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TecCOMFrame: Building bridges between technical communication and translation studies through a prototype specialisation curriculum

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Abstract: Technical communication is a new field of work compared to other professions, and therefore it does not have a standardised curriculum. In Europe, many practicing technical communicators do not have qualifications in the area. TecCOMFrame, a project funded by the European Union, aims to develop an academic competence framework and higher education prototype curricula at various levels that correspond to the European Framework of Qualifications. The project team has developed the competence framework, comprising six dimensions and 22 subjects. The team is currently developing prototype curricula, including one curriculum which is a focus of this paper, a specialisation stream in technical communication in a Master's in Translation Studies.

Keywords: Technical communication, curricula, competencies, higher education, translation

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1 The technical communication profession

Technical communicators create documentation or other types of instructional information (e.g. websites, interface messages, topic-based content, interactive displays, videos, and social media content) to explain procedures and to accompany hardware and software products (Göpferich 1998:1–3). Tekom Europe (2017) explains that technical communication is a process which entails "defining, creating and delivering information products for the safe, efficient and effective use of products (technical systems, software, services)".

Although texts that explain how to use technologies and carry out procedures have existed for centuries, technical communication is a new occupational field, relative to more traditional occupations such as medicine and law. Technical communication developed as a profession during the twentieth century, in response to the expanding use of technology in society (Göpferich 1998:3–6). Furthermore, in the past two decades many services have become automated. Transactions previously carried out by experts (e.g. banking, paying taxes) must now be completed by users and citizens through e-government and self-service applications. Technical communicators play a role in explaining these applications to users.

As technology advances, the definition and job description have changed for technical communicators. Where they were previously known as 'technical writers', the term 'technical communicator' indicates that the job involves more than writing, but also encompasses other communicative competencies including visual design, usability and cultural competence. Recently, new job titles have emerged reflecting the trend towards digitisation, and the importance of a strategic approach to content development. Such titles include 'content strategist', 'digital editor', 'information architect', 'content specialist', and 'web content strategist'. Technical communicators may also have management responsibilities, and may be promoted to management functions.

The technical communicator's skillset is also expanding due to technology. They may undertake several information development activities, including: writing, information design, user experience, research, programming, web and multimedia development, structured authoring, and related tasks. They also need to be able to create content that can later be translated or localised.

The expansive and demanding skillset notwithstanding, many technical communicators in Europe enter the profession without educational qualifications or training. This situation has arisen because, firstly, since technical communication is a new field of work and a niche occupation, it does not have a prescribed curriculum. Technical communication is sometimes characterised as an area that anyone with a knowledge of grammar and an interest in technology can work in.

Secondly, although academic programmes in technical communication have existed for many years in some European countries, academic development is limited in others. In Germany and Austria, where the academic field of technical communication has been strong for decades, over 40 academic programmes are offered in technical communication or related fields, and programmes are offered at undergraduate and postgraduate levels (tekom 2015b). By contrast, in some European countries, there are no academic programmes in technical communication. Consequently, the number of graduates in technical communication is below the demand of the labour market (Straub 2015). In the German manufacturing sector, technical writers account for 1.3 % of all employees; the figure is 3.6 % in the software sector. Because of the shortage of graduates, companies may hire graduates from related study programmes such as translation or engineering to work as technical communicators.

This article describes the TecCOMFrame project, a European Union (EU)-funded project intended to address the shortfall in academic programmes in technical communication in Europe through several interrelated activities. The project, coordinated by tekom Europe, involves eight academic partners.

The article begins by outlining the context within which the project developed. It then discusses the project outputs and the working criteria for the project partners. Next, the Work to-date section presents the academic qualification and competence framework that has been created. This comprehensive framework describes competencies technical communicators should possess.

The second part of this article focuses on the relationship between the fields of technical communication and translation. As mentioned, technical communicators need to be able to create content that later can be translated or localised. Therefore, it may be beneficial if technical communicators and translators are familiar with each other's tasks. A sample curriculum is described for a technical communication stream in a Master's programme in Translation Studies. The article ends with conclusions.

