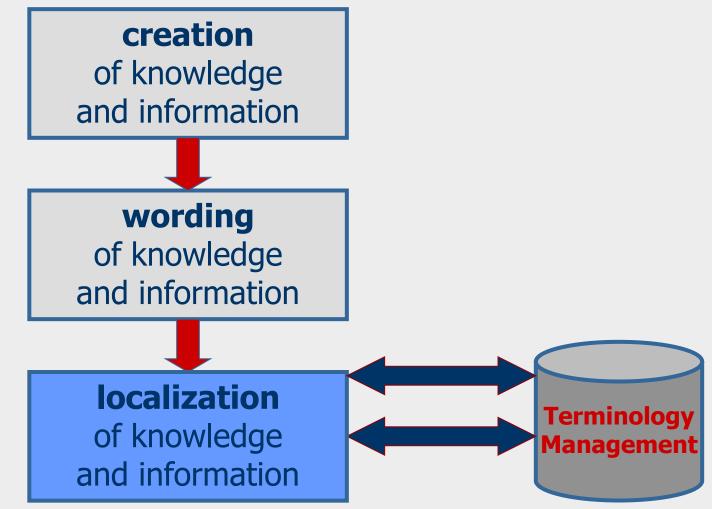


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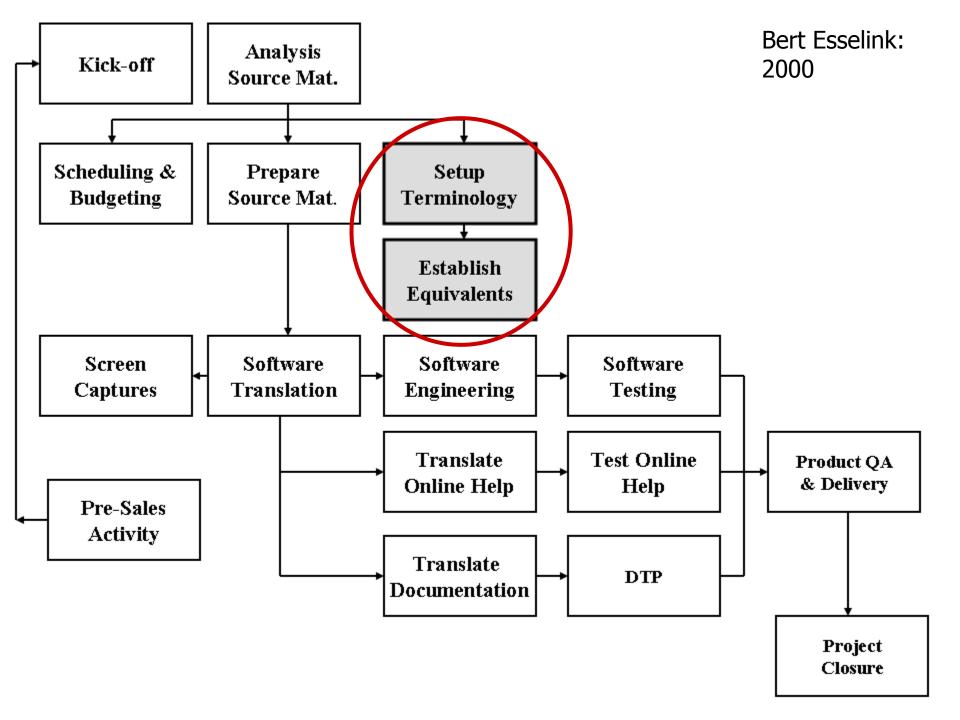




#### **Information development workflow**



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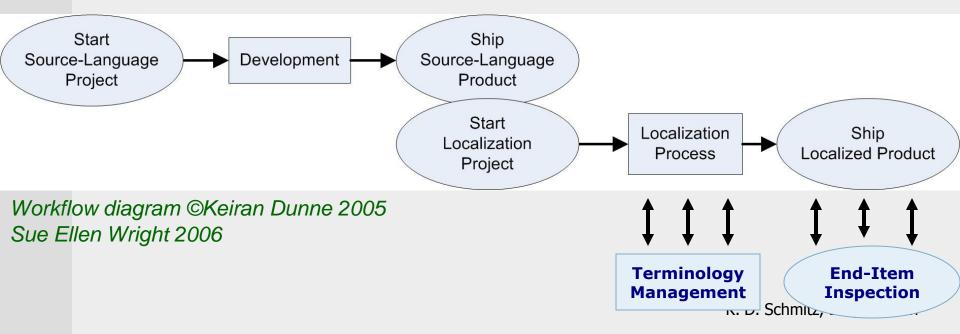
#### **Terminology for software localization**

