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## Terminology workflows in theory and practice

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**Abstract.** This contribution intends to illustrate the processes and roles involved in terminology work in real life scenarios. It is mainly based on 17 interviews with terminologists and terminology managers employed in the most important terminology centres in Europe and beyond, which were carried out between 2011 and 2012 within the LISE (Legal Language Interoperability Services) project. Next to providing tools aimed at improving the quality of terminological resources in legal and administrative domains, the project partners developed a set of Guidelines for legal and administrative terminology work, which give a detailed and wider picture of the issues treated in this article. In this paper particular attention is given to those aspects of practical terminology work that contradict common convictions, differ from terminology work in domains other than law and administration or partly clash against general terminology theory.

**Keywords.** Guidelines for legal terminology, LISE, roles in terminology work, terminology workflow, legal terminology.

### 1. Introduction

Besides discussing the fundamental methodology of terminology work, several authors of manuals on terminology describe the professional figures involved and the steps to be performed on a theoretical basis (see e.g. Arntz et al. 2002, KÜDES 2002, Rey 1995, Sager 1990). The practical application of this theoretical framework however sees a less clear-cut definition of roles and working steps, where often one person takes over several roles and the single workflow tasks are not always kept well separated. Neither are they perfectly supported by adequate tools.

The following sections present some of the results of a study carried out within the EU-funded project LISE (Legal Language Interoperability Services). These results may contribute to filling the gap – at least partly – between the theoretical framework and its practical application in terminology by analysing and modelling real life workflow scenarios, with particular attention to the legal and administrative domain. The data was gathered during interviews with terminologists and terminology managers employed in several terminology centres/units in Europe and beyond, which work at different levels (i.e. at local/regional, at national and at international level).

#### 1.1. Method

This paper reports on the insights gathered with the help of 17 semi-structured expert interviews carried out between 2011 and 2012 with expert staff of 16 terminology centres/units<sup>1</sup>. Following a definition by Meuser and Nagel (cf. 1991: 443), we considered experts as part of the sphere of activity that forms the object of research. The 16 terminology centres/units addressed mostly belong to organisations and institutions acting at local/regional, national and international level and are mainly, but not exclusively, located in Europe. The selected sample aims at representing all different types of terminology work and approaches that can be found in literature (cf. Wright and Budin 1997: 1 ff.): monolingual vs. bilingual/multilingual, prescriptive vs. descriptive, translation-oriented vs. multipurpose, ad-hoc vs. systematic vs. text-based, proactive vs. a

posteriori terminology work. The sample consists of international institutions (e.g. FAO), supranational institutions (e.g. EU institutions), governmental bodies (e.g. ministries of foreign affairs), regional bodies (e.g. Canton Bern) and other organisations (e.g. TNC) (Chiocchetti et al. to be published).

Expert interviews can be conducted with different techniques, i.e. with an open, a semi-structured or standardised approach. The first technique gives both parties the most freedom, the second follows a predefined interview protocol, while the third uses both pre-formulated questions and answer options (cf. Froschauer & Lueger 2003). For this study we chose the second approach, using an interview protocol with questions investigating general aspects, methodology, terminology management, terminology management systems and terminology planning, but still allowing the interviewees to talk freely on the given topics.

Nearly all of the interviews were conducted face-to-face. Only one person was contacted via conference call. The interviews were recorded, provided that the interviewees had granted their consent to do so and later transcribed to facilitate the analysis (cf. Chiocchetti & Ralli 2012: 11; Chiocchetti et al. to be published).