2 Background to the project

Since 2003, tekom, the German Association for Technical Communication, has worked to produce training tools and programmes, and to identify the roles and competencies of technical communicators. These activities led to the development of the Cross-industry Competence Framework for Technical Communication. The Competence Framework:

> describes the occupational profile and potential job profiles in technical communication. It defines practice-based and action-oriented skills of the kind that are used in technical communication workplaces and the requisite qualifications. In doing so it focuses on the creation of information products.
>
> (tekom 2015a)

Following that successful project, tekom Europe, the European Association for Technical Communication, applied for EU funding for a related project, TecCOM-Frame. This project proposed the development of an academic framework and academic curricula at various levels. The project received funding (under the Erasmus+ programme in the area of Strategic Partnerships KA2: Cooperation for Innovation and the Exchange of Good Practices). TecCOMFrame (Technical Communication Competence Framework) was launched in September 2015. The project will run for three years (to September 2018).

TecCOMFrame is coordinated by tekom Europe and involves academic partners from universities in eight European countries: Belgium, Denmark, France, Germany, Ireland, Poland, Romania, and The Netherlands. Some of these universities have offered programmes in technical communication for many years, while others are working to establish programmes in technical communication. The primary partners in the project are listed in Table 1.

Table 1: Project partners

Institution	Contact person
tekom Europe e.V.	Daniela Straub
tekom Europe e.V.	Anke Neytchev/Julia Müller
KU Leuven	Birgitta Meex
Hochschule Karlsruhe – Technik und Wirtschaft	Sissi Closs
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Universitatea Politehnica Bucuresti	Voichita Ghenghea
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3 Outputs from TecCOMFrame

The project team is tasked with developing an academic framework for technical communication and corresponding curricula in technical communication, at various levels. Two additional outputs of the project are a competence and profiling tool, and an updated TecDocNet Guideline.

The first stage of the project, the development of a competence framework to describe the competencies that are important in technical communication education, was undertaken in the first year. This framework is partly based on the Cross-industry Competence Framework previously developed by tekom. However, since this framework is vocational in nature, it does not include competencies that should be taught in higher education programmes in technical communication. Because of the shortage of graduates in technical communication and since no prescribed curriculum exists, TecCOMFrame represents a complementary framework with an academic focus and scope. The goal was to develop an inclusive and comprehensive framework, designed to include both core and peripheral competencies. It should also include feedback and perspectives from the project partners, from research, and from stakeholders. This competence framework was published in early 2017, and is described in more detail in Section 5 of this article.

The second stage of the project, currently underway, is the development of prototypical curricula for higher education institutions. These curricula are derived from the competence framework and serve as exemplars for bachelor's and master's degrees in technical communication, and specialisation courses/academic streams in technical communication for curricula in other disciplines (such as engineering or language studies). Because country and institutional requirements differ, these curricula are indicative only. It is likely that individual institutions will need to refine them or develop curricula from the framework that correspond to their industry, country and institutional norms. Nevertheless, the prototype curricula serve to demonstrate the flexibility and utility of the framework. An example of one curriculum, for a technical communication stream in a Master's in Translation Studies, is included in Section 7. The sample curricula will be finalised and published in spring 2018.

A further output of the project is a competence and qualification profiling tool. This tool is also derived from the competence framework. This tool is comparable to the profiling tool developed for the Cross-industry Competence Framework for Technical Communication. It will have several target audiences, but primarily: technical communicators, who can use the tool to identify competencies they have, and those they need to acquire; and companies, which will be able to use the tool to express competencies they expect from technical communicators, and from higher education institutions.

The TecDocNet Guideline, published in 2005, describes professional education and training of technical communicators in Europe. It also includes a general description of the professional field, and descriptions of the current state of the profession and of the challenges the profession faces. The TecDocNet Guideline will be updated, based on new data and insights gathered from the project.

Both the profiling tool and the updated TecDocNet Guideline will be published at the end of the project, in autumn 2018.

4 Project criteria

The academic qualification and competence framework had to meet several requirements to serve as a basis for developing curricula and to be capable of being transformed into a profiling tool.

Firstly, the framework had to be *developed using a justifiable, comprehensible methodical procedure*. To define the content of the framework, empirical and iterative data gathering techniques were used. Partners first discussed which content elements to include in the framework. Subsequently, other stakeholders commented on the partners' decisions and offered feedback. Based on this feedback, the partners adapted the content and asked for further stakeholder feedback, in an iterative process. The content had to be described in a systematic, comprehensible way; therefore, Bloom's Taxonomy of Educational Objectives in the cognitive area (Bloom, 1956) was used to formulate the learning outcomes.

