Top level	2nd level	3rd level	Detailed info
Language technology (LT) & language technology tools (LTT) *In the age of globalization an ever-increasing number of products and services are offered to a growing number of language communities. In order to cope with this situation LT&LTT are developed, which comprise first of all software products – and to a certain extent also devices –, such as those related to:* - ***translation technologies*** - ***text technologies*** *as well as* ***- Terminology management systems*** ***- Speech technology and speech technology tools*** ***- Content management systems***			
	Translation technologies *Translation technologies were developed in order to render a text in a given language (source language) into a semantically similar text in another language (target language). Translation technologies mainly comprise:* ***- Machine translation systems*** – MT ***- Computer-assisted translation tools/systems*** – CAT ***- Localization systems*** ***- Translation/ localization project/job management systems*** – TL-PMS		
		Machine translation systems – MT also called automatic translation systems, for fully automatic MT, interactive MT, shallow-transfer MT, for content scanning etc. MT is based on rules, statistic or, increasingly, hybrid approaches. The more the source language texts are "standardized" and the more text volumes are available, the better the results of	Goto → List of software programs for machine translation (incl. online MT): http://en.wikipedia.org/wiki/Machine_translation Goto → Comparison of machine translation applications: http://en.wikipedia.org/wiki/Comparison_of_machine_translation_applications Goto → Evaluation of machine translation: http://en.wikipedia.org/wiki/Evaluation_of_machine_tran

		MT. To be able to get the general gist of a text, MT for content scanning is used extensively in the EU Commission, and is widely offered as a service on the Internet.	slation Goto → Associations for machine translation: http://www.eamt.org/links.php
		Computer-assisted translation tools/systems – CAT also called translation environment tools (TEnT), cover a wide range of machine-assisted human translation (MAHT) starting from comparatively simple CAT tools to highly complex translation work-benches comprising translation memory (TM), terminology and other modules as well as computer-assisted workflow management. In nearly all applications, where precision and reliability of translation is an issue, CAT systems – especially for larger translation volumes – are indispensable. CAT tools are used in nearly all translation agencies providing translation services or translation departments of enterprises or other large organizations either as the technological basis or as one of the main phases in the workflow of large-scale translation volumes.	Link to detailed information →link to evaluated CAT tools/systems
		Localization systems have emerged out of multilingual technical documentation and technical translation using a higher level of language technology tools from the outset. In general, localization here is the adaptation of a product or service to a community of speakers with respect to cultural, linguistic, legal, political and technological aspects. More specifically in software localization, computer software is adapted to different languages, regional differences and technical requirements of a target market.	Goto → Globalization and Localization Association: http://www.gala-global.org Link to detailed information →link to evaluated Localization systems
		Translation/ localization project/job management systems – TL-PMS can manage one or several very-large scale or many large-scale translation or localization	Link to detailed information →link to evaluated TL-PMS

		projects. They allow translation agencies or departments to structure complex translation projects, assign the various tasks to different people, and track the progress of each of these tasks thus managing all the workflows of a translation/localization project, sometimes even including also office administration and communication tasks (from the agreements with the customer to invoicing and money transfers).	
	text technologies *At the beginning text technologies emerged primarily for monolingual applications, but today they increasingly have to comply with multilingual requirements. They provide more features and functionalities as well as more security against the data corruption than office software. Today text technologies mainly comprise:* ***- Authoring tools*** ***- Technical documentation systems/tools*** ***- Corpus technology systems/tools*** ***- Desktop publishing systems***		
		Authoring tools have developed out of primarily monolingual applications providing more features and functionalities than common word processing with respect to the creation, manipulation and maintenance of domain-specific texts. Major tool categories support the authoring/editing of scientific and technical texts, business texts, educational content, audiovisual and multimedia content and web content etc. Some can embed formulas and graphics, others support the layout and design of texts, for instance in professional-looking publications. Some of these are closing the gap to desktop publishing systems/tools.	Link to detailed information
		Technical documentation systems/tools also called technical communication systems/tools are systems to develop different kinds of documents with product- or service-	Goto → Society for Technical Communication (STC): http://www.stc.org/about-stc Goto → International Standard ISO/IEC 18019:2004 Guidelines for the design and preparation of user