### 2. The terminology workflow

1. Based on the interviews it can be stated that the terminology elaboration workflow depends on various factors, mainly: the purpose of terminology work (e.g. standardisation-oriented or translation-oriented), the organisational structure (e.g. single terminologist, team), the job profiles involved (e.g. terminologist, translator/terminologist, lawyer-linguist), the stakeholders of terminology (e.g. in-house, intra-institutional, inter-institutional), the stages in text/translation production when terminology is produced (before, during and after text/translation production), the number of languages (monolingual, multilingual terminology work) (cf. Wright and Budin 1997, 1 ff.; Lušický and Wissik 2013, Chiocchetti et al. to be published). Disregarding single exceptions and peculiarities, the core steps that are common to every process of terminology elaboration can be summed up as follows (cf. Chiocchetti et al. 2013):

- needs analysis
- documentation
- term extraction
- term selection
- elaboration of terminological entries
- revision and quality assurance
- dissemination
- maintenance

Prescriptive or standardisation-oriented terminology has a further step before dissemination, i.e. standardisation. As standardisation-oriented prescriptive terminology work follows particular rules<sup>2</sup> it will not be discussed in detail here, while we will treat all other steps.

#### 2.1. Needs analysis and defining priorities

An initial needs analysis allows defining which type of terminology work is necessary in order to meet the needs expressed (e.g. descriptive or prescriptive, ad-hoc, proactive or systematic terminology work). Two parameters are especially important in driving such decisions: the time frame and the specific terminological issues that need to be addressed. For example, if during translation work (or any other activity) a specific terminology problem arises on a

short term basis and the terminological resource in question proves to be incomplete, i.e. does not offer a response to the specific issue, the solution would lie in ad-hoc terminology work. This means that the terminology is compiled *during* translation work or any other activity it serves. In another scenario terminological needs may arise on a medium or long term basis, for example, whenever the subjects of texts to be translated are known in advance, but the terminological resource concerned results incomplete concerning specific subjects or terms. In this case, proactive terminology work would offer the best approach to the given needs. That means that the terminology is compiled *before* translation work or any other activity it serves. The third scenario applies when one or several specific domains and/or languages are missing in a terminological resource: a specific terminology issue must be faced on a long-term basis. The right solution in this last scenario would be systematic terminology work. Also in this last case terminology is elaborated *before* translation work or any other activity it serves (cf. Chiochetti et al. 2013: 15 ff.).

The interviews have shown that most terminology work takes place on an ad-hoc basis, so to say “just in time”. This is underlined by several interviewees: “There is a lot of ad-hoc work that is going on in the units” (INT6)<sup>3</sup>; “[...] das Mail ist um die Mittagszeit reingekommen, also 24 Stunden Zeit, das in fünf Sprachen abzuchecken” (INT10); “die alltägliche Arbeit ist Ad-hoc-Terminologie oder, wie mein Schweizer Kollege das nannte, auf Englisch sehr schön: *just-in-time terminology*” (INT2). Some terminological units strive to do proactive terminology work: “We try to be proactive, that is, to guess what is going to be dealt with, what kind of texts [we are] going to be translating in the units” (INT6); “especially the proactive terminology work, we do [it] for the translators” (INT7). Very few can actually dedicate their time to systematic terminology work: “Wir arbeiten nach Sammlungen, weil wir thematisch arbeiten. Eine Sammlung deckt meistens ein Untersuchgebiet ab” (INT12).

It is also possible for one terminology centre to cover all different types of terminology work, as INT9 describes: “[...] präskriptiv oder deskriptiv, genau, *ad hoc* oder systematisch, ganz genau. Also da muss ich sagen, im Prinzip von allem etwas, wenn man so möchte” (INT9).

### 2.2. Documentation

During the documentation phase, the sources of terminological information are collected: relevant documents, standards, handbooks, specialized dictionaries, etc. Domain experts may serve as a source of information, too. Some terminology centres/units regularly refer to experts of the specific subject field they are dealing with: “If we work with a specific department, we will have subject-field experts from that department [...]” (INT17).

According to the purpose, content and target users of terminology work, some types of sources will be considered more or less relevant for information retrieval and more or less authoritative. Not all of the sources are available in digital form, but some terminology centres/units create and use electronic corpora.