Secondly, the *characteristics and demands of academic training* had to be considered because the framework would be used to develop prototypes of curricula that could be implemented at higher education institutions in Europe. This requirement demanded several related and intersecting characteristics:

- The framework needed a broad scope, but also needed to describe in-depth knowledge and skills within subject areas.
- Since the field of technical communication changes rapidly, the framework needed to be flexible and responsive to be usable in creative, innovative ways and to adapt to changing roles.
- The framework had to include competencies related to management because technical communicators who have a university degree should be prepared for a management role and management tasks.
- As well as competencies specifically related to technical communication, the framework also needed to include general academic competencies such as theoretical knowledge, the ability to apply theoretical knowledge to justify choices in practice, the ability to apply research methods, and the ability to reflect and evaluate within the area of work.

Because all primary partners work at universities, they could judge whether the framework met these requirements. However, it was also important that stakeholders affiliated with other higher education institutions provided feedback on the framework and the prototypes of curricula.

The third requirement is related to the previous one: the framework should have the *potential to become a European-wide standard*. Therefore, it had to be consistent with current European concepts and tools, such as the levels defined in the European Qualifications Framework (European Commission 2016):

> The European Qualifications Framework (EQF) is a translation tool that helps communication and comparison between qualifications systems in Europe. Its eight common European reference levels are described in terms of learning outcomes: knowledge, skills and competences. This allows any national qualifications systems, national qualifications frameworks (NQFs) and qualifications in Europe to relate to the EQF levels. Learners, graduates, providers and employers can use these levels to understand and compare qualifications awarded in different countries and by different education and training systems.

The competence framework covers the higher EQF-levels, 5, 6 and 7[1].

- EQF-level 5: specialisation stream within another study programme in higher education;
- EQF-level 6: a study programme at bachelor level;
- EQF-level 7: a study programme at master's level.

The framework can, therefore, provide the basis for deriving curricula for bachelor, master and specialisation studies (e.g. for translation and engineering).

The fourth requirement is that the framework *offers a complete overview of all competencies that may be useful for a technical communicator with a higher level of education*. The framework had to be comprehensive, encompassing the full scope of potential relevant disciplines and covering all relevant topics. Not all technical communicators need to possess all competencies and higher education institutes do not need to include all competencies in their curricula. Technical communicators, industry and higher education institutions must be able to select competencies for their situation and as appropriate to their institutional and country norms. The prototypes of curricula, therefore, serve as examples of selections of a coherent set of competencies.

The framework also needed to be *user friendly*; higher education institutions, students and professionals in technical communication, and in related fields,

1 The highest EQF-level (8) corresponds with a study programme at PhD level. It may be included in a later version, but given the current level of development, it is more important to focus on bachelor's and master's study programmes. The number of these programmes should increase, before defining PhD programmes.

should be able to use this framework effectively and efficiently. The framework needed to be consistent in its terminology, generic in its content, and easy to understand internationally. Competencies needed to be clearly formulated and comprehensible.

Finally, the framework had to be *useful for industry*. It should reflect the qualification needs of the industry, resulting in high employability for students. To meet this requirement, it was very important that stakeholders form industry would provide feedback during its development.

Contributions from stakeholders

The partners have presented their progress at conferences organised by tekom Europe and at other conferences and events related to technical communication. The project has been presented at the CIUTI Assembly (2016) and the CIUTI Forum (2017) because of its relevance to translation studies (as will be outlined in detail in section 6). It would be impossible to develop a competence framework without knowing which competencies industry and service companies consider most important for contemporary, and future, technical communicators. Furthermore, it would be impossible to formulate new curricula without a comprehensive understanding of current curricula throughout Europe, and without knowing why these programmes are successful or how they might be adapted or improved.

A significant feature of this project has been the involvement of 'silent partners'. This project's silent partners include academics from Europe and the US, as well as practitioners and employers. A key activity for silent partners was the provision of feedback on the first draft of the framework. Following iterative development, in summer 2016 about 150 silent partners (about 100 from Germany and 50 from other countries) received a draft of the framework. They returned their (in some cases very extensive) feedback by the end of the summer. During a project meeting in September 2016, their feedback was discussed as a quality assurance activity and the team decided how to integrate the suggestions. The project coordinators responded to each silent partner to explain how their feedback was implemented in further developing the framework. Input from these stakeholders was exceptionally valuable.