- Especially for software localization, terminology has to be defined (and created) before the localization process starts.
- And: very often the localization starts before the "source text" is finalized, in order to assist a simultaneously shipping of the product in several markets at the same time.

#### **Terminology for software localization**

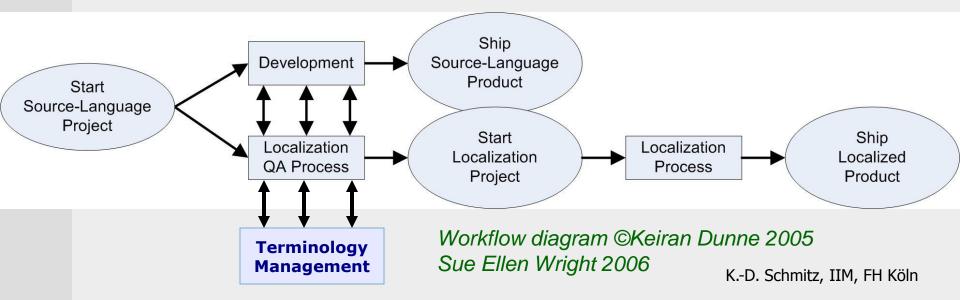
#### Traditional process:

- Ad hoc terminology management
- Reactive project-specific terminology management
- No influence on document production, i18n

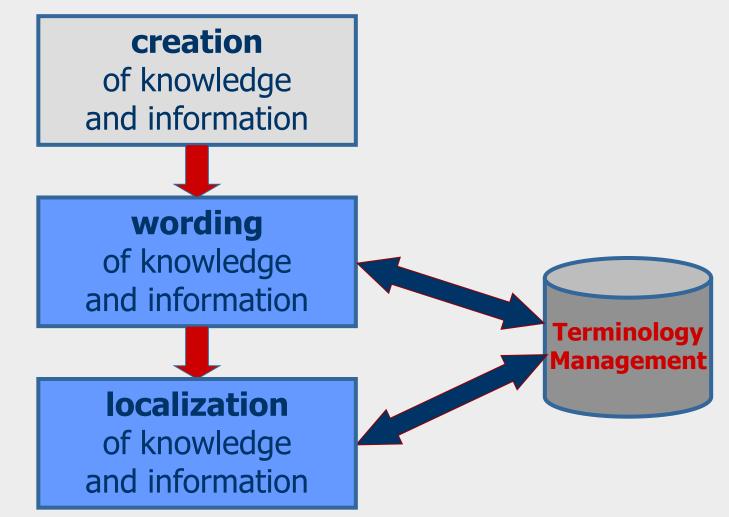


#### **Terminology for software localization**

- Terminology management as a function of QA (Quality Assurance) management
- Terminology management and QA upstreamed to planning stage
- Proactive terminology management

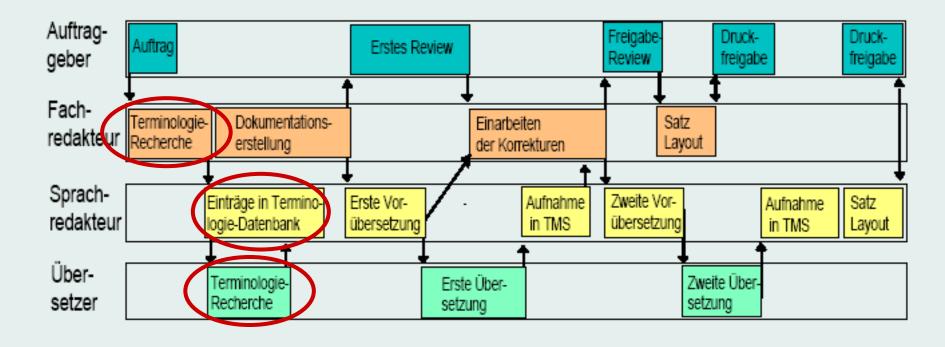


#### **Information development workflow**



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#### Typische Prozess-Schritte bei der mehrsprachigen Dokumentationserstellung heute



Susanne Murawski, 2005

SDI-Seminar "Übersetzungsworkflow"

cognitas.