		related information. The systems/tools supporting TD cover a broad range from basic tools for use by individuals, via professional systems for use by individuals and cooperative work systems up to full-fledged enterprise solutions. Some TD systems are developing in the direction of localization systems.	documentation for application software: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=30804 Goto → other ISO standards: http://en.wikipedia.org/wiki/Technical_documentation Link to detailed information →link to evaluated TD systems/tools
		Corpus technology systems/tools cover first of all text corpora (speech corpora are covered under speech technology). CT is applied not only in machine translation, but also in knowledge management for information retrieval, knowledge building and artificial intelligence using annotation (required for analyzing linguistic patterns), word sense disambiguation (important in machine translation information retrieval and parsing). Today the Internet is by far the largest multimedia corpus that has ever existed. On the portals of the EU Commission and other EU organs huge numbers of parallel texts (=same texts) in different languages can be found. For EU publications:	Goto → Central Library of the EU Commission: http://www.ec.europa.eu/eclas Goto → EU bookshop to find all EU publications: http://www.bookshop.europa.eu Goto → information on text corpus/text corpora: http://en.wikipedia.org/wiki/Text_corpus Goto → information on text corpora: http://www.elda.org/rubrique6.html Link to detailed information →link to evaluated CT
		Desktop publishing systems covers the creation of documents using page layout software on a personal computer. DTP has been used for publishing at all levels, from small-circulation documents such as local newsletters to books, magazines and newspapers. However, in the context of the language industries it implies systems/tools for creating a professional-looking end result, with more complex layout and design, than word processing can perform. Some DTP systems have been enhanced by translation and text technologies tools.	Link to detailed information
	Terminology management systems have emerged from two origins: large-scale terminology work in specialized organizations and as a		Goto → Klaus-Dirk Schmitz and Daniela Straub. Successful terminology management in companies. Practical tips and guidelines: Basic principles, implementation, cost-

	support for translation activities. As component of a CAT system or localization system, a terminology module allows translators to manage their own terminology database systematically in an electronic form and provide them with a means to quickly look-up and check terms appearing in a document. Many standardization bodies have a terminology database to manage standardized terminologies. Some government translation services use TMS for harmonizing terminology as a goal in itself or for supporting translation, such as the IATE, the inter-institutional terminology database of the European Union.		benefit analysis and systems overview. ©2010 TC and more GmbH ISBN 978-3-9812683-2-4 Link to detailed information →link to evaluated TMS
	Speech technology and speech technology tools – ST&STT cover technologies designed to duplicate and respond to the human voice. They are used for several purposes, including to aid the voice-disabled, the hearing-disabled, the blind, to communicate with computers without a keyboard, to market goods or services by telephone, and to enhance game software. Today, they not only comprise speech recognition and speech synthesis tools, but also high-speed speech transcription and dictation tools, via speech compression and manipulation, voice access to information, up to innovative systems, such as video rewrite and other dubbing systems.		Goto → speech technology internet resources: http://liceu.uab.es/~joaquim/speech_technology/tecnol_parla/recursos.html Goto → information on speech corpora: http://www.elda.org/rubrique6.html Link to detailed information →link to evaluated STT
	Content management systems - CMS are used to store and subsequently find and retrieve large amounts of data. CMS were not originally designed to synchronize translation and localization of content, so many became partnered with globalization management systems (GMS). Today, most of large-scale organizations are using some sort of CMS, which can be described as a collection of procedures used to manage information and workflows in a collaborative environment. Some of them are built on top of separate content management frameworks, or application programming interfaces for creating a customized CMS.		Goto → German publication on CMS: http://www.tekom.de/upload/alg/CMS_Studie.pdf Link to detailed information →link to evaluated CMS

Language and other content resources (LCR) *Content resources here are collections of structured content published or accessible in electronic form in databases, on CD-ROM or dedicated devices (e.g. electronic dictionaries), or on the Internet through online access. The share of published data collection, whether published in conventional or electronic form, is shrinking, while online content resources are increasing. The major kinds of online content resources comprise:* ***- Terminological data online*** ***- Lexicographical data online*** ***- Other kinds of structured content online.***			
	Terminological data online Terminologies, i.e. the technical or specialized vocabulary of an ever increasing number of domains, are not only major means of - communication between experts, - knowledge representations at a basic level - accessing scientific-technical information and knowledge, e.g. via the Internet. They are indispensable in specialized translation and interpretation, localization and technical documentation, information and knowledge management as well as content management. Given the fact that a user manual is part of the product, requirements concerning the correctness and reliability of terminologies are becoming more demanding by the day. That is why collections of terminological data online abound in the Internet. Terminological data today also cover graphical and other non-linguistic symbols, proper names (many of which have different language versions), phraseological expressions etc.		Goto → Central Library of the EU Commission: http://www.ec.europa.eu/eclas Goto → EU bookshop to find all EU publications: http://www.bookshop.europa.eu Goto → EURLEX (multilingual collection of all EU legislative documents): http://www.eur-lex.europa.eu Goto → EUROVOC (the EU multilingual thesaurus): http://www.eurovoc.europa.eu Goto → List of online dictionaries/vocabularies http://www.alphadictionary.com/specialty.html Link to detailed information →a list of list of online terminologies
	Lexicographical data online The “common language” (or language for general purposes) consists of a big number of words, compounds, collocations, metaphors and other lexical units, which are used in everyday life by		Merriam-Webster's Collegiate Dictionary Link to detailed information →a list of “national” GPL dictionaries of all EU languages