5 Work to-date

Since the beginning of the project, partners have met regularly to reach a common understanding of the requirements and to identify procedures for completing

tasks. Face-to-face meetings are organised at least four times a year and web meetings are organised when needed. The academic competence framework was finalized in January 2017 (TecCOMFrame 2017).

The Academic Competence Framework

The first step towards developing a framework was to define the main subjects of relevance when studying technical communication at an academic level, together with the general competencies related to each subject. The project team aimed to compose a comprehensive list. An initial unordered list of 22 subjects was refined down to six main competence dimensions in the final framework.

The six dimensions are:

- Academic Perspective
- Communication and Culture
- Content
- Management
- Technology and Media
- Transversal Competencies

Each of these dimensions incorporates several subjects, as shown in Table 2.

Table 2: First two levels of the Academic Competence Framework

Dimension	Subjects
Academic Perspective	Academic research
	Philosophy and ethics
Communication and Culture	Communication theory and models
	Interculturality
	Multilingual workflow
	Terminology
Content	Content development
	Evaluation and user experience
	Information architecture
	Information mining
	Legal requirements and standards
	Training and e-learning

Table 2: (continued)

Dimension	Subjects
	Visualisation
Management	Corporate management principles
	Information management
	Project management
	Quality management
Technology and Media	Content delivery
	Domain knowledge
	Information technology
Transversal Competencies	Language skills
	Personal competencies

Within each major subject, there are further sub-subjects and corresponding learning goals that indicate competency attainment. Figure 1 shows sub-subjects of one subject within the Communication and Culture dimension (Multilingual Workflow) and the learning goals for one component sub-subject (Internationalisation). As can be seen in Figure 1, learning goals are expressed using verbs from the cognitive domain of Bloom's taxonomy, and the framework uses extensive cross-referencing to direct users to related subjects and sub-subjects. British English is used as the spelling convention.

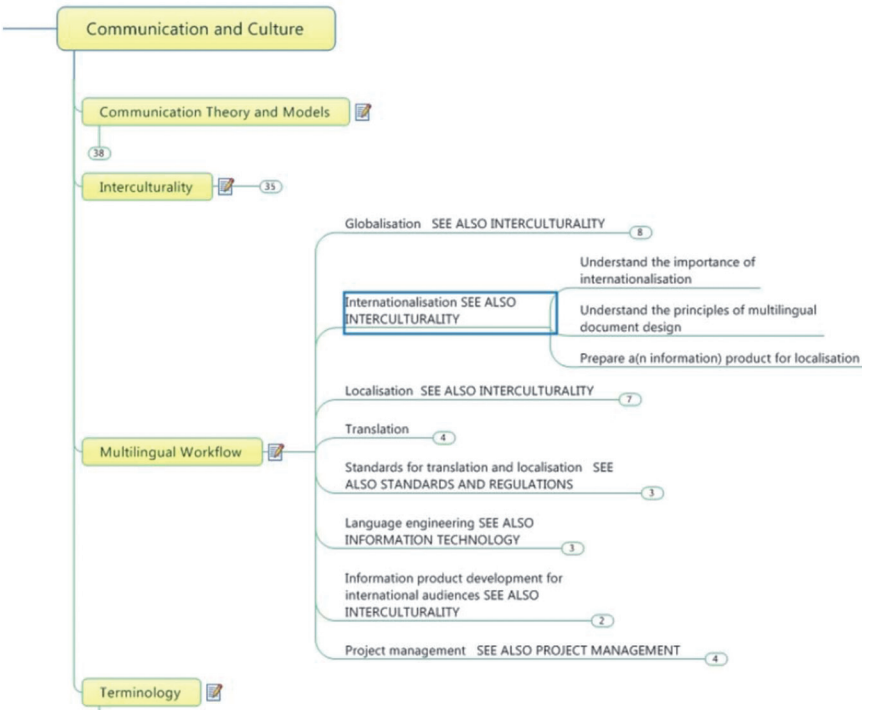

Figure 1: Excerpt from the Framework: Multilingual Workflow: Internationalisation. The full framework is accessible at: www.teccom-frame.eu/competenceframework.