Februar 2005

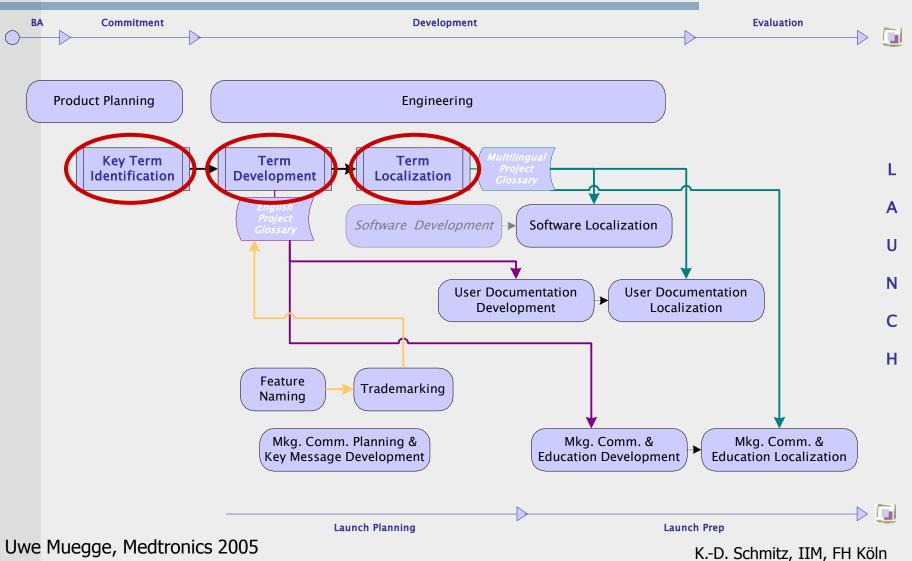
#### **Terminology for the source text**

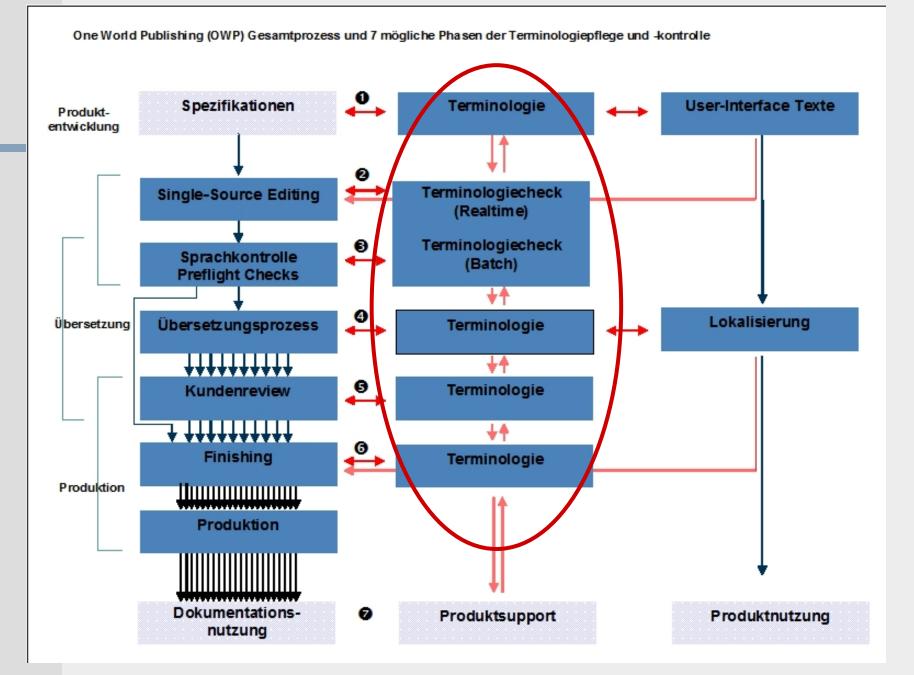
- The selection of appropriate terminology with well defined concepts as well as the correct and consistent usage of terms are pre-conditions for successful information development
- Diligent terminology (management) does not only help end-users but also documentation and localization experts