### 2.3. Term extraction and term selection

The extraction of terms from the collected documentation can be performed either manually, semi-automatically or automatically with the help of dedicated tools (cf. Chiochetti et al. 2013: 21). Some terminology centres/units also use corpus search tools for term extraction or collocation extraction: “Was wir jetzt gerade anfangen, ist [name of a commercial term extraction tool] [zu gebrauchen]” (INT10). However, most of the interviewees state that they prefer manual term extraction, mostly because the extraction tools they tested did not fulfil their expectations: “Die Auswertung der Texte, die machen wir von Hand, weil ich die ganzen Extraktionstools, die es jetzt gibt, die finde ich nicht so wahnsinnig... Also da ist mir das Rauschen noch zu groß und solche Geschichten. Das machen wir von Hand [...]” (INT11). Others stress that it takes too much effort to train the tools:

Wie gesagt, automatische Extraktion wird bisher auch nicht betrieben. Wir hatten einige Male versucht, Tools zu testen, jetzt bei uns intern, in Zusammenarbeit mit Anbietern von solchen Tools oder Entwicklern, und waren jedes Mal zu dem Erkenntnis gekommen, damals zumindest, dass der Input, der erforderlich wäre, um diese Tools zu erziehen, so groß wäre, dass wir also besser dran sind, wenn wir einen [Stift] nehmen und einen Humanterminologen oder -extraktor, der sich dann den Text durchsieht und das, was er für relevant hält, einfach kennzeichnet, damit wir es dann nachher auch manuell extrahieren können. (INT9)

The results of both (semi-)automatic and manual extraction can be compared “And then we start a project and, since our unit is responsible also for exploring tools for automatic term extraction, we try out these tools and we compare [their results] also with [the results of] manual extraction.” (INT7). Only few interviewees state that they have not tested any term extraction tool, because they believe these tools do not suit their needs “Nein, also das mache ich nicht mit einem Tool. Ich hatte es mir überlegt, aber ich denke, für unsere Bedürfnisse ist es, ist [automatische Extraktion] nicht geeignet” (INT14). The general tendency is that most terminologists would like to have an extraction tool that works well without needing a lot of specific training, as INT9 puts it: “[E]in Extraktionstool, das tatsächlich [...] funktioniert, ohne zu viel Input zu erfordern”.

After the extraction phase, no matter whether tools are or are not used, the resulting candidate terms have to be validated in the term selection phase by terminologists or domain experts in order to be further elaborated and included in the terminological database.

### 2.4. Elaboration of terminological entries

The elaboration of terminological entries is one of the most studied and documented workflow steps in terminology work (cf. e.g. Arntz et al. 2002, KÜDES 2002: 27 ff., Rey 1995:135 ff., Sager 1990:130 ff.) and will therefore not be illustrated in detail here. In brief, during the workflow step in question the terms chosen for further elaboration during term selection become part of terminological entries in a terminological resource. Further information concerning, for example, the conceptual or linguistic level is added, i.e.: domain attributions, definitions, contexts of use, equivalents in other languages, synonyms and variants in the same language, sources of definitions and contexts, linguistic information (e.g. grammatical information), any other additional information (e.g. notes on various aspects) as well as administrative information, etc. (cf. KÜDES 200: 27 ff., Chiochetti et al. 2013: 23 ff., Chiochetti et al. to be published). One interviewee briefly reports on this workflow step:

Ein erster Schritt: Der Verantwortliche erarbeitet die Einträge in allen Sprachen [...], systematisch für jeden Eintrag eine Definition, [...] da, wo es nötig [ist], eine Zusatzklärung, entweder zum Gebrauch oder zum Inhalt, und bei allen natürlich auch Quellen. (INT12)

Also INT 8 reports on how a past project was carried out:

We started to choose concepts, to find all the designations possible for this concept. After we have compared it, done a conceptual tree, step by step. After the conceptual tree, we created an entry in our database, entry with a definition, with terminological reference... And after that we worked with other lawyer-linguists from other units. We had a meeting each 15 days in order to explain the notion in the French system, in the Spanish system, to speak with them, to compare, to know if we take, we don't take [the terms in question]. If the conceptual tree can be accepted by them or not.