The final framework comprises a total of 1,057 learning goals, indicating its comprehensive and inclusive scope.

The development of curricula

The framework is intended to serve as the basis for curriculum development. The project team has split into smaller teams to develop sample curricula at the following levels:

- Bachelor's degree in technical communication
- Consecutive master's degree (for students who have studied technical communication at bachelor's level)
- Non-consecutive master's degree (for students from any disciplinary background who have not studied technical communication)
- Subject stream in a master's degree in another field (e.g. language studies or engineering)

For each curriculum, teams filter content from the academic competence framework. The goal is to arrive at a coherent set of subjects, sub-subjects and learning goals that match the requirements of the specific programme. Teams then assign this content to programme-specific modules (since the competence framework does not include modules). Finally, they have to assign credit weightings to the modules, based on ECTS (European Credit Transfer System). A template agreed by all partners guides this process. Section 7 provides a detailed example of one prototypical curriculum for a technical communication subject stream within a Master's in Translation Studies. Before that, in the next section (6), the relevance of integrating technical communication training modules into translation studies programmes is outlined and discussed.

6 Crossing borders: Technical communication and translation

Several scholarly papers and projects have indicated technical communication's and translation's mutual interest and participation in interdisciplinary collaboration, both from a theoretical and from a practical point of view (e.g., Batova 2014; Batova/Clark 2015; Cleary et al. 2015; Flammia 2005; Maylath/King/Arnó Macià 2013; Maylath/Vandepitte/Mousten 2008; Maylath et al. 2013; Meex/Straub 2016; Minacori/Veisblat 2010; Mousten/Maylath/Vandepitte/Humbley 2010; Schubert 2010; Selfe/Selfe 2013; St. Amant 2000; St. Amant 2013). At an early stage of academic development, Göpferich (1998) even propagates Intercultural Technical Writing as a field situated between the different disciplines interested in this type of communication, also due to partial overlaps in the qualifications of, e.g., translators and technical communicators. These border-crossing activities occur in increasingly complex global and digitized settings with a focus on cross-cultural and multilingual communications and on the translation and localisation of a broad range of technical information products involving a network of distinct albeit related stakeholders. Besides the technical communicator and translator/localiser, these stakeholders include, for example, the initiator of the translation, subject matter experts (SMEs), other translation team members, terminologists, editors, as well as standardizing bodies, market surveillance authorities, and academic teaching staff (Schubert 2010:353). The aim of the interdisciplinary interaction and collaboration, which was accelerated by Information and Communication Technology and continuing globalisation, resulting in a huge increase in both the volume of translation and the number of languages, is to "co-operate" and exchange concepts, methods and best prac-

tices, "in a mutual enrichment", and to "build bridges" (Gambier/Van Doorslaer 2016:9–10).

As Meex/Straub (2016:144) have demonstrated, the strong inter-relatedness between technical communication and translation/localisation lies in the very nature of the process of global information product development itself in that "translation and localisation professionals typically use the output of the content creation process [in the source language] as an input for their own processes". In this respect, the technical communicator can be seen as the first player in the translation and localisation process, influencing both its quality and effectiveness and efficiency. Also, the Cross-industry Competence Framework for Technical Communication developed by tekom (2015a) reveals that many aspects of the information product development process are relevant to translation/localisation, for example with regard to preparing information products for translation/localisation (i.e. internationalisation), country-specific requirements, and terminology used (Meex/Straub 2016). Research has also indicated that the translation processes of translators who received training in writing instructions differ from the processes of translators who did not receive such training. This training resulted in beneficial effects on this process (Schrijver/Van Vaerenbergh/Leijten/Van Waes 2016).

However, although the processes for creating and translating information and the tasks that comprise these processes overlap and intersect, in many companies both processes still tend to be isolated from each other, with a gap existing between them. One way to bridge the gap and add value to the information product development process as a whole, is to employ knowledge, understanding, and preferably qualification in the respective "opposite" field, as already recommended by existing industry standards in both disciplines (viz. IEC 82079-1:2012 and ISO 17100:2015). For example, technical communicators and translators must have domain competence, cultural competence, and research competence, as well as linguistic and textual competence. For translators/localisers this means that they understand the global information development process, which will not only aid them to better recognise the complexities of creating source language content for international audiences and to evaluate the quality of that content, but also to optimise their skills and work processes as translators and localisers (Meex/Straub 2016:146–148).