	potentially everybody in a language community and professionally by “word-workers”, such as journalists and writers of all sorts. These units can be turned into different kinds of products, such as dictionaries for synonyms and antonyms, etymology, reverse look-up, rhyming, collocations, slang, proverbs, as well as language thesauri (such as the famous Roget’s thesaurus for the English language), lexicons and encyclopedia. Lexicographical data are useful for general purposes as well as for linguistic purposes, such as in natural language data processing. Monolingual and bilingual web-based lexicographical data collections for general use accessible online are increasing.		
	Other kinds of structured content online There is an increasing variety of specialized structured content resources which are not primarily geared towards serving linguistic purposes. Many of these resources are just publications turned into comparatively simple databases, but more and more the usefulness of content integration (at least virtually if not physically) and interoperability is recognized. The variety ranges from pictorial and visual dictionaries of all sorts, via collections of chemical and other formulas, all kinds of directories (pharmaceutical substances and their makers, hazardous goods, companies and their products or services), charts, graphical symbols (and traffic signs, coding systems for names of countries, currencies, languages etc. to time zones, ZIP codes and so on. There are AAC (Augmentative and alternative communication) resources, such as a Bliss symbols dictionary, or the sign language dictionary. Many contain data which are important also for domain communication, technical documentation, desktop publishing, localization and educational purposes.		CAPL, the Culturally Authentic Pictorial Lexicon http://en.wikipedia.org/wiki/Dictionary_of_chemical_formulas http://en.wikipedia.org/wiki/Dictionary_of_chemical_formulas http://www.symbols.com/graphic-index) http://www.blissymbolics.us/dictionary http://www.aslpro.com/cgi-bin/aslpro/aslpro.cgi
Language services (LS) & language service providers (LSP)			

Language services have become a booming industry with high growth rates. Globalization has led to more contacts at any level and in any domain or field of application, which has triggered an exponentially growing demand for ***- Translation services*** ***- Localization services*** ***- Interpretation services*** ***- Desktop publishing services (here as complementary to localization services)*** ***- Language teaching and training of all sorts*** ***- Language industry consultancy services.***			
	Translation services previously an individual's art, today have taken the shape of a big and international industry, which provides the services of professional translators. Numerous companies, governments and other organizations are using translation services. There are customers asking for translations of very large, large, small or very small text volumes. On the one end of the scale, there are large-size translation agencies, usually offering also localization services. At the other end of the scale are the vast majority of micro- and one-person enterprises. Many customers have abolished or radically reduced their previous translation departments and switched to outsourcing. Although the demand for literary translation has also increased over the years and is a substantial part of the publishing business, the demand for specialized translations – i.e. legal, technical, scientific, medical, subtitling/synchronizing (in the film industry) and other translations – has grown exponentially. This growth has triggered the demand for translation technology to improve the performance and quality of translation. Because of customer requirements concerning translation quality, standards on translation management have been developed and certification schemes implemented. Many		Goto → LICS, the Language Industry Certification System http://www.lics-certification.org. Goto → EUATC, the European Union of Associations of Translation Companies http://www.euatc.org. Goto → FIT, the International Federation of Translators http://fit-ift.org. Goto → How to Find a Qualified Translator: http://www.ehow.com/how_2098462_find-qualified-translator.html Link to detailed information

	professional associations rendering all kinds of services to their members.		
	Interpretation services Interpreting is an activity usually carried out by individual interpreters to convert oral utterances from a source language into a target language. It is useful and necessary to distinguish between 3 major types of interpretation services: 1. Conference (or simultaneous) interpreting 2. community interpreting (medical/hospital interpreting, interpreting in the context of migration and asylum seeking, etc.) including court interpreting 3. business (or industrial) interpreting, using the technologies of 1 and 2 and depending highly on domain specific terminology knowledge and subject-field expertise Given the increasing demand for interpretation services, new types of interpretation emerged, such as whispered interpretation, interpreting for the media, public sign language interpreting etc. Larger interpretation agencies often cooperate with or are also functioning as professional conference organizers. Smaller interpretation agencies often also take on translation jobs. Lately over the phone interpreting (OPI) is offered through the Internet, a service that allows a customer to order a human interpreter from an OPI agency either by booking the service in advance or asking for the service in case of urgent need. The interpretation market represents approximately 10% of the translation market. Within the interpretation industry, the OPI market has seen an enormous amount of growth in recent years.		Link to detailed information
	Localization services – L10N Localization (also called L10N) is the adaptation of a product or service to other communities with respect to cultural, linguistic, legal, political and technological factors. In a narrow sense, it means the adaptation of computer software to different		Goto → GALA, the Globalization and Localization Association http://www.gala-global.org/about-association