### 2.5. Revision and quality assurance

Revision usually considers three different aspects, either in one single stage or in different stages that may be assigned to a number of people with different roles and profiles, depending on the internal organisation of the terminology centre/unit and on the scope and purpose of terminology work (cf. Chiochetti et al. 2013: 28 ff., Chiochetti et al. to be published):

- linguistic check, to ensure the linguistic correctness of the entry (e.g. typos); INT10 stresses that native speakers are of paramount importance in this phase: “Wichtig ist einfach, dass zum Schluss alle Sprachen von jemandem kontrolliert wurden, der auch muttersprachliche Kompetenzen hat, das ist die Idee”.
- formal check, to make sure that all formal rules have been respected (e.g. completeness of the entry, form of the definition, correctness of source quotations, working cross references);
- content check, to verify whether the concepts are defined properly, the equivalents or the synonyms/variants are correct, etc.

Revision is an essential step to guarantee a high standard of any terminological product. Some terminology centres/units have dedicated staff, as INT6 explains: “in the units, you have one head of unit, one quality controller and the rest are translators. Translators, revisers. The quality controller is in charge of monitoring quality in the unit and sometimes it’s a person that is very involved in the terminology, not always.”

### 2.6. Dissemination

The last step – and one of the most important ones – in the terminology workflow is dissemination. The elaborated terminology should reach the intended end users, usually translators, interpreters, technical writers, legal drafters and/or the general public. Depending on the purpose of terminology work and on the type of end users, the elaborated terminology may be disseminated via different channels: in public terminological resources, in internal terminological resource, in dictionaries (paper or online dictionaries) or in thematic glossaries and lists of terms (cf. Chiochetti et al. 2013: 38; Chiochetti et al. to be published). INT17, for example, explains that their terminological database is “our tool that we disseminate everything and in every possible way”.

### 2.7. Maintenance

Maintenance has no fixed position in the workflow, in fact, it can occur at any moment in the workflow cycle. Its frequency depends on the terminology centre/unit: it might take place e.g. on a daily or on a monthly basis or whenever a certain step in the terminology elaboration process has been completed. Maintenance activities can be event-driven (like a spelling reform or legal reforms) or can be motivated by the need to ensure and maintain the quality of the terminological resource (cf. Chiochetti et al. 2013: 30-31, Chiochetti et al. to be published). Maintenance also involves the consolidation of a terminological resource, the deletion of double entries, the management of legacy data, the merging of entries etc., as the following two quotes show:

[W]e send out consolidation projects, that is, lists of entries [...] with an indication of those that should be completed by the units. [...] [W]e identify entries that should be deleted or merged into what we call the primary [database], and that is one way of getting everybody to work on the same entries instead of having lots of bilingual entries [...]. (INT6)

[...] then sometimes it happens that they identify long lists of duplicates within a domain. And then they send us the list: “Could you please delete or merge your data [i]nto ours, so that we could eliminate a couple of duplicates in this area”, etc. etc. So this is the cleaning process. (INT8)

The interviewees have underlined that maintenance is extremely important for the quality of a terminological resource, but that it costs a lot in terms of time and financial resources: “Konsolidierung einer Datenbank ist extrem kostenaufwendig, und andererseits auch extrem wichtig natürlich [...] (INT5)”.

### 3. Roles involved in terminology work

Contrary to common belief and to the experience of some professionals (“The worst thing about the job is the solitude of working alone”<sup>74</sup>) terminology work is usually performed in a team. Ideally, people with diverse linguistic, professional and technical competences cooperate and exchange information to meet high qualitative and quantitative requirements.