One of the ambitions of the TecCOMFrame project is exactly to facilitate the interdisciplinary collaboration sketched above by laying the academic groundwork. To date, only a few European programmes in Translation Studies offer specific training modules in technical communication. Partners in the EMT (European Master's in Translation) network (https://ec.europa.eu/info/education/european-masters-translation-emt_en) that offer modules in technical communi-

cation are e.g. Cologne University of Applied Sciences in Germany and KU Leuven in Belgium. By means of offering a competence framework and samples of academic education programmes, the TecCOMFrame project wants to help fill this gap. As already stated, one of the prototype curricula is a specialisation curriculum targeted at master students in Translation Studies, allowing them to obtain an academic qualification in technical communication. The outline of this prototypical curriculum is described in the following section (7).

7 Prototype specialisation curriculum

The prototype of the specialisation curriculum presented in this section is a technical communication subject stream in a Master's programme in Translation Studies or another programme related to applied language and communication. This specialisation curriculum takes one semester, which equals 30 European Credits (ECTS). This prototypical curriculum is designed by the project partners. It describes the topics that master's students in translation should be familiar with if they would like to specialise in technical communication in order to gain relevant insights and basic skills. At the moment, no feedback from silent partners or other stakeholders has been collected. Therefore, this curriculum may be adapted in minor ways in the near future.

The design and the aim of the specialisation curriculum

Like the other curricula that are designed in this project, this curriculum is meant to serve as a prototype that does not have to be implemented as it is designed, but that should serve as a source of inspiration to higher education institutes that wish to implement a similar curriculum. The prototype should be adapted to the rules and regulations and to the needs and wishes of the specific institution, and to national rules and regulations.

Since the intended audience of this curriculum consists of students of a Master's in Translation Studies, it is assumed that they have excellent language skills, experience with text and discourse in general, and knowledge of communication theories and processes. The curriculum builds on the assumed prior knowledge and experiences of the students by offering modules in which prior knowledge experiences are used as a starting point to acquire knowledge and skills in technical communication. The aim of the curriculum is to educate future translators or communication specialists who possess basic but important competencies in the field of technical communication. This will primarily enable them to

efficiently collaborate with technical communicators and may enable them to perform some basic technical communication tasks themselves.

The prototype curriculum comprises five modules (see Table 3). These five modules are created by first selecting relevant subjects, sub-subjects and learning goals from the competence framework. After that, the sub-subjects are categorised into five groups, the modules. Each module includes one or more (up to five) subjects from the framework. Each subject consists of a number of sub-subjects, from two to nine; and the number of learning goals assigned to each of the sub-subjects varies from one to five.

The content of two modules is more restricted than the content of the other three modules. Therefore, fewer credits have been assigned to these modules: "Catching the context" and "Managing Projects". The other three modules comprise more credits. These modules are about the core tasks of technical communicators which are related to the process of designing and testing information products.

Table 3: Outline of the specialisation curriculum for a Master's in Translation Studies

Module name	ECTS
Catching the context	3
Planning	8
Creating and testing	8
Supporting planning and creation	8
Managing projects	3

Short description of the five modules

"Catching the context" and "Managing projects" are relatively small modules that provide the students with relevant background knowledge related to technical communication. At the start of a specialisation curriculum in technical communication, students have to learn about the context of this field. Firstly, in the module "Catching the context", the role of translation in technical communication is explained to explicitly relate prior knowledge to the content of this specialisation curriculum. Furthermore, students are provided with background content on legal requirements and standards and with some basic corporate management principles. Since this is an introductory module that should give the students a global impression of the context of the technical communication field, the module includes learning goals such as "knowing about a certain topic" and

"understanding a certain concept" rather than higher-level learning goals such as "analysing" and "evaluating" (Bloom 1956). An example of a learning goal in this module is "Understand the principles of multilingual document design." This learning goal is associated with the subject of Multilingual Workflow.