(less errors in the source text, less questions at the author)

Terminology management is necessary for the whole information creation and localization process !
K.-D. Schmitz, IIM, FH Köln

## **Medtronic Terminology Workflow**

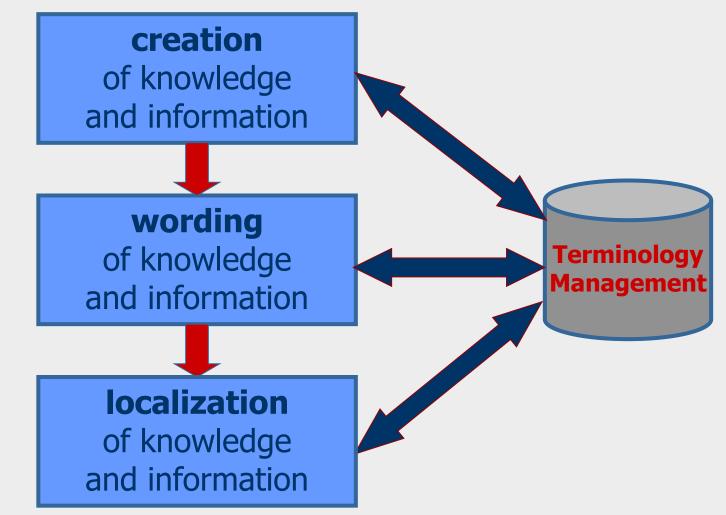




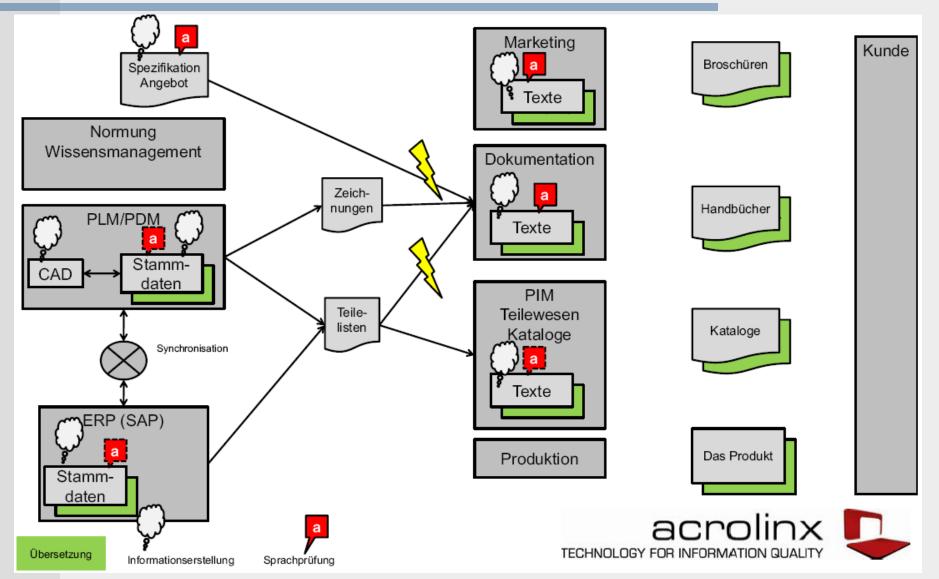
Dieter Gust in eDITion 2/2006

K.-D. Schmitz, IIM, FH Köln

#### **Information development workflow**



#### **Information development workflow**



#### **Conclusion I**

- High-quality terminology work is time-consuming and therefore expensive.
- The more persons or applications make use of the terminology, the better the benefit.

The "earlier" terminology work starts, the more efficient will be the process of software development and software localization. product liability, user satisfaction, time to market, etc.

#### **Conclusion II**

- terminology solutions in enterprises, taking into consideration all aspects of terminology theory and terminology management,
  - reduces efforts and costs for translation and localization
  - brings products faster to the market
  - supports user friendliness and user acceptance of products and documentation, also in the local market
  - (supports non-native speakers)

# Thank you for your attention



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