In this section, we briefly illustrate the main roles involved in the terminology workflow described in section 2, their activities and competences. In daily terminological practice, however, not all roles are kept strictly separate and only a limited number of large terminology centres formally distinguish between all the roles that we present, grouped in clusters, in the following subsections.

#### 3.1. Staff with terminology-related expertise

“Staff with terminology-related expertise are familiar with terminology theory and practical terminology work” (Chiocchetti et al. 2013: 41). They are terminologists, senior terminologists, translator-terminologists, quality controllers and trainees who take over the research and documentation of designations used in one or more specific domains in one or more languages. The results of their activity are collected in terminological resources that contain the designations, together with other relevant concept-related or term-related information. They are the main actors within the terminology workflow.

Staff with terminology-related expertise are involved in all steps of the workflow (cf. KÜDES 2002, RaDT 2004, Chiocchetti et al. 2013: 43). During needs analysis they anticipate future needs, collect expressions of need from users or otherwise receive indications on texts/domains to be processed terminologically. In the documentation phase they retrieve and select the reference material that will be used for terminology work in the source and target language(s). They also consult written sources or domain experts (see 3.3) to gather information on specific domains or terms. Then they extract terms from the selected reference material, either manually or (semi-)automatically with the help of dedicated tools, during the term extraction phase. INT2, for example, uses a commercial tool: “Das Erste, was ich machen werde, ist [name of the commercial tool] [einzusetzen]. Diese Software holt einfach alles raus, [auch] was wir schon haben; [...] das kann man [dann] vergleichen mit der Termdatenbank.” From the lists of candidate terms resulting from the previous phase they choose the terms (term selection phase) to be treated during the subsequent phase of elaboration of terminological entries. Staff with terminology-related expertise are mainly responsible for this latter step of the workflow: they compile and update terminological entries in all their parts, create concept systems, propose definitions whenever necessary, find equivalents to be used in translation, spot terminological gaps, suggest translation proposals, propose/create new terms, product names, etc. Often they discuss and consult with other team members and roles in the workflow to complete this phase. For example, INT1 stresses that “wir eigentlich [...] mit den Fachleuten immer die Terminologie – die [dann] bei der Fachübersetzung einfach eine große Rolle spielt – überprüfen.” During revision and quality check they revise terminological material according to linguistic criteria – preferably in their native language – and to formal requirements, thus acting as quality controllers. They also clean and consolidate terminological collections and databases. If their terminology work is standardisation-oriented, they usually prepare input material for the standardisation process and assist the standardisers. In the words of INT14: “Jetzt bin ich ja der Sekretär des [Standardisierungs-]Ausschusses, mache die Recherchen und bereite alles vor und, also, bin für die Datenbank zu[ständig]”. Finally, during dissemination they provide terminological support for all end users, edit or proofread texts from a terminological point of view, implement the terminology policy of their organisation and take care of other dissemination activities, such as terminology newsletters, term-of-the-day blogs etc. INT7 remembers how a former staff member suggested that: “we should edit a newsletter every three months to print it. And we have done it now for some years and it has results”.

### 3.2. Staff with management-related expertise

Staff with management-related expertise are familiar with terminology work but also possess specific project management skills (cf. Chiochetti et al. 2013: 44). They coordinate terminology units, language specific sections and specific projects, liaising with top managers and decision-makers within their organisation, as well as with customers and end users. For this reason, they should possess good communication and team working skills.

Staff with management-related expertise usually supervise and direct all relevant tasks and activities of every step in the terminology workflow (cf. Chiochetti et al. 2013: 45-46). INT6 explains that at their terminology unit “there are two terminology coordinators. I deal mostly with [the] technical part and training and my colleague, she deals more with the projects, with the content.” In the needs analysis phase they may acquire terminology projects to meet current or future needs. To support documentation they may have to address possible copyright issues related to documentation or text corpus compilation. Concerning term extraction, they may be called to decide on the acquisition of specific tools. During the phase of elaboration of terminology entries, they usually cooperate in the planning, data modelling and evaluation of terminological databases, coordinate staff members, different groups, departments and institutions or organise and supervise data exchanges. During revision, they assess the quality of terminology work and coordinate the different types of revision activities. In standardisation-oriented terminology work, they may be in charge of developing the terminology policy of an organisation. Finally, in the dissemination phase they liaise with end users and customers and take care of possible copyright issues related to data publication and data exchange. As INT13 puts it: “I have to do a lot of management, administration, database and convincing...”