In the last module "Managing projects", students learn about the larger context of technical communication projects. They are provided with information on how these projects are managed. Since the students in a specialisation curriculum are not expected to manage technical communication projects themselves in the near future, this module includes learning goals that are formulated as "know about …". An example of a learning goal in this module is "Know about workflow, deadline and resource planning".

The three large modules "Planning", "Creating and testing" and "Supporting planning and creation" form the core of the curriculum. In the module on planning, the subjects are important when a technical communicator prepares to start designing an information product: information mining and information architecture. Both subjects include a number of sub-subjects that are each associated with a number of learning goals. Because it is expected that the students in a specialisation curriculum will learn to execute the most central tasks of a technical communicator, learning goals in this module are not restricted to the level of understanding. A typical learning goal in this module is "Determine and specify the product-specific themes for which information needs to be obtained".

The module on creating and testing discusses all topics that are related to the most important tasks of technical communicators: creating and testing an information product for a specified target group. An overview of this module is shown in Table 4. Students in specialisation curricula such as this prototypical one should not only be able to understand the core tasks of technical communicators, they should be able to create and test an information product (on a basic level). Therefore, higher-level learning goals are included in this module, for example applying and analysing.

The module "Supporting planning and creation" is concerned with a range of tools that technical communicators use to be able to create complex information products, such as mark-up languages, databases and content management systems. Although it is important that students in a curriculum with the same aims as this prototypical curriculum know about the tools technical communicators use and understand why these tools are important, students in a specialisation curriculum do not need to be able to work with the more complex tools themselves. Typical learning goals in this module are: "Understand database concepts and techniques" and "Know key concepts of XML/SGML meta language (e.g. well-formedness, validity)".

Overview of the module "Creating and testing"

Table 4 gives an overview of the content of the module "Creating and testing" as an example of the module design. It shows the subjects and the sub-subjects that are included, together with an example of a learning goal associated with each sub-subject.

Table 4: Subjects and learning goals of the module "Creating and testing"

Subject	Sub-subject	Learning goal (example)
Content Development	Types of information products	Specify and select types of information products
	Product life-cycle support	Dovetail the development of information products with product development
	Information creation planning	Understand the stages in the writing process
	Continuous improvement process	Understand how to analyse data from evaluation and user experience
	Content development process	Draft content
	Standardisation methods	Understand language standardisation (e.g., depending on translatability)
	Writing according to rules and guidelines	Use plain and controlled languages
Visualisation	Concepts on visualisation and information design	Understand visual rhetorics
	Digital design	Design comprehensible tables and diagrams
Evaluation and User Experience	Usability and user experience	Apply usability methods
	Evaluation	Understand different methods of evaluation and select appropriate methods
	Corporate feedback	Analyse and evaluate corporate feedback
	User feedback	Assess user feedback and its meaningfulness
	Observation	Conduct user observation and self-testing

Table 4: (continued)

Subject	Sub-subject	Learning goal (example)
	Web feedback	Use web monitoring methods (e.g., click rates)
Quality Management	Quality management methods	Define quality in information products
	Quality assurance	Understand quality assurance for text, illustration and structure
Content Delivery	Printed material	Know about specifications for printing (formats, paper quality, bindings)
	Digital printing	Know the requirements on content for digital delivery

8 Conclusions

The main ideas behind the above deliberations are twofold: First, we wanted to show the developed competence framework as a suggested basis for developing academic programmes in the field of Technical Communication. Secondly, we wanted to demonstrate how this framework may be used when developing modules to be implemented as parts of existing educational programmes, in order to offer relevant specialisations.

We consider this second idea very important for the development of skills and knowledge on Technical Communication among relevant professionals. There is no doubt that actual needs exist for complete bachelor's and master's programmes at academic level in the field of Technical Communication in order to comply with the needs in the industry. However, the everyday economic and conceptual reality of university level education in Europe does not make it easy to establish such full programmes in countries without a relevant tradition (like for instance Denmark) as a first step. The model of subject streams for existing related programmes is probably often a more viable first step in order to start the process of establishing the relevant skills and knowledge in the professional world. The prototype curriculum presented for such a subject stream in a translation programme at master's level hopefully may function as inspiration, if not through direct adoption then as a basis for consideration about how to adapt and supplement the ideas to concrete situations at universities in Europe.

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