	languages, regional differences and technical requirements of a target market. Such localized software is indispensable, for instance to render localization services in the broader sense. Given the exponentially increasing demand, localization services have further differentiated into the localization of technical manuals, product catalogues, software, website content, games etc. L10N services are generally characterized by much higher requirements for using language technology, including desktop publishing software, and more demands on quality as well as cross-language consistency of the products.		
	Desktop publishing services – DTP Today, multilingual DTP competences are required in translation services and even more so in localization and some technical documentation, which is largely due to the challenges posed by writing systems other than Latin used by communities in target markets of European companies abroad. In order to ensure interoperability between common office automation software, translation systems/tools on the one hand and DTP systems on the other hand, standards-based conversion tools are necessary. Under the point of view of system integration and content interoperability, multilingual DTP has become a major field of services in the language industries.		Link to detailed information
	Language teaching and training services – LT&T Language teaching and training outside of the official educational system have undergone big changes over the last three decades. 1. The target groups for training language got more and more differentiated to cover the needs of individual learners (such as expatriates, visiting managers or domain experts with a temporary need for limited language competences, migrants, foreign students, language industry specialists, etc.). 2. The teaching and learning methods were		Link to detailed information

	adapted to these differentiated needs by offering more and more tailor made courses; language skills and competences can be tested in various ways and more objectively than in the past. 3. Information and communication technology brought about new learning tools and methods; language learning platforms are mushrooming on the Internet. 4. The demand on teachers for extended teaching skills has grown. This development gives enterprises new perspectives for implementing language policies.		
	Language industry consultancy services The rapid development of the language industries provides enterprises with new opportunities and innovative perspectives to expand their businesses by making keen use of the products and services offered by the language industries. However, in the light of the high degree of fragmentation and simultaneous steep expansion of the language industries, potential customers as well as stakeholders of the language industries are looking for advice with respect to solutions for individual problems up to the formulation of whole policies/strategies. Thus consultancy services for aspects of language technology, language services, content management, standardization and certification up to comprehensive consultancy services are gradually emerging.		Go
Standardization, certification and language policy *The rapidly growing market of the **language industries** has led to a differentiation of demands on the customer side and **products** and **services** offered by the language industries. This and the general demand for system integration have triggered the need for all kinds of **policies**, **standards** and guidelines, as well as for **quality assessment** systems. This development has also*			

had a great impact on the competences and skills taught at higher educational institutions (including the respective academic certification systems) as well as on the content of the respective vocational training schemes.			
	Standardization (as a service) Technical standardization – whether carried out in the framework of formal standardization organizations (such as ISO and IEC and their national member bodies) or by other standards developing organizations (SDO) – is also considered as a service to industry and society at large. The standardization of a "product, process or service" in a broad sense covers any material, component, equipment, system, interface, protocol, procedure, function, method or activity. Thus, in the fields of the language industries standardization can apply to all kinds of aspects of suitability of systems and tools, of the methods and quality of services and to the quality and interoperability of language and other content resources, as well as to the assessment and certification of processes, and the quality of products and services.		Link to detailed information Goto → industry standard SAE J 2450
	Certification (as a service) As quality is an important cost, image and market success factor, the assessment of the quality of products, systems, personnel, services etc. in the language industries has become a major issue. It can refer to the quality of products (including tools and the language products produced with them) and services (including training services, training material and trainers) as well as the management of processes in practical all fields of the language industries. In this connection certification is defined as a procedure by which a first, second or third party gives written assurance that a product, process or service conforms to specified requirements. If these specified requirements are standardized, the certification process assesses the		Goto → ECQA – European Certification and Qualification Association (www.ecqa.org); Goto → LICS – Language Industry Certification System (www.lics-certification.org) Link to detailed information

	standards compliance of the aspect to which the requirements refer to: methods, products, services etc. A special novel case is the assessment and evaluation of the quality of translations, technical documentation and user manuals, which is measurable and highly relevant to product liability. Successful implementations of pertinent standards-based certification schemes are for instance the Language Industry Certification System (LICS) and ECQA – European Certification and Qualification Association.		
	Language policy A language policy can refer to any of the aspects mentioned on this navigation pane. Enterprises in Europe using a holistic approach to formulate and implement a language policy proved to be significantly more successful in business than others. Such a holistic approach could cover principles and rules concerning among others: - the extent to which language technology is applied - the kinds of language services to be used in which way - the kinds of language and other content resources to be used - whether and – if so – which standards shall be applied - whether certification is considered essential - whether language competences of staff are important to the enterprise (and if so which ones as well as how they can be achieved e.g. by training programmes). This gives enterprises new perspectives for using language policies as a management tool for improving business.		Goto → publication on globalization policy: LISA ed. The Globalization Industry Primer. 2007 Goto → International Standard: ISO 29383:2010 Terminology policies – Development and implementation Link to detailed information