### 3.3. Staff with domain-related expertise

Staff with domain-related expertise are deeply familiar with one or more specific subjects that are being processed terminologically. They are domain experts who act as revisers and consultants for terminologists, but rarely work as terminologists proper. They are especially important in standardisation committees, thus taking over the role of standardisers (cf. Chiochetti et al. 2013: 46). Domain experts are mostly monolingual, as they contribute to terminology work with their knowledge in their native language. As INT7 puts it, “subject-field experts are rather consulted language specifically by the terminologists [...]”. INT11 confirms this: “Also, wenn möglich, möchten wir eine Expertengruppe haben, mit einem Experten pro Sprache”. In legal translation and terminology there is great demand for domain experts who have a good command of more than one language or a double degree in legal and linguistic studies. These professionals are called jurilinguists or lawyer-linguists.

A jurilinguist provides advice related to the terminology, syntax, phraseology, organisation of ideas and style that are appropriate to legal language and, specifically, to legislative language and to the subjects dealt with, and also, within the context of bilingual co-drafted Bills and regulations, comparison services to ensure equivalenc[e] of the [different language] versions. (Poirer 2009)

Domain experts give important contributions in several steps of the terminology workflow (cf. KÜDES 2002: 46, 66, Chiochetti et al. 2013: 47-48, RaDT 2013). They may voice formal or informal requests of terminology work as part of needs analysis. During documentation, they usually suggest or select the material to be used as reference for terminology work. They may participate in term selection by choosing which candidate terms should be further processed. Their advice is extremely useful during the following core phase of the workflow, the elaboration of terminology entries. For INT8 “it’s really important to have a lawyer here [at the terminology unit], because sometime[s] we have a sensitive question that just a lawyer can explain.” INT9 shares this opinion: “[W]enn es sich um Kfz-Technik handelt, beispielsweise, da denke ich, muss man dann tatsächlich einen Fachmann in dem Bereich haben [...]”. For



example, domain experts check concept systems, consult on content, create definitions and suggest or approve translation proposals. During revision and quality check, their domain knowledge allows attaining a high standard of quality of terminological entries, as the content is proven to correspond to the actual usage within the community of experts. INT11 gives concrete examples of what the domain experts should check: “Der Experte muss schauen: Stimmt die Definition? Stimmt die Anmerkung?” The contribution of staff with domain-related expertise in the terminology standardisation phase is absolutely necessary. In their role of members of standardisation committees, they suggest standardisation proposals, study, discuss and integrate or modify terminological material, validate standardised terms and equivalents. Finally, they play a role in dissemination, too, especially by applying the results of terminology and/or standardisation work in their daily practice within the community of experts.

In daily practice, domain experts rarely possess terminological background. Therefore, it is important to give them instructions on what a designation is or on how a terminological definition has to be formulated. This is underlined, for example, by INT11: “[W]enn es systematisch[e Terminologearbeit] ist, habe ich natürlich eine Anleitung für Experten. Ich habe eine Anleitung, wo ich sage: Hört mal, eine Benennung ist das und das und das, und darauf kommt es an. Und eine Definition sollte nach Möglichkeit so und so und so...” Ideally, experts should be involved in the terminology workflow formally and on regular basis. In an ideal situation, they should be in-house domain experts. In rare cases, due for example to the peculiarities of the domain treated, this is indeed the situation, as it is for INT8: “[E]xperts are our *correspondants*. It is not a problem to have an expert. Because if I know that there is an expert in criminal law, I can ask a lawyer-linguist that works in a unit”. In most cases, experts are involved informally, i.e. on the basis of personal contacts and goodwill (Chiochetti & Ralli 2013: 28). This is true for INT4 “[...] Schön ist, wenn man einen Kontakt [mit Fachexperten] hat. Dann geht es am einfachsten. Aber da muss man sich das Organigramm raussuchen und schauen, raten, wer dafür zuständig ist und fragt sich eben durch. Das ist langwierig, aber es ist kein anderer Weg”. INT11 shares the same experience:

Ich kenne ja nicht viele Experten, die wirklich ganz offiziell eingebunden sind als Experten für die Terminologearbeit. Ich habe jede Menge Experten. Hier drin sind nur Experten sozusagen. Aber die wissen eigentlich... Die wissen das nicht, dass sie Experten sind, also man ruft sie einfach an und sagt: „Ja, hören Sie mal, ich habe erfahren, dass Sie sich mit Lawinen auskennen.“ „Ja?“ „Können Sie uns sagen, was eine Schleiflawine...“ [ist?]. (INT 11)

### 3.4. Staff with expertise in information technology

Staff with expertise in information technology – short: IT staff – administer, maintain and develop tools for terminology work and perform specific tasks. They act, for example, as database administrators, tool developers or IT specialists in general. They can be terminologists with a technological background, but more often they have other profiles, being information scientists, computational linguists, computer programmers, etc. (cf. Chiochetti et al. 2013: 49).

Within the terminology workflow, they can offer valid support in every single phase (cf. DTT 2010: M6-3, Chiochetti et al. 2013: 50). For needs analysis they can develop or provide tools to collect and store (external) input on terminological needs. Much can be done in the documentation phase with IT skills, for example, by developing and fine-tuning tools to automatically harvest domain-related relevant texts on the web or by creating domain-specific monolingual or multilingual (aligned) text corpora. The same holds true for term extraction, where IT staff can develop or fine-tune tools for term extraction and develop or provide tools for automatic retrieval of translation proposals from a variety of language resources (e.g. text corpora, translation memories). In the words of INT17: “We do bitexts<sup>5</sup> and things like that [...] with our informatics, also a group within the translation [unit], because our tools are mainly in-house tools.” During term selection, providing a way of automatically checking lists of term

candidates against the terms already present in a terminological database is a valid support offered by IT staff. Other activities serve the core phase of terminology work, such as performing or assisting imports/exports of data and batch changes, maintaining the database management system, converting data into desired formats (e.g. for import/export, publication), etc. INT15 explains: “There is a special program that was devised to enter terminology at [the University the terminology unit cooperates with]. They have a good computer expert [...]. He sort of writes programs for them.” INT10 similarly feels that the desires of the terminologists can be discussed with their IT experts: “[W]ir möchten diese Funktionalität dann in der Datenbank haben [...] da sind wir jetzt mit dem Technikern momentan am Schauen.” For revision and quality check they can provide or develop tools for (semi-)automatic consistency checking and quality assurance as well as exports of specific subsets of terminological data, e.g. to be handed over to revisers. Also the standardisation phase can profit from professional IT support, for instance, through tools that assist in the standardisation workflow (e.g. discussion forums). INT17 informs: “We also work with wiki. Whenever there is a committee or we have to share with experts from outside, either we work within a regular committee and we sit around a table and all that, or, more and more, we are working with a wiki tool, a collaboration tool.” In the last phase of dissemination, IT technology may assist data publication – both online and on paper, the collection of user input and feedback and the production of user statistics. Improving the user-friendliness of terminology dissemination tools (e.g. the online version of a terminological database) for end users of terminological data is particularly important for the success of the dissemination phase.

### 4. Needs expressed

The interviewees were asked to list the first things they would wish for to make their work better. The most common desires can be grouped into the following categories (cf. Chiochetti & Ralli 2012: 33 ff.):

#### 4.1. Staffing

Most of the interviewed institutions would like to “have more people” (INT17), because they “are completely down-sized” (INT13). For this reason, they have “to do multitasking” (INT13) in their daily terminology work. In many cases, this shortage of staff is due to budget limitations and the growing cuts in human resources. Related to staff, some organisations ask for better-qualified staff: not all people working as terminologists have a terminological background. More often, they are “self-made terminologists” (INT9), i.e. they developed their terminology competences through learning by doing and targeted training courses. The limited availability of qualified staff is due to the lack of university courses and specific trainings focused on terminology (Chiochetti & Ralli 2012: 34).

#### 4.2. Time

“Nobody has much time for terminology” (INT13). Often, terminology work is seen as a by-product of translation:

Erstens – was man wissen muss, wir sind natürlich zunächst ein Übersetzungsdienst, das heißt, unsere Terminologie steht im Dienste der Übersetzung – ohne die Übersetzung würden wir keine Terminologie machen, und es gibt sehr selten bei uns Projekte, die wirklich reine Terminologieprojekte sind, wo einer unserer Kunden [...] zu uns kommt und sagt: „Wir bräuchten ein Glossar, das wir auf unserer Website veröffentlichen wollen. Könnt ihr das für uns übernehmen?“ Das passiert ein-, zweimal im Jahr. Normalerweise ist Terminologie entweder Nebenprodukt, aber eigentlich so mehr das ... ein Hilfsmittel im Prinzip für die Übersetzung. (INT5)

Lack of time and different priorities often do not allow systematic work and in-depth researches. For this reason, most of the interviewed institutions do day-by-day terminology, ad-hoc terminology or, more rarely, ex-post terminology.

### 4.3. Experts

Many terminologists wish to work in close cooperation and within a formal framework with domains experts. In the words of INT14:

[E]in schönes Team von juristisch vorgebildeten Experten, die mir bei den Recherchen helfen können, die von mir aus Experten in bundesdeutschem, in schweizerischem, in Südtiroler Recht, in österreichischem Recht sind, die da [bewandert] sind und eben wissen, an welcher Stelle sie suchen sollen. (INT14)

This problem is partly due to the fact that many institutions lack resources for terminology work.

### 4.4. Dissemination

Many institutions “need to have terminology more visible, [...] also at the university level” (INT17) and make their work more widely known, convey its importance to everyone (cf. Chiochetti & Ralli 2012: 35).

## 5. Outlook

Notable time pressure and shortage of staff often do not always allow following the workflow steps we have described very strictly. Furthermore, the way terminology work is performed always depends on various factors, such as purpose, target users, domain(s), language(s) treated, financial limitations, availability of reference material, etc. Nonetheless, this paper illustrated the (ideal) terminology workflow, i.e. the processes and roles involved in it, and explained – on the basis of the interviews conducted – which aspects distinguish theory from practice in order to better support practical collaborative terminology work. Some aspects illustrated in this paper are further treated in the “Guidelines for collaborative legal/administrative terminology work” (Chiochetti et al. 2013) that were produced as an output of the LISE project (see introduction).

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## 7. Notes

<sup>1</sup> The results of the interviews are further confirmed by an online survey, which was disseminated between mid-December 2011 and end of March 2012 through several large terminology networks and associations (e.g. the International Network for Terminology TermNet, the International Information Centre for Terminology InfoTerm, etc.).

<sup>2</sup> As regards standardisation cf. Chiochetti et al. 2013: 31 ff., Chiochetti et al. 2006, Ralli & Stanizzi 2008.

<sup>3</sup> The interviews have been anonymized and numbered progressively. Here we referred to them as INT1, INT2, INT3, etc.

<sup>4</sup> <http://www.sacareerfocus.co.za/displayJobProfile.php?id=527> (accessed 30 January 2013).

<sup>5</sup> i.e., aligned parallel texts.

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